SMALL BUSINESS – A WAY TO ALLEVIATE MULTIDIMENSIONAL POVERTY IN RURAL ODISHA

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Abstract: The study is conducted with the basic objective of examining the role of small businesses activities to alleviate multidimensional poverty in rural Odisha. Multidimensional Poverty Index (MPI) is constructed by using the Alkire-Foster Method with suitable modification.Six socio-economic dimensions andsixteen indicators have been chosen for the construction of the index. The study observed that with an MPI score of 0.5700, non-workers fall under the severely multidimensional poor category, whereas small business groups as a whole fall under the multidimensional non-poor category with a score of 0.1472. Analysis across business sub-groups reveals that people who are under livestock business are most deprived and fall under the multi-dimensionally poor category with a score of 0.3504. Dummy variable regression analysis reveals that the average MPI for an illiterate non-worker woman is 0.7398. The average value of MPI decreases by 0.0879 for a male person in comparison to a female person. Also, the MPI decreases by a magnitude of more than 0.176 if a person is engaged in any of the business activities in comparison to a non-worker. The study observed the positive impact of education, skill development, and occupationon MPI. The findings of the study have significant implications for the development and implementation of suitable policies for the reduction of multidimensional poverty in the rural areas of the State.This multidimensional poverty study is of the first kind in the context of the individuals engaged in small business activities in the Jagatsinghpur district of rural Odisha, and thus, the novelty of the study is justified.

Keywords: Small Business, Multidimensional Poverty, Alkire-Foster Method, MPI, Odisha

1. Introduction

Since the turn of the 21st century, one of the major challenges facing the world is poverty (Naminse& Zhuang, 2018). Poverty is a disgrace to humanity which is reflected through hunger, malnutrition, the destitution of shelter, sickness, unable to speak, inability to join the school,unemployment, future phobia, loss of children due to insufficient access to clean water, powerlessness, lack of representation,and freedom (World Bank, 1999; Amao*et al.*, 2017). The hazards of poverty hinder human development which is considered a great resource in the path of economic development of one nation (Misango&Ongiti, 2013).As poverty is a complex and dynamic phenomenon, thus, income alone is not a complete measure of poverty (Naminse&Zhuang, 2018).The most pioneering work in the field of multidimensional poverty is conducted by both UNDP and the OPHI that includes three dimensions, education, health, and living standard (Alkire*et al.*, 2014; Alkire*et al.*, 2020). Several other researchersin multidimensional study at regional, national and global context include other dimensions, viz., economic/employment, environment, empowerment, and social relationship (Batana, 2013; Dara& Ramakrishna, 2016; Idrees&Baig, 2017; Mohanty*et al.*, 2017; Yichao& Di, 2017; Delgao&Klasen, 2017; Gallardo, 2020; Biswal*et al.*, 2020a; Biswal et al., 2020b; Mishra *et al.*, 2020; Nam, 2020).Survival challenge due to a lack of alternate livelihood opportunities faced by poor households is the most disturbing profile and worrisome fact about poverty (Koshy& Prasad, 2007). Landless laborers and casual workers in the rural region are facing deprivations in multiple areas including healthcare, education, transportation,and many more (Kolloju, 2015).Business, established by people living in poor countries, is very imperative in alleviating poverty through the creation of employment opportunities (Maksimov*et al.,* 2017; Maziriri&Chivandi, 2020). Small business plays a predominant role in generating income from rural-based activities like animal husbandry, cow and poultry farming, farming of vegetables, and other items (Koshy& Prasad, 2007; Sowman*et al.*, 2014; Kowo*et al.*, 2019). Micro and small businesses can diversify their source of income by creating employment opportunities, and spreading business activitiesto cope withpoor households with food security to improve their living standard (Ozoh*et al.*, 2020). Small farmers are capable of adding income by selling their agricultural products like fruits and vegetables in supermarkets that helps not only in reducing income poverty but also multidimensional poverty (Ogutu*et al.*, 2020).

Odisha portrays a paradoxical picture of poverty amidst plenty (Dolai*et al.*, 2016). Rural poverty is still overwhelming and prevalent in the state after so many years of independence (Mohapatra, 2015). People face multiple deprivations as well as a lack of livelihood options that leads to economic backwardness (Samantaray, 2016). To transform Odisha into a vibrant economy, the Government of Odishais endeavoring its rich potential for improving socio-economic development through industrialization &technological up-gradation(Dolai*et al.,* 2016).The Micro, Small & Medium Enterprises (MSMEs) also plays a crucial role in the state in providing large employment opportunities in rural & backward areas for reducing regional imbalances, achieving equitable distribution of national income and wealth, and capable of eradicating poverty(Munda& Swain, 2013; Dolai*et al.*, 2016; Das, 2017).

Against this backdrop, the study is carried out with the basic objectives of (i) assessing the magnitude of multi-dimensional poverty of individuals engaged indifferent small business activities in rural Odisha through the construction of MPIand (ii)examiningthe impact of education, gender, and occupational structureon MPI.Alkire and Foster (2011) method is used to construct MPI in order to assess the extent of multidimensional poverty among the individuals engaged in small business activities.Furthermore,

the OLS-based dummy variable regression model is used in the study to determine the factors responsible for the multidimensional poverty among the individuals engaged in small business activities in the district.This study contributes to the literature the evidence that about 98 per cent of non-workersand 30 per cent of small business persons in the Jagatsinghpur district of Odisha are either multidimensionally poor or severely multidimensionally poor. The empirical evidence also suggests that gender, the levels of education, and the occupational status of individuals engaged in small business activities significantly determine the extent of multidimensional poverty in the Jagatsinghpur district. This study is of the first kind in analyzing the multidimensional poverty among individuals perusing different small business activities for Jagatsinghpur district of Odisha, and thus, the novelty of the study is justified.The remaining of the article is organized as follows: Section 2 reviews the literature; Section 3 presents data and methodology; Section 4discusses the empirical results, and Section 5 summarizes and concludes.

2. Review of Literature

Rural poverty is the most predominant form of human deprivation that affects many lives both in developed and developing nations (Naminse&Zhuang, 2018).It creates unacceptable human living conditionsamong vulnerable sections due to weak endurance capacity(Ahmad *et al.*,2016).Poverty exposes people to suffer from several diseases and allows them to live ina chronic situation which leads to an increase in mortality rate (Peter *et al.*, 2014).Poorer are always vulnerable to social, economic, and environmental threats such as low quality of housing, inadequate water supply, poor sanitation, and indoor air pollution(Peter *et al.*, 2014).Poverty upsurges societal illsincluding prostitution, theft, and other criminal activities due to insufficient social relations, low confidence, and feebleness (Peter *et al.*, 2014; UNDP, 2015; Israrl*et al.*, 2020).

In an ever-changing business milieu, the United Nations SDGs aim at eradicating poverty in all its forms and all dimensions by 2030.The first and foremost way for people is to increase purchasing power and create more employment opportunities through livelihood diversification and commercialization of agricultural activities (Livingstone, 2000). Livelihood diversification of rural households from farm to off-farm and non-farm activities acts as a potential source of reliable income (Aboaba*et al.*, 2019).People in rural areas are primarily engaged in small business or micro-enterprise occupations like selling vegetables, grains, or raw materials(Shaw, 2004).Some people are engaged in brick making, coir making, carpentry, repairing of motor vehicles, electrical repairs, hairdressing, rice milling,through their specialized skill that helps in income generation and poverty reduction (Shaw, 2004). Due to low level of investment, the poor people keep themselves engaged in livestock and other allied farming activities like farming of cows, sheep, goats, fish, pig, and poultry that support them to escape from poverty (Gueye,2000; Shaw, 2004; Ali, 2007; Sowman*et al.*,2014).Village petty tradersalso earn income by selling their products in the temporary roadside stall and vending through the house to house roaming thathelps them to earn income and escape frompoverty (Shaw, 2004).

Gender empowerment is highly critical in the development process as women constitute half of the human resources. Women'sparticipation in livestock rearing, in addition to their household activities, helps in raising their income level that helps in maintaining family expenditure towards consumption of food items, electronic goods, children's education, health care, etc.(Kolloju, 2015). Thus, microenterprise plays a significant role in empowering rural women (Mohanty*et al.*, 2013; Nayak*et al.*, 2019).

Sustainable livelihood aims at recovering from stress and shocks that enhance capabilities, support livelihood for the next generation, and contribute to other livelihoods (Ozoh*et al.,* 2020).The revitalization of rural areas is observed as a new growth point for achieving future sustainability(Naminse*et al.,* 2019). When the capability is guaranteed, the level of poverty will be reduced in society(Ozoh*et al.,* 2020). However, ensuring sustainable livelihood and alleviating poverty remain serious challenges for policymakers (Kolloju, 2015).

3. Data and Methodology

The study is based on primary data collected during April – June 2021 by using a multi-stage random sampling method.

Table 1: Sampling Framework

Sample Village	*Total No of Household	**Sample Household
Dhunpada	178	28
Erada	335	52
Gangada	529	83
Ghodansa	351	55
Tentoi	472	74
Ura	213	33
Total	2078	325

NB: *Census – 2011 (Govt. of India) information is used to obtain the total number of Households in each sample village. **15.64 per cent of total households in each sample village is considered for the primary survey.
Source: Authors' Estimation of Sample Size

Table 2: Small Business Subgroups

Sl. No	Small Business Subgroups	Economic Activities
1	Street Vendor	Engaged in selling vegetables, fruits, fish, dry fish, plastic stationery items, grain, paddy, pulses, etc., without having a permanently built/rented structure.
2	Self-employed (involved in unskilled business activities)	Engaged in selling grocery items, snacks, gift, and stationery items, automobile spare parts, hardware, and sanitary items, beetle shop, etc., having a permanently built/rented structure.
3	Self-employed (involved in skilled business activities)	Engaged in skilled activities like tailoring, computer repairing, mobile repairing, wood furniture making, motor vehicle repairing, etc., with permanently built/rented structure.
4	Supplier of construction materials	Engaged in selling construction materials such as sand, bricks, cement, rod, etc., with permanently built/rented structures.
5	Service-related business activities	Engaged in providing different services such as education (coaching center), health care (clinic and path lab), travels and transport, laundry, saloon, etc., with a permanently built/rented structure.
6	Livestock business activities	Engaged in selling milk and milk products, meat, eggs through livestock farming, with permanently built/rented structure.

Source: Authors' Construction

In the first stage, Jagatsinghpur district of Odisha was selected randomly out of five districts with the lowest MPI values (OPHI, 2018); in the second stage Naugaon block has been selected out of eight

blocks under the district; in the third stage, six villages selected out of 90 villages randomly. The fourth stage selects 325 households randomly out of 2078 households, i.e., 15.64 per cent of the total by using the Rao-Soft online sample size calculator with a 95 per cent confidence level and 5 per cent margin of error (Table 1). The unit of the study constitutes 589 adult members belonging to 325 sample households in the age group of 15-64 years engaged in small business activities and the non-worker group.

Individuals engaged in different small business activities are divided into six subgroups, viz., (1) Street Vendor, (2) Self-employed (involved in unskilled business activities), (3) Self-employed (involved in skilled business activities), (4) Supplier of construction materials, (5) Service-related business activities, and (6) Livestock business activities (Table 2).

Alkire-Foster (AF) method is used to construct the MPIusing six dimensions, sixteen indicators by assigning equal weightage to both dimensions, and indicatorsfor identifying deprived and non-deprived individuals (Alkire and Foster, 2011) (Table 3).

Basing on deprivation in the component indicator (h_i) as the first cut-off, each individual is assigned a deprivation score (C_i) (Table 4). The following equation is used for the computation of individual deprivation scores.

$$C_i = w_1h_1 + w_2h_2 + ... + w_ih_i \hspace{4cm} \text{(Eq-1)}$$

where 'w_i' is the weight assigned to the i^{th}indicator.

Table 3: Multidimensional Poverty - Dimensions and indicators

Dimension	Weight	Indicator	Symbol	Weight
Education	0.1667	Completed year of schooling	SCHOOL	0.1667
Health	0.1667	Nutritional status (measured by BMI)	BMI	0.0833
		Individual vaccination	VAC	0.0833
Standard of Living	0.1667	Housing Condition	HOU	0.0238
		Access to clean drinking Water	WAT	0.0238
		Practicing Open defecation (Sanitation)	SAN	0.0238
		Access to clean energy as Cooking Fuel	ENR	0.0238
		Access to Electricity	ELCT	0.0238
		Ownership of land	LAND	0.0238
		Ownership of Motor vehicle	MV	0.0238
Economic	0.1667	Employed in Small Business Activities	EMP	0.1667
Empowerment	0.1667	Autonomy in healthcare decisions	AUTHTH	0.0556
		Autonomy to prevent domestic violence	AUTPVIO	0.0556
		Autonomy in employment choice	AUTEMP	0.0556
Social Relation	0.1667	Participation in community level activities	PARCOM	0.0833
		Organization of community-level activities	ORGCOM	0.0833

Source: Authors' Estimation based on Alkire & Foster (2011) Approach

A cut-off is used to identify multi-dimensional poor individuals. In this study, an individual with a deprivation score below 20 per cent is treated as multi-dimensionally non-poor (MDNP), between 20 and 33.33 per cent as vulnerable to multi-dimensionally poor (VMDP), between 33.33 and 50 per cent

as multi-dimensionally poor (MDP), and 50 per cent or higher as severely multi-dimensionally poor (SMDP).

Similarly, the study estimates the incidence and intensity of poverty in a multidimensional perspective in the designed business subcategories and for non-workers. Based on these results, MPI is constructed for each business subcategory.

Incidence of multidimensional poverty (H) is the percentage of multi-dimensionally poor individuals. Thus H = q/n, where 'q' is the total number of multi-dimensionally poor individuals with a poverty cut-off of 33.33 per cent and 'n' is the total individuals under consideration.

The intensity of multidimensional poverty (A) is the average percentage of deprived individuals in a particular group.
Thus, MPI = H x A.
Based on the MPI, the study classified the business subgroups into four categories, i.e., (i) MPI below 20 per cent is treated as MDNP, (ii) MPI between 20 and 33.33 per cent as VMDP, (iii) MPI between 33.33 and 50 per cent as MDP, and (iv) MPI 50 or higher as SMDP.

Table 4: Multidimensional Poverty (Deprivation cut-off)

Dimension	Indicator	Deprived if...
Education	SCHOOL	not completed 6 years of schooling
Health	BMI	(i) BMI < 18.5 (underweight) or (ii) BMI ≥ 23 (overweight) or (iii) BMI ≥ 25 (obesity)
	VAC	not immunized/vaccinated
Standard of Living	HOU	living in an inadequate housing condition
	WAT	no access to safe drinking water
	SAN	practicing open defecation
	ENR	using dirty fuel as primary energy for cooking
	ELCT	no access to electricity
	LAND	not owned any land property
	MV	not owned the motor vehicle
Economic	EMP	a non-worker
Empowerment	AUTHTH	incapable of taking healthcare decision
	AUTPVIO	incapable to prevent domestic crime/violence
	AUTEMP	incapable of making employment decisions
Social Relation	PARCOM	has not participated in any type of community-level activities
	ORGCOM	has not organized any type of community-level activities

Note: Overweight (BMI ≥ 23) and obesity (BMI ≥ 25) act as a predisposing factors for non-communicable diseases such as cardiovascular diseases, diabetes, musculoskeletal disorders, and some cancers that kill more people in India in comparison to underweight (BMI < 18.5).
Information retrieved from https://www.nhp.gov.in/disease/non-communicable-disease/obesity
Source: Authors' Construction

AnOLS-based dummy variable regression model (Gujarati & Porter, 2009) has been used to investigate the impact of education (EDN),gender(GEND), and occupation(OCCUP) on multidimensional poverty. The functional form used in the study to examine the relationship between MPI and the factors influencing it is:

MPI = f(EDN, GEND, OCCUP)   (Eq-2)

And the econometric specification of Equation (1) is:

MPI = α_1 + β_1DLP + β_2DUP + β_3DSE + β_4DHSE + β_5DGRAD + β_6DMALE + β_7DVEN + β_8DUNSKIL + β_9DSKIL + β_{10}DSUPL + β_{11}DSERV + β_{12}DLIV + ε_i (Eq-3)

where, (i) MPI is the dependent variable, (ii) DLP, DUP, DSE, DHSE, and DGRAD represents dummy variables for lower primary, upper primary, secondary, higher secondary, and graduation and above educational standards of the individuals respectively, (iii) DVEN, DUNSKIL, DSKIL, DSUPL, DSERV, and DLIVrepresents the dummy variable for street vending, self-employed in unskilled activities, self-employed in skilled activities, supply of construction materials, service-related business activities, and livestock business activities, (iv) DMALE represents dummy variable for a male person, (v) α_1 as constant, β_1 to β_{12}represent coefficients of dummy independent variables, and (vi) $\varepsilon_i$is the error term.

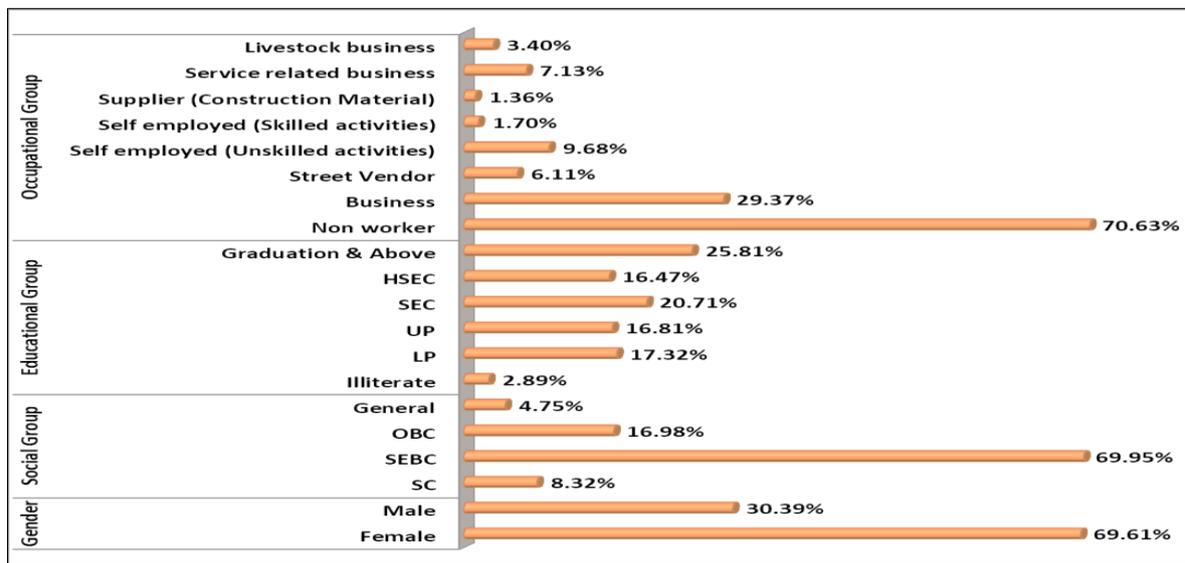## 4. Empirical Results and Findings

4.1. Sample Profile

Figure 1: Sample Profile
NB: SEBC - Socially and economically backward classes, OBC – Other backward classes, SC – Scheduled castes, LP – Lower primary educational level, UP – Upper primary educational level, SEC – Secondary educational level, HSEC – Higher secondary educational level, GRAD – Graduation and above the educational level
Source: Authors construct

The profile of the sample reveals that 70.63 per cent of the total sample constitutes non-workers and the rest 27.37 per cent belong to the business category (Figure 1). Among the business category, the highest number of persons come under the self-employed (unskilled) category (9.68 per cent) followed by service-related business (7.13 per cent) and street vendor (6.11 per cent). Females constitute the majority of the sample (69.61 per cent). Among social groups, 70 per cent belong to SEBC. Only 3 per cent of samples are illiterate and about one-fourth possess a bachelor's degree and above.

4.2. Deprivation Status:

The multidimensional poverty status of individuals across occupational groups is depicted in Table 5.A higher concentration of multidimensional poverty (MDP and SMDP together) at the individual level is observed for non-workers (98.56 per cent). The absence of employment opportunities can be attributed

to this high concentration of poverty. Against this, only 31.22 per cent of the total persons coming under the business group are either MDP or SMDP. Across different business groups, persons in livestock business (70 per cent) are found to be more multidimensional poor (both MDP and SMDP) followed by street vendors (50 per cent). Severely multidimensional poverty is absent for self-employed persons (skilled) and persons engaged in the supply of construction material. The least concentration of multidimensional poverty is observed for self-employed persons engaged in unskilled activities (12.28 per cent). But self-employed persons engaged in skilled activities are found to be more multidimensional poor. Self-employed persons either skilled or unskilled along with persons engaged in the supply of construction materials are more vulnerable to multidimensional poverty.

Table 5: Status Multidimensional Poverty among Individuals across Occupational Group

Occupational Group	Total Deprived (in No)	MDNP (in %)	VMDP (in %)	MDP (in %)	SMDP (in %)
Non-Worker	416	0.24	1.20	29.09	69.47
Business (Overall)	173	27.17	41.62	19.08	12.14
Street Vendor	36	5.56	44.44	33.33	16.67
Self-employed (Unskilled activities)	57	38.60	49.12	8.77	3.51
Self-employed (Skilled activities)	10	20.00	60.00	20.00	0.00
Supplier (Construction Material)	8	37.50	50.00	12.50	0.00
Service-related business	42	40.48	30.95	14.29	14.29
Livestock business	20	5.00	25.00	35.00	35.00

NB: SMDP = Severely Multidimensional Poor, MDP = Multidimensional Poor, VMDP = Vulnerable to Multidimensional Poor, MDNP = Multidimensional Non-poor (Computed from Individual Composite Index)
Source: Authors' estimation

Table 6: Multidimensional Poverty Index of Occupational Group and Sub-roups

Occupation Category	Total individual (n)	*Individuals Deprived (q)	Incidence of MDP (H = q/n)	Intensity of MDP (A)	MPI (H * A)
Non worker	416	410	0.9856	0.5784	0.5700
Business	173	54	0.3121	0.4715	0.1472
Street Vendor	36	18	0.5000	0.4728	0.2364
Self-employed (Unskilled activities)	57	7	0.1228	0.4455	0.0547
Self-employed (Skilled activities)	10	2	0.2000	0.3571	0.0714
Supplier (Construction Material)	8	1	0.1250	0.3492	0.0437
Service related business	42	12	0.2857	0.4801	0.1372
Livestock business	20	14	0.7000	0.5005	0.3504
SMDP	MDP	VMDP	MDNP		

NB: *Poverty cut-off ≥ 0.3333; SMDP = Severely Multidimensional Poor, MDP = Multidimensional Poor, VMDP = Vulnerable to Multidimensional Poor, MDNP = Multidimensional Non-poor
Source: Authors' estimation

Multidimensional poverty across different occupational groups has also been assessed through MPI which is estimated for different groups taking into account the incidence and intensity of multidimensional poverty. The outcome is given in Table 6 which is in line with Table5.Non-workers with an MPI score of 0.57 are observed to be severely multidimensional poor. Business groups as a whole are categorized as non-poor, but,a business group with livestock as an occupation is categorized under MDP with an MPI score of 0.3504. Street vendorsare vulnerable to MDP. The MPI for the rest four business groups is below 0.20 which indicates that they are coming under the multi-dimensionally non-poor category.

The deprivation status of the business and non-worker group across different indicators taken in the study for assessing multidimensional poverty is given in Table 7 and Table 8. More than 50 percent of deprivation is observed for the indicators "organization of community-level activities" (98.81 percent) followed by "participation in community-level activities" (88.62 percent), "ownership of motor vehicles" (82.34 percent), "ownership of land" (71.31 percent), "autonomy in employment choice" (60.61 percent), access to clean energy as a cooking fuel (60.61 percent), and "practicing open defecation" (50.59 percent) when both business and non-workers are taken together. No deprivation is observed for two indicators, i.e., individual vaccination and access to clean drinking water.

Table 7: Indicator-wise Deprivation Status of Business and Non-worker Group

Indicator	Non-Worker (in %)	Business (in %)	Deprivation Gap (in %) (Non-worker – Business)	Deprivation Status
VAC	0.00	0.00	0.00	No deprivation faced by both business and non-worker group
WAT	0.00	0.00	0.00	
SAN	50.24	51.45	1.20	More deprivation faced by the business group over a non-worker
BMI	44.23	46.24	2.01	
HOU	6.73	10.40	3.67	
ELCT	0.24	0.58	0.34	
ORGCOM	99.28	97.69	-1.59	More deprivation faced by non-worker over business group
PARCOM	95.43	72.25	-23.18	
MV	94.71	52.60	-42.11	
LAND	84.38	39.88	-44.49	
AUTEMP	77.64	19.65	-57.99	
ENR	62.26	56.65	-5.61	
SCHOOL	34.13	27.17	-6.97	
AUTHTH	38.46	7.51	-30.95	
AUTPVIO	28.37	9.25	-19.12	

Source: Authors' estimation

Comparison of deprivation status of business persons and non-workers indicates that business persons face more deprivation concerning practicing open defecation, BMI, housing condition, and access to electricity over non-worker. On the other hand, non-worker face more deprivation in respect of both organization and participation in community-level activities, ownership of the motor vehicle, ownership of land, autonomy in employment, access to clean energy as cooking fuel, completed years of schooling, autonomy in healthcare decision, and autonomy to prevent domestic violence.

The deprivation status of persons practicing different business activities reveals that persons across all categories of business are non-deprived in vaccination, access to drinking water, and access to electricity indicators. All most of all individuals across all business activities have not organized any community-level activities. Similarly, more than 50 percent of persons across all business categories have not participated in any community-level activities. It is interesting to observe that although every household hassanitary latrines within their household premises, more than 30 percent of persons irrespective of business activities practice open defecation. Similarly, more than one-third of the total persons across all business activities except persons engaged in the supply of construction materials are not using clean energy as cooking fuel although all of them possess LPG. More than 30 percent of persons irrespective of business groups are deprived of nutrition (measured through BMI), ownership of land, and motor vehicle. Self-employed persons engaged in skilled activities are non-deprived ineight indicators out of the sixteen indicators taken in the study.

Table 8: Indicator-wise Deprivation Status of Business Person (in %)

Indicator	Street Vendor	Self-employed (Unskilled activities)	Self-employed (Skilled activities)	Supplier (Construction Material)	Service-related business	Livestock business
SCHOOL	44.44	14.04	20.00	0.00	23.81	55.00
BMI	38.89	52.63	60.00	37.50	40.48	50.00
VAC	0.00	0.00	0.00	0.00	0.00	0.00
HOU	19.44	0.00	0.00	12.50	21.43	5.00
WAT	0.00	0.00	0.00	0.00	0.00	0.00
SAN	77.78	38.60	30.00	37.50	38.10	85.00
ENR	91.67	36.84	40.00	12.50	52.38	85.00
ELCT	2.78	0.00	0.00	0.00	0.00	0.00
LAND	38.89	28.07	40.00	37.50	33.33	90.00
MV	75.00	33.33	30.00	25.00	50.00	95.00
AUTHTH	8.33	0.00	0.00	25.00	7.14	25.00
AUTPVIO	16.67	5.26	0.00	0.00	14.29	5.00
AUTEMP	27.78	7.02	0.00	12.50	14.29	65.00
PARCOM	86.11	68.42	50.00	75.00	59.52	95.00
ORGCOM	100.00	92.98	100.00	100.00	100.00	100.00

Source: Authors' estimation

4.3. Impact of Socio-economic variables on MPI

The impact ofsocio-economic variables such as education, gender, and occupational structure on MPI has been studied through a dummy variable regression model. The result of the regression analysis is given in Table 9.

F ratio is statistically significant at a 1 percent level of significance indicating the overall model fit. The coefficient of determination indicates that about 80 percent variation in MPI is explained by these three independent variables taken together. All the coefficients are statistically significant at a 1 percent level of significance. The constant in the model indicates that the average multidimensional poverty index for an illiterate non-worker woman is 0.7398. The negative sign of the regression coefficients signifies the positive impact of education, occupation, and gender on MPI. The increasing magnitude of

coefficients relating to education with the rise in the educational level justifies the significant role played by education in lowering multidimensional poverty. The average value of MPI decreases by 0.0879 for a male person in comparison to a female person. Similarly, the MPI decreases by a magnitude of more than 0.176 if a person is engaged in any of the business activities in comparison to a non-worker.

Table 9: Impact of socio-economic variables on MPI

Variables	Coefficient	Standard Error	t-stat.	p-val.
Constant	0.7398*	0.0200	36.9313	0.0000
Lower Primary Education Dummy	-0.0386*	0.0215	-1.7968	0.0729
Upper Primary Education Dummy	-0.0761*	0.0215	-3.5316	0.0004
Secondary Education Dummy	-0.1987*	0.0213	-9.3461	0.0000
Higher Secondary Education Dummy	-0.2222*	0.0217	-10.2418	0.0000
Graduation & above Education Dummy	-0.2326*	0.0215	-10.8310	0.0000
Gender (Male) Dummy	-0.0879*	0.0106	-8.2743	0.0000
Street Vendor Dummy	-0.2005*	0.0158	-12.7258	0.0000
Self-employed (Unskilled activities) Dummy	-0.2298*	0.0140	-16.4099	0.0000
Self-employed (Skilled activities) Dummy	-0.2413*	0.0271	-8.9052	0.0000
Supplier (Construction Material) Dummy	-0.2168*	0.0304	-7.1413	0.0000
Service-related business Dummy	-0.2237*	0.0152	-14.7174	0.0000
Livestock business Dummy	-0.1768*	0.0187	-9.4526	0.0000
F- stat. (p-val.)	192.8297* (0.0000)			
R-Sq.	0.8007			

NB: Dependent variable – MPI; *significance at 1% level of probability
Source: OLS estimation

Table 10: Projection of MPI across Gender, Occupational Groups, and Educational Level

Gender	Category	ILL	LP	UP	SEC	HSEC	GRAD
Female	Non-Worker	0.740	0.701	0.664	0.541	0.518	0.507
	Street Vendor	0.539	0.500	0.463	0.340	0.317	0.306
	Self-employed(Unskilled activities)	0.510	0.471	0.434	0.311	0.288	0.277
	Self-employed(Skilled activities)	0.499	0.460	0.423	0.300	0.277	0.266
	Supplier(Construction Material)	0.523	0.484	0.447	0.324	0.301	0.290
	Service relatedbusiness	0.516	0.477	0.440	0.317	0.294	0.283
	Livestock business	0.563	0.524	0.487	0.364	0.341	0.330
Male	Non-Worker	0.652	0.613	0.576	0.453	0.430	0.419
	Street Vendor	0.451	0.412	0.375	0.252	0.229	0.218
	Self-employed(Unskilled activities)	0.422	0.383	0.346	0.223	0.200	0.189
	Self-employed(Skilled activities)	0.411	0.372	0.335	0.212	0.189	0.178
	Supplier(Construction Material)	0.435	0.396	0.359	0.236	0.213	0.202
	Service related business	0.428	0.389	0.352	0.229	0.206	0.195
	Livestock business	0.475	0.436	0.399	0.276	0.253	0.242

SMDP	MDP	VMDP	MDNP

NB: SMDP: Severely Multidimensionally Poor; MP: Multidimensionally Poor; VMP: Vulnerable to Multidimensionally Poor; MDNP: Multidimensionally Not Poor
Source: Authors' projection based on OLS Estimation

Table 10 projects the average MPI value across different categories of occupation, gender, and educational level estimated from the regression model (Ref. Table 9). The table indicates that a female non-worker comes under the SMDP category irrespective of educational level. But for male non-worker, if the person has crossed the secondary level of education, he is coming under the MDP category. None of the male persons engaged in any type of business activity with a secondary or higher level of education are multidimensional poor or severely multidimensional poor. If an individual is self-employed, either engaged in skilled or unskilled activities will be non-poor if he possesses a minimum educational qualification of higher secondary. The result incorporated in Table 10 justifies the role of education in reducing multidimensional poverty.

5. Summary and Conclusion

This study, the first of its kind for rural Odisha is undertaken to examine the role of small business activities in reducing multidimensional poverty, which is the novelty of the study. The study observed that self-employed persons engaged in skilled activities are non-poor in half of the indicators taken in the study. Skill development, therefore, is a way to bring persons out of multidimensional poverty. Different schemes of Central and State Governments such as PLTP, PMKVY, DDU-GKY, PMKK are in operation in the state to develop the skills of unemployed youths. Successful implantation of these schemes will no doubt enhance the skill of unemployed youths which ultimately make them employable and lessen the incidence of multidimensional poverty in the state.

Astatistically significant negative relationship between the level of education and MPI is observed in the study. It is also observed that the increasing level of education has a positive impact on lowering MPI.The study, therefore, reverberates the role of education in reducing multidimensional poverty.The study also observed the feminization of poverty. A larger chunk of non-workers is females. Lack of economic activities is observed to be the main reason for the deprivation of women. Prevailing culture, tradition, and norms might be responsible for assigning low priority to women's economic activities. The females can only get economic independence and come out of multidimensional poverty if they can do some economic activity in addition to their household duties. Implementation of Mission Shakti by the Government of Odisha is a step forward in empowering women through the creation of Self-help Groups.

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