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Socio-economic Determinants of Income Generation in the Informal Sector of Nepal – A Case of Chitwan District

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DRAFT PAPER

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Nepal is a landlocked economy with low level of development and highly instable pattern of economic growth. Nepal has recently gone through many phases of political turbulence and these were of different nature. It has also been experimenting with the democratic system and the recent experiment also does not seem to be quite encouraging. Its economic implications might be in the form of weak strategy with regard to economic growth and development. The country has not been able to show economic growth rate that might be considered sufficiently high and sustainable to take care of the chronic poverty, unemployment and lack of economic opportunities. It is under these circumstances that in developing economies informal sector has been occupying significant space.

Informal sector has been in operation for ages. Initially economists did not take note of it and the job was done by the sociologists and the anthropologists. Hart (1970, 1973), a social anthropologist, is considered to be the fist to bring the concept of informal sector in developing countries in the academic discourse. Although his original concept confined the concept to be used for self employment, his notion later helped in using the concept for theoretical models of development and in national accounting (Gerxhani, 2004; p. 269). However, it got formally recognized as a fillip to modern economic activities only recently in 1972 when the International Labor Organization (ILO), in its Kenya Mission Report, recognized "informal sector" to describe the activities of the working poor who were working very hard but who were not recognized, recorded, protected or regulated by the public authorities[1]. In fact, this major sector finds more relevance in developing economies as Papola (1980) argues that in developing economy, being dualistic economy, small and tiny production units run in unorganized and informal ways and mostly on self-employment basis. Informal sector may be in the farm sector as well as in the non-farm sector. The informal sector is characterized by low productivity, low investments, poor working conditions, long and uncertain working hours, low wages, poor market conditions and poor institutional support (UNESC, 2006; Papola, 1980; Ruffer and Knight, 2007)[2]. Role of the informal sector has been underlined to reduce income inequality in a developing economy in the long run in conformity with the Kuznets inverted U-curve. However, initially the inequality may increase and then

[1] Gerxhani (2004) says that there is no need for any universal definition of the informal sector. He further elaborates distinction of the concept of the informal sector in different country contexts. He discusses personal correspondence with a scholar (Jim Thomas) and argues that the 'informal sector' should be called the 'black economy' for developed countries, the 'informal sector' for developing countries, and the 'second economy' for transition countries. However, he uses the term informal sector to describe all these in his paper.

[2] Mcneill (2006) observes that the number of alternative definitions of the informal sector exceeds one hundred.

decline. Even when it starts declining it may not be a continuous process as it may keep on increasing intermittently before finally declining (Bhattacharya, 2007).

Reasons broadly attributed by economists for joining the informal sector in developing countries may be to safeguard poor and marginalized from poverty, destitution and unemployment but a detailed picture offers quite interesting explanations. Marcouiller et al (1997) have offered an array of factors through extensive literature survey. These factors may be like: informal sector might be the second best choice after the formal sector; informal sector being unregulated by the institutions or the society; household care may be ensured while pursuing the informal sector activities; independence from regulated and low paid jobs; more remunerative for many; low wage jobs in secondary labor market fails to reward the investments in human capital like schooling and skill formation; etc. He infers from his study that Mexico offers to showcase greater inclination towards informal sector because of greater returns in this sector and hence people there joined informal sector as a matter of choice. However, at this Berman (1980) finds that there are some behavioral barriers to entry in the informal sector like scarcity of jobs, informal sector activities being controlled strongly by the locals and natives, low returns and dualistic pattern of labor market, etc[3]. Based upon his study of informal sector in Calcutta city (India) Romatet (1983) argues that in the informal sector wage rate is not guided by the productivity but is determined arbitrarily at the subsistence level. Baes upon Latin American experiences, Jonakin (2006) has added that informal sector is being known for a 'second-best' solution to a systemic problem of excessive government. He argues that informal workers were generally praised for their entrepreneurial skill, their extensive presence and poverty were indications of an underlying systemic failure. Thus, there are a large range of expectations from the informal sector in a developing economy particularly which are not well mobilized like the Nepalese economy. We take up the case of the Nepalese economy through a case study of one of its districts, Chitwan district, to estimate the impact of the informal sector on poverty removal. We shall also be looking into various socio-economic variables that seem to affect earnings in the informal sector.

Background of the Nepalese Economy:

Nepal is a slow developing economy with a population of 23.2 millions in 2001. In Nepal average growth rate of population has been well above 2 percent annually and there seems to be no apparent moderation in it. As a result population density has increased from 64 persons / km^2 in 1961 to 157 in 2001. It appears that the pace of demographic transition has been slow in Nepal as we find that the total fertility rate was 3.1 in 2006 and the crude birth rate was 28.4 in the same year (Economic Survey; 2008; 106). Even

[3] Williams and Windebank (1994) come to the conclusion based upon his study of the European nations that the informal sector activities are not homogeneous in nature and it is has dualistic pattern like its counterpart formal sector and often it behaves like the formal sector as far as the heterogeneity in the informal sector is concerned at different levels and dimensions. "In sum, the nature and extent of the informal sector in any locality is the outcome of a cocktail of factors, composed of a range of economic, institutional, social and environmental influences, which combine in multifarious ways in different localities and regions to produce particular local outcomes". (p. 823)

the mortality rates, including the infant mortality rate, have been higher The economy has very irregular pattern of economic growth. Long-term growth trend shows that the annual growth of the GDP has been 4.25 percent per annum during 1964-65 to 2001-02; different sub-periods show that it increased from 2.14 in 1964-65 to 1974-75 to 4.23 in 1975-76 to 1990-91 and finally to 4.62 percent during 1991-92 to 2001-02 (Agarwal and Upadhyay, 2006, 58). However, in the recent years this trend seems to be slipping downward as the annual growth rate has come down to 3.34 percent per annum during 2000-01 to 2007-08. This decline might be attributed to poor performance of the non-farm sectors notwithstanding some better performance of the farm sector. This trend was set in the 1990s as well but that time the decline in the non-farm sector has not been that sharp. This shows that the Nepalese economy has still not been able to move sufficiently and with confidence. Its reflection gets manifested in terms of poverty and unemployment.

Poverty in Nepal, like other developing countries, is mainly absolute where a group of people survives even without basic means of living and nourishment. Nepal has a large section of population under poverty. In 1995-96, 41.76 percent of the country's population was below poverty line that has now come down to 30.85 percent in 2003-04 (Economic Survey; 2008; 104). Still, the poverty size in this Himalayan state has been very high. The poverty has been more in the rural area than in the urban area. Employment scenario in the economy was not very good and this became worse due to conflict in the country[4]. According to the Economic Survey 2007-08, in Nepal 5.1 percent of the population (10 years and above) was unemployed as per 2001 census. However, according to the Nepal Living Standard Survey 2003-04, 2.9 percent of the population aged 15 years and above was unemployed. The incidence of unemployment was more among the males than females. The youth unemployment rate was quite high at 15.0 percent causing a situation of economic distress in the economy.

Although, there have been efforts by the Government of Nepal to mitigate poverty and unemployment, the situation seems to be still not fully manageable due various reasons like structural constraints, poor governance, political conflict, etc. If we look at some of the macroeconomic indicators, we can find that the Nepalese economy is still under the grip of low level of economic development. Gross domestic savings rate was 9.7 percent in 2006-07 and the gross investment was 28.0 percent necessitating huge amount of borrowings. This is also reflected in huge gap between exports and imports leading to wide trade deficit (18.0 percent in 2006-07). It is expected to go up further. However, a large number of Nepalese workers working abroad have been a great source of relief to the economy as their remittances have been around 14 percent of the GDP. Thus, the economy does not seem to be moving properly and sufficiently to imbibe a sense of

[4] The Economic Survey of 2007-08 has noted that 'The decade long conflict in the country in the past negatively affected industries and factories … Consequently a number of workers working in these industries and factories were deprived of employment. Furthermore, due to the government's campaign of creating a small and efficient administration, new opportunities for employment could not be created, which increased the number of unemployed.' (p. 112)

confidence even in the modern economic activities as we have already seen that the non-farm sectors' performance has not been encouraging.

Informal Sector in Nepal

Economic profile of Chitwan district: Given the above, poor and marginalized need to find some means of livelihood. Informal sector may be a good source of livelihood. To understand the significance of the informal sector in Nepal, we take up the case of the informal sector in Chitwan district. It is one of the seventy-five districts of the country. It is also known as 'Rapti Valley'. The district covers 2238.39 km^2 in Central – Southern Nepal. Dhading district, Makwanpur district and Parsa district in the east, Nawalparasi district and Tanahun district in the west (Narayani River), Gorkha district and Dhadhing district in the north and Bihar state of India in the south make the boundary of the district. Chitwan has a population of 470.7 thousand in 2001 and growth rate of population has been very high; this is also being contributed by immigration. Around 27.5 percent population was urban while the remaining was rural. Sex ratio has been favorable to women. Chitwan district has a very strange age structure where in 2001, the ratio of child population (0-14 years) was 71.4 percent) while elderly population (65+ years) accounted for 6.3 percent of the total population. This leaves less than one-quarter (22.3 percent) of the population in the working age group. Therefore, even children have to engage in the earnings. Majority of the land holdings in the district was marginal (55.5 percent) while medium and big land holdings were together less than 1 percent. Thus, the farming sector does not imbibe much confidence. According to the CBS Industrial Census 1997, there were only 71 manufacturing units with a total employment of 3755 persons and total fixed capital of Rs 432 millions (the average fixed capital per unit was 6.1 million). This underlines narrow industrial base in the district. There seems to be more employment in the cottage industries in the district as in 2001/02, total employment in this sector was 8130. However, there seems to be large scale dropouts of the cottage industry units as there was a registration of 2767 units but renewal was performed by 1784 units. Only 3.1 percent of the active population in Chitwan is employed in the industrial sector where relatively large number of cottage industries is found like in the Nepalese economy. Thus, it appears that the economic base is not widened and it remains at low level without much diversification in the district of Chitwan.

In this backdrop we study role of the informal sector in the rural and urban locations of the district. In rural areas we take up only non-farm activities where business activities are generally traditional and less progressive whereas in urban area these are more modern, more dynamic and more diversified. Given this, we have taken a total sample size of 418 wherein 266 (63.6%) were in the urban area and the remaining 152 (36.4%) were from the rural area. The urban area has been split into U_1 and U_2. There are two municipalities in the district: U_1 refers to the old and developed municipality of *Bharatpur Nagarpalika* whereas U_2 refers to relatively new and less developed *Ratnanagar Nagarpalika*. Rural area is inhabited by the villagers and the VDC (Village Development Committee) lies in the area.

Sampling method: Meanwhile, the experience gained in a number of countries has shown that survey data on the informal sector can be obtained with acceptable quality

provided the survey design and operations are adapted to the particular characteristics of the informal sector. This may require modifications of traditional survey methods or even the development of new methods. Informal sector employment and/or unregistered employment have been measured through household surveys by a large number of countries. In Nepal, unregistered employment used to take information from informal sector through 'Report on the Nepal Labor Force Survey-1998/99. The present study assumes that the informal sector activities are unregistered which was the case in Nepal. Mixed household and enterprise surveys have proven to be the most suitable survey approach if the aim is to collect comprehensive data on the informal sector as a whole and the various segments. Independent informal sector surveys using mixed household and enterprise survey approach which has been used in India to collect the data in informal sector or unorganized sector, are based on a multi-stage design involving following steps:

1. Selection of sample areas as PSUs.
2. Household listing or interviewing
3. Selection of sample households with owners of informal sector businesses as USUs
4. Main interviewing of sample households and business owners.

The present study has mainly followed this method to take information from rural areas. It has to try as far as possible by using appropriate size, stratified according to the density of informal sector activities of different types of occupations. Some types of informal sector activities which tend to be concentrated heavily in specific areas, with a view to ensuring an adequate representation of all such activities in the sample and reducing clustering effects which may be seen in urban areas. To cover the homeless respondents in informal sector, it was tried to obtain the information at the working spot both in urban as well as rural areas. Many informal sector activities are subject to seasonal and other variations over time. The information of informal sector activities were taken within three months' period and the questionnaire has included most of the activities which had been done within one year and at the time of interview.

Table-1: General features of the household indicators

Location	Sex	Sample size	Average HH size	HH Depend-ency ratio (%)	No. of Unemp. / number of emp.	No. of emp. / family Size	Average HH literacy level (yrs)	HH property (million NRs)
U_1	Male	122 (29.2)	4.96	39.74	0.587	0.406	3.57	0.248
	Female	62 (14.8)	4.40	28.85	0.524	0.502	5.34	0.256
U_2	Male	61 (14.6)	4.43	39.32	0.628	0.409	3.68	0.182
	Female	21 (5.0)	4.57	45.44	0.381	0.430	3.68	0.200
Rural	Male	118 (28.2)	4.93	44.29	0.586	0.380	2.94	0.182
	Female	34 (8.1)	4.82	35.61	0.466	0.470	4.26	0.203
All		**418 (100.0)**	**4.76**	**39.30**	**0.563**	**0.420**	**3.73**	**0.215**

Background of the respondents: We may begin with the respondents' characteristics. Table-1 brings out that 36.1 percent respondents were rural while 44.0 percent were from U_1 and 19.6 percent were from U_2. Of the total, 27.9 were women respondents and the remaining were males. In some respects, U_1 and rural locations show some common features that may be different from the U_2. Households where women unlike the men were the respondents in U_1 and rural locations showed that the average size of the household as well as the dependency ratio was lower. Besides, women respondents seem to have higher incidence of employment (or lower unemployment), higher literacy rate in the household, and higher household property in their households in all the three locations. Thus, in the beginning itself, it appears that where women were engaged in the informal sector, the socio-economic indicators of such households were found better.

Table-2: Location-wise distribution of literacy levels and dependency ratio

Characteristics	Location						Sex		
	Rural	Urban	U_1	U_2	$Z_{r.u}$ values	Z_{u1u2} values	Male	Female	Z value
Literacy level (average schooling years)	4.52	5.48	5.70	4.98	2.91*	1.64	5.09	5.23	0.393
HH Literacy level (average schooling years)	3.24	4.02	4.17	3.68	3.04*	1.36	3.35	4.73	5.109*
Dependency ratio (%)	42.35	37.55	36.07	40.89	2.21**	1.65	41.44	33.79	3.305*

*significant at 0.01 level; ** significant at 0.05 level

Now we may analyze the pattern of education (Table-2) among the respondents and their households in different locations and sex wise as it seems to be an important variable and later an important determinant in the success of the informal sector enterprise. It may be found that the respondents' literacy level has been more than the overall households in all locations and sex. Literacy level of the respondents has been more in the urban area than in the rural area and the difference was estimated to be significant. However, between U_1 and U_2 or between male and female respondents it was not significantly different. But in case of household literacy level the difference was estimated to be significant between male and female respondents' households. It was so between the rural and urban households as well but not between the households of the two urban locations. This implies that in a broader manner the education has been changing with the sex and female headed (where women were leading the informal sector enterprise) households were better just like in the urban location the respondents had more schooling.

Although it might not be directly linked with the education, but providing formal or semi-formal training to the respondents to carry out their work in the informal sector might assume significance. Training raises the level of skill formation and thereby the efficiency level of the persons is supposed to be enhanced that becomes helpful in more returns. It also demonstrates a type of institutional mechanism that is functioning to raise the working style of the people engaged in the informal sector where there might be

much greater scope of skill development. Table-3 demonstrates that majority (66.7 percent) of the respondents did not receive any training. However, the training was given more to men that women respondents. There does not appear to be any clear trend when looked through different locations. Still, it might be derived noted that the discrimination has been the worst against the women in rural areas and the least in the U_1 (that is highly urban context). This demonstrates that there has been some element of bias against women when it is extending support to them through skill formation although its actual extent remains to be studied[5].

Table-3: Training status in the study areas

Location	Sex	Trained	Untrained	Total	Trained (%)	Untrained (%)	Total (%)
U_1	Male	42	80	122	34.4	65.6	100.0
	Female	13	49	62	26.5	73.5	100.0
U_2	Male	30	31	61	49.2	50.8	100.0
	Female	5	16	21	23.8	76.2	100.0
R	Male	46	72	118	39.0	61.0	100.0
	Female	3	31	34	9.7	90.3	100.0
Total	Male	118	183	301	39.2	60.8	100.0
	Female	21	96	117	21.9	78.1	100.0
	All	139	279	418	33.3	66.7	100.0

Before we move to estimate employment and earnings from the informal sector activities, it would be helpful to understand different parameters which seemingly play crucial role in determination of income and employment in the informal sector. Table-4 provides information on various important dimensions. We may infer some major points now. Average initial investment has been higher in the urban area than in the rural location. Besides, there appears to be lower initial investments in the units run by the females. Probably this is the reason that the reinvestment period is somewhat higher in case of female respondents. Thus, women entrepreneurs were found to use the investments with greater efficiency as the reinvestment amount was also found to be lower by the women than men. Women entrepreneurs seem to be more helpful in employment generation in all the locations. Besides, they get greater support from the household members in running their business. However, the training imparted to them, as discussed above, has been far lower in all the locations. All these suggest that despite being more efficient, there is some in-built system of bias against the women entrepreneurs. This might be inferred because we find that women entrepreneurs have been more articulate in mobilizing resources through the microfinance activities because the governmental financial support

[5] In developing countries training is no doubt important for skill development for raising efficiency. However, Leach (1996) argues that even the traing agencies need to be capable of imparting good quality training particularly to women engaged in the informal sector. Besides, there is need to know precisely whether training itself would be sufficient or it should be packaged with the credit or it should only be credit.

was found to be too little as in the total sample only 13 respondents could get the benefit from the government and it was mainly in the rural area.

Table-4: Some important parameters defined through sex and region

Parameter	Urban-1 (U_1)		Urban-2 (U_2)		Rural (R)	
	Female	**Male**	**Female**	**Male**	**Female**	**Male**
Number of respondents	***62***	***122***	***21***	***61***	***34***	***118***
Initial Investment (NRs)	22115	24661	20819	29060	16241	20017
Reinvestment period (number of days)	2.33	2.29	1.90	2.86	2.03	3.30
Amount of reinvestment (NRs)	2663	3841	2738	3721	3668	2906
Household employed (number of persons)	2.16	1.93	1.90	1.67	2.21	1.81
Support from the family members (%)	65	33	76	25	82	48
Training time (years)	.152	.367	.010	.323	.004	.255
Number of persons receiving government monetary aid	1	4	0	0	2	6
Average government aid (NRs)	10000	55000	0	0	15000	25333
Number of beneficiaries of loan from microfinance	11	19	4	8	14	60
Ratio of beneficiaries of loan from microfinance (%)	17.7	15.6	19.0	13.1	41.2	50.8
Average amount of loan from microfinance (NRs)	18364	15026	12000	11750	13500	15658
Harassment from different quarters (%)	40.3	40.2	42.9	44.3	17.6	19.5
Share of respondents in moving categories (%)	33.9	45.1	33.3	50.8	32.4	30.5

Pattern of employment: Here we did not make any comparison with the formal sector. However, we need to understand the pattern of employment in the informal sector. It is believed that the informal sector is managed by one's own labor as well family labor and sometimes hired labor also. We may have a glance in this respect at Table-5 that gives a very curious result. Taking all the persons sampled, we find that almost three-quarters (73.4 percent) of the units were run by the respondents themselves or with the support of the family members. It is further interesting to observe that almost 18 percent of the units

were run where the respondents was not working and the work was being done by the family members or wage earners. In some cases even unpaid workers were employed and they were simply hired casually on subsistence basis without paying any regular wage in cash. It shows that there is further degree of informality within the informal sector. Thus, if people are engaged from outside the family, it could be wage earners as well as unpaid workers. The latter hints at the prevalence of large scale poverty in the area that may force some people to work just on subsistence and the do not insist on wage payment in cash.

Table-5: Nature of employment in the informal sector

S. No.	Types of employment	Persons		Male		Female	
		N	%	N	%	N	%
1.	Self-employed (single person)	159	38.0	130	43.2	29	24.7
2.	Family members employed	148	35.4	81	26.9	67	57.3
3.	Family & unpaid others employed	6	1.4	6	2.0	0	0.0
4.	Family, unpaid & wage earners employed	40	9.6	26	8.6	14	12.0
5.	Self-employed & wage earners employed	36	8.6	33	11.0	3	2.6
6.	Wage earning employed	29	6.9	25	8.3	4	3.4
Total		**418**	**100.0**	**301**	**100.0**	**117**	**100.0**

The pattern of engagement or employment differs when we compare male and female run units. Male respondents mostly depend (43.2 percent) on self-employment followed by engagement of family members (26.9 percent) whereas women respondents mainly and with greater emphasis depend upon family support (57.3 percent) followed by self employment (24.7 percent). This underlines that the women are more articulate in mobilizing household support unlike their male counterparts who basically depend upon themselves or wage earners and unpaid workers. Women generally do not prefer to employ wage earners when they themselves are involved. However, when they are not directly involved they may hire wage earners along with the family members. Thus, women mainly depend upon the household support and themselves whereas men depend upon themselves, household and wage earners as well as unpaid workers.

Women are found to be hard workers if compared with their male counterparts engaged in the informal sector (Table-6). We have divided a year into four seasons – summer, rainy, autumn and winter. It is found that women have been putting in longer working hours in all the seasons as compared to men. It is estimated that barring in summers the difference in the working hours by women and men are significantly different. Similarly, women on an average were found to be working more in a month as the average working days for women have been more in all the seasons in a year and it was significantly different than working days of men. What has been more curious and this also supports our earlier claim that women respondents have been more articulate in mobilizing greater

family support in running the informal sector activities. It is estimated that in all the four seasons average daily working hours by family workers have been more when women were looking after the activities. This difference was found to be significant during rainy and winter seasons. So from this discussion we can derive that women engaged in informal sector economic activities have been working hard and putting in more working hours in a day and for more days in a month. Besides they have been getting greater family support in running their enterprises[6].

Table-6: Sex-wise distribution of seasonal working status

Seasons	Female (n=117)	Male (n=301)	Differences in mean	Z-values
1	2	3	4 (2-3)	5
Average monthly working days in				
Summer	27.45	26.35	1.10	3.004*
Rainy	25.58	23.90	1.68	2.384**
Autumn	26.79	25.54	1.25	2.674*
Winter	26.85	24.92	1.93	2.925*
Average daily working hours in				
Summer	10.34	9.96	0.38	1.451
Rainy	10.11	9.24	0.87	2.209**
Autumn	10.23	9.68	0.55	1.970**
Winter	9.85	9.16	0.69	2.152**
Average daily working hours by family member in				
Summer	5.73	4.99	0.74	1.686
Rainy	5.78	4.78	1.00	2.202**
Autumn	5.72	5.60	0.12	0.268
Winter	5.82	4.75	1.07	2.818*

*significant at 0.01 level; ** significant at 0.05 level

A little more exercise would help in understanding the size distribution of the informal sector enterprises through location and also through mobility of the enterprises. We may divide the informal sector enterprises into three size categories based upon number of employment: Own account worker (1 person); Micro enterprises (2-4 persons); and small scale enterprises (5-9 persons). It is found that 42.8 percent enterprises were own account while 53.8 percent were micro enterprises. The small scale enterprises were only 1.3 percent of the total sample size. It is interesting too observe that in rural area micro enterprises (64.5 percent) were more than the own account enterprises (34.2 percent) unlike in the urban location where the micro enterprises and own account enterprises were having equal share (47.7 percent) while the small scale was 4.5 percent. In terms of mobility, it is found that fixed location enterprises were more than half (59.0 percent)

[6] In a study of Kenya district, Aspass (1998; 201) finds that women heading households and running informal sector business were marginalized in terms of resources and earnings. Such women also were found to have less degree of kinship support. This is in contrast to our findings for the Chitwan district. However women entrepreneurs in Kenya district and Chitwan both had less investment funds at their disposal.

followed by the mobile (29.7 percent) and semi-mobile (11.2 percent). There is a sharp contrast between the mobile and fixed enterprises as the former has mainly Own account worker enterprises (69.4 percent) whereas the latter has mainly the micro-enterprises (68.8 percent). This is due to the fact that the mobile enterprises are mainly small and being managed by one worker whereas there might be greater scope to expand the fixed enterprises where there might be greater requirements of workers who come from different sources like family and wage earners.

Table-7: Household earnings by mobility, industry and nature of employment

Mobility	N	Av. HH Earning from IS (NRs)	Av. HH Earning from OS (NRs)	t-values	Correlation Coefficient (r)
Household earnings by mobility					
Mobile	124	73207	14416	15.31*	-0.019
Semi-mobile	47	72236	13586	8.30*	-0.096
Fixed	247	90418	15350	20.12*	-0.050
Household earnings by types of employment					
Self-employed	159	65193	13747	16.92*	-0.018
Family member employed	148	83892	16176	15.62*	-0.184**
Family & unpaid other employed	6	85000	9500	6.92*	0.594
Family, unpaid & wage earner employed	40	139030	14800	10.74*	-0.038
Self-employed & wage earner employed	36	121111	20722	10.63*	-0.070
Wage earner employed	29	54931	8376	9.86*	-0.349

*significant at 0.01 level; ** significant at 0.05 level

Income generation in the informal sector in Chitwan district

The above discussion might indicate that the activities in the informal sector have been highly heterogeneous in many ways like size, number and pattern of employment, area distribution, mobility of the enterprises, and sex wise distribution of the enterprises. We shall be discussing later the distribution pattern of the enterprises in terms of community or caste. Such pattern might have its impact on earning levels also. We may find that earnings have not been same for different categories. To begin with, we may have a glance at Table-7. From this table, it is brought out that the respondents engaged in the informal sector enterprises are taking this as their main occupation. At the same time they are also having some other source of earnings in the households. Thus, looking even at the level of the households of the respondents it is obvious that they are treating the informal sector activities as their primary or main occupation while some members in the family might engage in the secondary occupation to supplement the household incomes. However, what is interesting that the level of income from the informal sector activities has been many times more than from the secondary occupation. There does not appear any specific relationship between the earnings from the primary and secondary occupations in the households engaged in the informal sector.

Earnings from the fixed enterprises have been more than from the mobile and semi-mobile enterprises. The mobile and semi-mobile enterprises have almost same average level of earnings. This is somewhat linked with the earlier analysis that showed that the fixed location enterprises generally engage more workers while mobile and semi-mobile are mainly own account worker based. Such pattern needs to be analyzed further in a separate study as the two have different pattern of seller-buyer relationships and many other things are also likely to impact their operations. If we now look at the earnings from the informal sector based on nature of employment in different types of enterprises, it is generally found that the earnings have been more when wage earners are also engaged along with the family members or with oneself (respondents). However, if it is left to the wage earners alone, the earnings have been the lowest followed by the enterprises where respondents were working alone. One further point needs to be noted here. Generally there has not been any trend, as argued earlier, in relationships between the earnings from the informal sector enterprises and other earnings in the household. But in case of enterprises where it was operated by the family members the relationship has been inverse showing that if family members get engaged in the main activity, their subsidiary or secondary occupation gets ignored.

From these arguments it appears that the number of the workers in any enterprise makes impact on the overall earnings from any informal sector enterprise. Besides, there are other likely determinants. We now make efforts to estimate the income function in the informal sector in Chitwan district based upon data collected from a large number of respondents. We would be doing it through different ways to have a better understanding of the various dimensions of the informal sector in a poor economy like Nepal that might have some broad relevance for other such economies.

How the informal sector earning has been affected by changing household properties, labor forces, education, etc was also examined using multiple regression technique in log linear form, i.e., Cobb-Douglas types of production function. In functional relation,

$$Yi = f(HHP, ISL, LitL)$$

Cobb-Douglas form $Y_i = A \times HHP^{\beta_1} \times ISL^{\beta_2} \times LitL^{\beta_3} \times u_i$; Where $\beta_1 + \beta_2 + \beta_3 = 1$

Using natural Log, $\log_e Y_i = \beta_{oi} + \beta_{li} \log_e HHP + \beta_{2i} \log_e ISL + \beta_{3i} \log_e LitL + v_i$

Where $\log_e u_i = v_i$; $\beta_o = \log_e A$

Where, Y_i = per day household earning from informal sector

HHP= Household properties of the respondents in informal sector activities.

ISL = Number of supply of labor in informal sector activities.

LITL = Literacy level (No. of schooling) of the respondent.

β_0 = constant; $\log_e$= natural log based on 'e'

β_1 = coefficient or elasticity of household properties (HHP)

β_2 = coefficient or elasticity of number of supply of labor in informal sector (ISL)

β_3 = coefficient or elasticity of literacy level (schooling years) of respondents (LITL)

Table-8 provides some interesting and useful inferences based on the above estimates. Here the estimates have been for the rural-urban and male-female. It shows that the

determinants of income have been behaving differently. One common refrain from this table has been that the level of education, that is, number of schooling years, has been the common and most important determinant for income generation in rural as well as urban areas and among males and females. However, unlike the earlier inference that number of workers in the informal sector enterprises help in raising the income level of such enterprises does not get support from the regression estimates. The number of workers has been significant determinant of income only in women run urban informal sector at the aggregated level only. Even there, it does test significant for U_1 and U_2 taken separately. However, in most cases household property seems to have significant bearings on income generation in the informal sector in Chitwan district. But the informal sector enterprises run by the urban females and females in U_1 did not experience any such reinforcements. Although we do not have any direct reasoning for that, still we might derive that it would have been due to poor background of women entrepreneurs or else they failed to seek advantage from the household properties for different unexplained reasons.

Table-8: Estimation of income earning functions by locations and sex

Location	Sex	Estimated coefficients					
		β_0	β_1 (Household property)	β_2 (Labor force employed)	β_3 (Literacy level of the respondents)	F-test	R^2
U_1	Male (n=122)	9.467 (97.740)*	0.657 (8.723)*	0.014 (0.332)	0.723 (9.504)*	362.943*	0.915
	Female (n=62)	9.367 (77.070)*	0.470 (6.745)*	0.029 (0.621)	0.856 (10.174)*	426.293*	0.966
U_2	Male (n=61)	9.617 (116.376)*	0.448 (6.976)*	-0.027 (0.689)	0.751 (11.262)*	352.789*	0.954
	Female (n=21)	8.597 (26.839)*	0.309 (1.231)	0.011 (0.072)	1.329 (5.424)*	43.379*	0.909
Urban	Male (n=183)	9.115 (101.770)*	0.092 (2.416)**	0.030 (0.856)	0.863 (22.074)*	203.258*	0.888
	Female (n=83)	8.455 (69.951)*	0.047 (1.090)	0.139 (3.449)*	0.863 (18.752)*	169.059*	0.914
Rural	Male (n=118)	9.951 (128.746)*	0.574 (10.137)*	-0.040 (1.045)	0.718 (12.119)*	493.299*	0.941
	Female (n=34)	9.655 (59.110)*	0.749 (6.509)*	0.095 (0.744)	0.559 (5.057)*	80.872*	0.910

*significant at 0.01 level; figures within parentheses are t-values

Income generation based upon caste groupings: Besides the impact of sex and location, in the South Asian context, social groupings also seemingly play important role in economic activities. It is more so at the traditional and micro or informal level. Therefore, we would also be analyzing the income generation in the informal sector while taking into account different social groups. First we look at the level of earnings from the

informal sector enterprises for different social groups as given in Table-9. This gives a very interesting result. There appears that the average income earnings have been higher for the upper castes (Brahman/Chhetri and Vaisya) while the earnings have been lower for the lower caste (Dalit) and the Muslims engaged in the informal sector business. Generally income generation from the informal sector activities have been either almost similar or more in case of the informal sector enterprises being run by the women entrepreneurs in case of the upper castes as well as for Dalit. But the situation gets reversed among Muslim community and others. This might have been a reflection of the prevailing social order in different castes and social groups in Nepal just like that in the neighboring Indian scenario.

Table-9: Distribution of daily IS earning between castes

Caste	Sex	N	Average	Levene's Test for equality of Variance		t-test for equality of Means	
				F	p	t	p
Brahman/Chhetri	Male	100	269.62	0.554	0.458	0.261	0.794
	Female	74	263.18				
Vaisya	Male	117	218.66	8.764*	0.004*	-2.920*	0.004*
	Female	23	333.80				
Dalit	Male	39	187.64	0.820	0.369	-0.688	0.494
	Female	15	213.11				
Musalman (Muslim)	Male	20	230.58	1.391	0.251	0.523	0.606
	Female	4	183.33				
Others	Male	25	266.20	0	0	0.743	0.465
	Female	1	66.67				

*: Significant at 0.01 levels

Table-10: Distribution of IS earning between different locations (NRs)

Caste	U_1		U_2		R	
	n	Mean	n	Mean	n	Mean
Brahman/chhetri	87	307.38	31	246.61	56	215.25
Vaisya	57	301.16	27	192.04	56	194.82
Dalit	14	249.17	12	167.64	28	179.10
Musalman (muslim)	12	282.36	9	168.89	3	145.56
Others	14	252.86	3	186.11	9	291.48
Total	184	295.22	82	206.34	152	204.20

This issue may be further probed through Table-10 and this shows that there is a definite gap among the different castes and social groups in terms of income earnings from the informal sector enterprises. This holds true even among different locations like rural and

U_1 and U_2. It is again established that the upper castes (Brahman/Chhetri and Vaisya) have higher earnings in that order in all the locations demonstrating better economic organization and skill on their side. Dalit and Muslim generally seem to be having almost similar earning levels in all the three locations taken together and their earning levels have been lower than the overall average showing that they have not been as efficient and skilled in deriving economic gains from the engagements in the informal sector. All these issues prompts us now to look into the determinants of earnings to different social groups engaged in the informal sector in the district of Chitwan.

In order to establish the determining elements of income earnings of the people engaged in the informal sector we now develop a slightly different model. How the informal sector earning has been affected by changing labor forces, investment, education etc is being examined using multiple regression technique in log linear form, i.e., Cobb-Douglas types of production function. In functional relation,

$$Yi = f(ISL, INV, LitL)$$

Cobb-Douglas form $Y_i = A \times ISL^{\beta_1} \times INV^{\beta_2} \times LitL^{\beta_3} \times u_i$; Where $\beta_1 + \beta_2 + \beta_3 = 1$

Using natural Log, $\log_e Y_i = \beta_{oi} + \beta_{li} \log_e ISL + \beta_{2i} \log_e Inv + \beta_{3i} \log_e LitL + v_i$

Where $\log_e u_i = v_i$; $\beta_o = \log_e A$

Where, Y_i = per day household earning from informal sector

ISL = Number of supply of labor in informal sector activities.

INV = per day household investment in informal sector activities.

LITL = Literacy level (Number of schooling years) of the respondents.

β_0 = constant; $\log_e$= natural log based on 'e'

β_1 = coefficient or elasticity of number of supply of labor in informal sector (ISL)

β_2 = coefficient or elasticity of investment (NRs) per day (INV)

β_3 = coefficient or elasticity of literacy level (schooling years) of respondents (LITL)

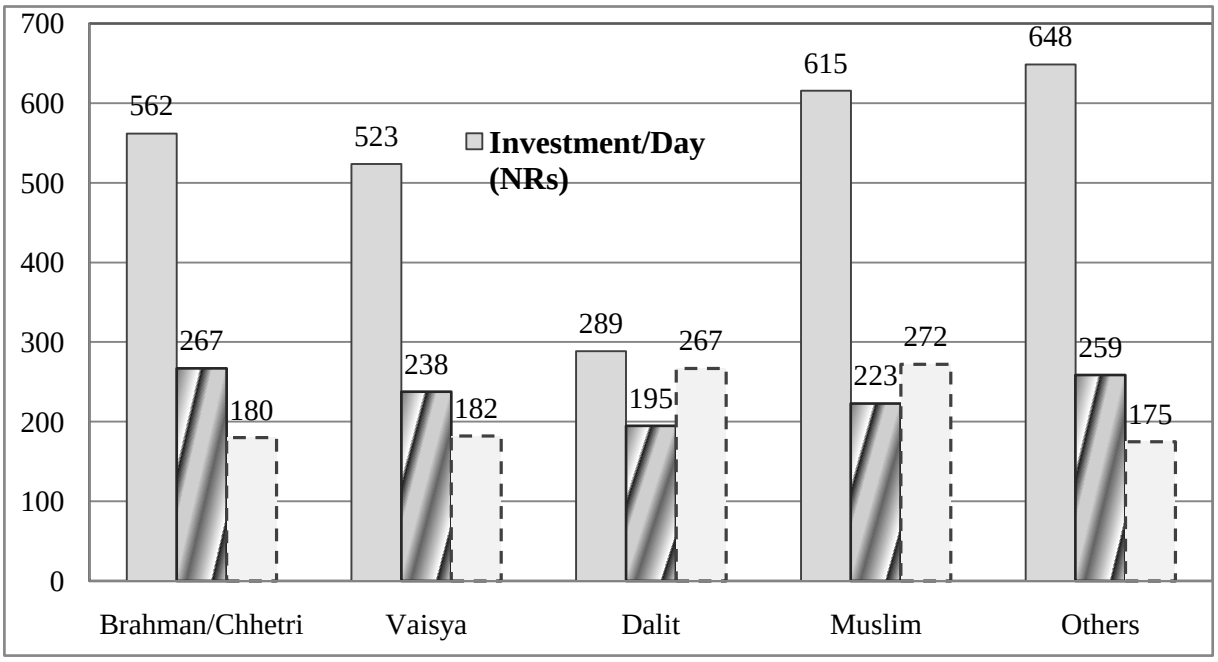
The estimates are contained in Table-11. From the estimates it might be inferred that the three determinants taken here, viz. supply of labor, level of investment per day, and level of literacy, are the major determinants of income in the informal sector earnings. Like the earlier estimates, it is again established that the literacy level is the universal determinants of income in the informal sector as it has significant bearings across different social groups and among males and females. With regard to the level of daily investments in the informal sector, we find that only for the Vaisya social group it has significant impact on their earnings. For other social groups, the level of daily investments does not determine their earning levels. Among women and men, it is found that the informal sector enterprises being run by the women entrepreneurs is impacted significantly by the level of daily investments in determining the level of incomes. However, in case of women entrepreneurs, supply of labor is not important which is unlike the informal sector enterprises run by the males where level of daily investments is not important but the supply of labor becomes important in determining the level of income. Among the different social groups, supply of labor has significant bearings on income for upper castes and others but not for lower castes and Muslims. These results lead to important inferences for the informal sector development.

Table-11: Estimation of Income Earning Functions by castes

Caste		Estimated coefficients				F-test	R^2
		β_0 (Constant)	β_1 (Number of labor supply)	β_2 (Per day level of investment)	β_3 (literacy level)		
Brahman/Chhetri		3.387 (26.588)*	0.129 (2.648)*	0.069 (1.154)*	0.763 (15.177)*	108.264*	0.656
Vaisya		2.991 (18.042)*	0.155 (2.521)**	0.118 (2.147)**	0.720 (11.915)*	113.193*	0.714
Dalit		2.769 (16.752)*	-0.027 (-0.359)	0.069 (0.850)	0.913 (10.821)*	27.287*	0.621
Musalman (Muslim)		2.784 (8.006)*	-0.003 (-0.024)	0.033 (0.226)	0.879 (5.874)*	28.144*	0.808
Others		3.374 (9.563)*	0.376 (3.327)*	0.030 (0.300)	0.670 (5.701)*	80.334*	0.916
All	Male	9.075 (144.106)*	0.094 (3.381)*	0.037 (1.438)	0.867 (30.432)*	564.292*	0.883
	Female	8.674 (68.936)*	0.083 (1.905)	0.150 (3.557)*	0.818 (17.496)*	200.599*	0.874

*: Significant at 1 percent level; **: Significant at 5 percent level

Chart-1: Daily Investments & Earnings of Households from Informal Sector in Chitwan



Schooling or the level of education seems to have universal and most effective bearing on the level of earnings in the informal sector enterprises. Although the people engaged in the informal sector in the sample taken from Chitwan district of Nepal have not been

highly educated, still their elementary level of education or few years of schooling makes them more efficient and capable of running their activities in a better manner. However, when it comes to usual types of inputs in production structure like the daily investments and number labor engaged, we do not find any consistent results in terms of earnings across different social groups. Even among males and females, we find that labor is significant in increasing the earnings in case of informal sector enterprises run by the men while in case of women it is the daily investments that become important. Thus, men basically derive earnings by engaging more labor while women make efforts to raise earnings by putting in more money. We can assess the capital productivity through some measure like given in Chart-1. This shows that Dalit had the lowest daily investments whereas the Muslims had the highest investments. However, when it comes to productivity, as measured here by the ratio of investments and HH earnings, we find that it has been the highest among the higher caste entrepreneurs who have already shown their edge over the others. Lower investment and earning ratio implies greater productivity and investment efficiency.

Table-12: Location and sex-wise distribution of household earnings (yearly)

Location	Sex	N	Average HH earnings from IS (NRs)	Z-values In IS	Average HH earnings from OS (NRs)	Correlation coefficient (r)
U_1	Male	122	96027.87	1.002*	15179.92	-0.014
	Female	62	104414.52		12912.90	-0.106
U_2	Male	61	70963.93	0.297	12899.25	-0.084
	Female	21	74133.33		8495.24	0.042
Rural	Male	118	68831.66	0.916	16728.03	0.039
	Female	34	76741.18		18411.76	-0.156

*significance at 0.01 level; IS – Informal sector; OS – Other sources

Table-13: Impact of informal sector earnings on household earnings

Household monthly income level (NRs)	IS earnings excluded		*IS earnings included*	
	N	%	N	%
Poor (<10000)	394	94.3	54	12.9
Low (10000-20000)	22	5.3	172	41.1
Middle (20000-30000)	1	0.2	104	24.9
High (>30000)	1	0.2	88	21.1
All income group	**418**	**100.0**	**418**	**100.0**

Impact of informal sector on household earnings: After going through the estimation of earnings from the informal sector, it becomes imperative to understand in a low income and developing economy, how the earnings from the informal sector have been making impact on the households. This is significant because generally people engaged in the informal sector carry on their business with little or very little funds, facilities and

training. Most of the people come from a background where they lack any alternate source of livelihood or any such opportunity and even the state may not be of much support to such people. Table-12 offers yearly income earnings from the informal sector activities in different locations. This suggests that earnings to women entrepreneurs have all along been higher than their men counterparts in all the locations – U_1, U_2 and rural. However, it was found to be significantly different between women and men only in U_1 location. Still, it is important to note that women are earning higher than their male counterparts despite the latter enjoying better conditions like better training facilities, more capital availability and greater mobility. Still further, Table-13 finally establishes that the earnings from the informal sector have been of great help and support in carrying out the livelihood of the households. This may be claimed because this sector is not only able to support the subsistence of the households depending upon it but also many households have been made to move to middle level of income and even many have been able to join the higher income group. We can find that without the earnings from the informal sector more than 94 percent households were drowned in poverty. However, due to the income generated from the informal sector activities, only 12.9 percent households remained in poverty. More than two-fifth of the households moved to the low income level. What has been more rewarding is it that 46 percent of the households have been able to join the middle income and high income groups almost equally. This suggests that in developing economies if informal sector activities are pursues earnestly, it has the potential to not only take the households away from miseries and poverty but also it may help them in moving to better economic status.

Conclusion and policy suggestions:

The above analysis of the informal sector in Chitwan district of the landlocked Nepalese economy brings out many features. It shows that the people engaged in the informal sector are spread in the urban as well as rural areas. The activities are highly diversified and heterogeneous in nature. People may get engaged in fixed location activities or mobile and semi-mobile activities. It is also found that the informal sector entrepreneurs may not remain confined to oneself or family labor. They also employ wage earners and others if there is need for them. Thus, this sector also provides direct employment besides likely possibility of generating indirect employment. Generally there is no formal training for people engaged in such activities. Only in some cases there has been some training and it has been mainly for men. There are some important points that emerge from the above analysis. Women are found to be more efficient and it is also found that where women are taking up informal sector activities, there is better household conditions like lower dependency ratio, better employment scenario in the household, generally lower family size signifying more advanced demographic status, and higher household property, and better educational background in the household. There have some element of seasonal variation when we consider the number of working days in a month or average daily working hours. Generally working hours have been long for all. Still, women have been putting in more working hours in a day or more number of days in a month than their male counterparts. Women are found to be more articulate in mobilizing family participation in their business. Income generation in the informal sector seems to have some common pattern in rural and urban locations. Literacy level of the respondents

and households has been the most important determinants. Although daily level of investments in the business is not so string but this has also some effect in some situations and same seems to be true for the household labor as well as wage earners employed in the informal sector units. Social structure seen through caste or community also seems to have its bearing on income generation from the informal sector. It is found that the upper castes (Brahman/Chhetri and Vaisya) have been earning more from the informal sector than Dalit (lower caste) and Muslims.

On the whole, we find that the informal sector has been helpful in income generation for the stakeholders and it has been helpful in employment generation in Chitwan district of Nepal. The earnings made from the informal sector has been instrumental in taking out the households from the poverty and almost half of the households have been found to have moved to middle income level and even high income category signifying role of the informal sector in reducing poverty. However, what appears from the above analysis is it that the state support has been quite low if not altogether absent. The state may help the participants of the informal sector in direct as well as indirect manner. For direct intervention, it may organize some training to them as per their local conditions from really competent agencies and also extend some support in terms of credit facilities, social security and providing space etc. Through indirect method, it may help in raising the literacy and help in skill formation etc. Women should be given greater prominence as they are found to be more efficient not only themselves in many ways but also in mobilizing household participation and using the scarce resources more efficiently.

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