MSME Performance and Employment Generation: A case study of Rajasthan

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Abstract: MSME sector is an important contributor to both, sustainable and inclusive growth. It plays a vital role in the growth of the manufacturing sector. Studies have shown that MSMEs performance is imperative for its contribution in various socio-economic variables such as higher income growth, employment, nurturing entrepreneurship and inclusive participation of the society. This paper tries to understand the factors that contribute to growth, employment and women entrepreneurship for both registered and unregistered MSME based on the analysis of unit level data for the state of Rajasthan using the MSME census conducted in 2006-07. We show that dwarfism of enterprises is quite prevalent, with employment contribution of the large firms being limited despite their higher GVA contribution. Women entrepreneurs are more involved in organisation like proprietary/ HUF and use traditional energy/firewood as power source, this can spill over to health issues.

Keywords: MSMEs Employments; Credit; Growth; Entrepreneurship

1. Introduction

Micro, Small and Medium Enterprises (MSME) sector has emerged as a highly vibrant and dynamic sector of the Indian economy over the last five decades. (**Murthy (2016**). MSME sector also plays an important role in the development of the economy with their effective, efficient, flexible and innovative entrepreneurial spirit (**Dey, 2014**). Therefore, we see that MSMEs plays a critical role in country's growth. Given the nature of investment, MSME have great potential to generate employment, decrease gender and caste disparities. There is unique advantage in promoting MSME growth as it requires low investment but has a positive externality in the form of a more equitable distribution of national income, effective mobilization of resources of capital and skills (*with a focus on smaller markets*) thereby motivating industrial entrepreneurship. This sector in India is highly heterogeneous in terms of the size of the enterprises, variety of products and services, and levels of technology. It complements large industries as ancillary units and contributes enormously to the socioeconomic development of the country.

The MSME sector has a vast network of around 30 million units, creating 70 million employment opportunity, manufacturing more than 6000 products, contributing about 45% of manufacturing output and about 40% of exports, directly and indirectly. There exists a wide array of studies that dwell upon MSME performance on women entrepreneurship and employment generation. This is analysed through the channels like infrastructure availability, culture and demographics. Apart from this, the performance is also contingent on multiple other forces of interactions such as power sources and type of organisations, whether an enterprise is operated by man or women.

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There also exists a large incidence of unregistered enterprises in MSME sector due to the higher norms in terms of formal requirements of registration, which acts as an exclusionary factor for these enterprises. This demarcation has led to the increase in disparities among registered and unregistered enterprises. In developing economies, such unregistered firm employs the bulk of the informal employment present in the country. The conventional view is that these firms are untapped sources of growth which are inhibited by financial and regulatory frictions (**De Soto(1989), (2000)**).

This paper aims to analyse the factors impacting gross value added, total employment and women entrepreneurship for registered and unregistered enterprises in Rajasthan. The study seeks to answer whether financial development facilitate micro-entrepreneurship, growth and employment. Finally, we look at the effect of credit disbursal on the MSME performance by the banking sector since there have been many initiatives by government-owned banks to cater to the unbanked districts.

2. Literature Review

There is exists a wide literature in the domain of MSME performance, employment and women entrepreneurship. Access to finance is widely perceived to be an essential factor for firms, and especially SMEs, to maintain their daily business operation as well as to achieve long-term investment opportunities and development targets. **Singh et al. (2012)** analysed the performance of SSI and concluded that SSI sector has made good progress in terms of number of SSI units, production and employment levels. The study recommended the emergence of technology development and strengthening of financial infrastructure to boost SSI and to achieve growth target. **Goldar and Mitra (2013)** finds that informal sector units are not able to benefit in the process of rapid overall growth, suggesting that growth is not inclusive and the informal sector enterprises exist only to provide means of survival; they seem to lack all dynamism. **Mitra and Pandey (2013)** the employment function estimated in the paper suggests employment can be raised through wage reduction, it can affect the wellbeing of the workers because the wage rate in the unorganized sector is already very low. Further, subcontracting or ancillarization does not seem to be contributing to employment generation in unorganized manufacturing or trade related activities.

Credit availability is an important factor for micro enterprises performance. **Dehejia and Gupta (2021)** using randomized surveys of over 1 million Indian households and district-level bank branch location that is pre-determined by government policy, finds that financial access shifts workers from informal entrepreneurship into formal employment. This evidence suggests a labour market mechanism by which financial development facilitates growth that is by shifting workers from unproductive micro-entrepreneurship into productive employment.

MSME's also play a vital role in fostering women entrepreneurship, but they face different, and more challenges compared to men. **Singh and Raina (2013)** described the problems and challenges faced by women entrepreneurs in India and also analysed the policies of Indian government for women. The study mainly focused to find out the status of women entrepreneurs in India. The study found that in modern India, more and more women are taking up entrepreneurial activity, especially in MSMEs. It also observed that Indian women have imprinted a position for themselves in the male dominated world. It further showed that Indian women can well manage their household work as well their workplace deadlines. **Benard and Victor (2013)** examined the growth of women entrepreneurs in Dar es Salaam city of Tanzania on strengths, weaknesses, opportunities and threats. They used a sample of 130 women entrepreneurs and simple random sampling technique for sample selection. The study found that a major strength was the need for financial independence for women entrepreneur**. Deshpande and Sharma (2015)** shows that gender-caste overlap indicates

that the share of the female owned and managed is greater among SC ST enterprises than among those with others and especially those owned by Hindu upper castes, suggesting historical taboos on upper caste women.

3. Analytical Framework

The present study is descriptive and analytical in nature. The data used for the study is secondary in nature and has been majorly based on [2] 4th MSME census conducted in 2005. Apart from this we have also used the annual reports of Ministry of Micro, Small and Medium Enterprises, Government of India, website of Reserve Bank of India, various journals, newspapers and white papers on Micro, Small and Medium Enterprises. Using these data, we have analysed the growth performance, employment of MSMEs for registered and unregistered enterprises for Rajasthan.

In order to capture the access to finance, we have used the number of government-owned bank branches at the district level in 1991, prior to liberalization. This is based on two arguments, that is historical financial access is correlated with current branch location, and that Pre-liberalization bank branch location is driven by the licensing policy rather than regional characteristics that affect labour market choices. We focus on government owned banks because they account for over 70% of loans and deposits on average in the country, were strictly subject to the RBI location restrictions, and whose location choices are less likely to be driven by a profit motive compared to the private banks. The correlation in bank location between 1991 and 1999 (*the earliest date of the dependent variables*) is equal to 0.88, and between 1999 and 2004 is equal to 0.84. This indicates that bank branch location in 2003 is a good identification strategy to see the effect of the credit on individual and firm-level data.

For our analysis we have taken the case of Rajasthan since it has 55,000 registered MSMEs, which has a share of 3.51% of the total number of enterprises in the country and 5.57% of the total output generated. Both, in terms of number of enterprises and output, Rajasthan is in top 10 states in the country, but its share in employment is not in the top 10. Reasons for this could be that the distribution of employment by type of enterprise highlights that the highest share (76.86%) are at micro level. Also, in case of number of enterprises, both in rural and urban, approximately 96% of the enterprises are small enterprises. Now if we look at unregistered enterprises: It has 8,100 enterprises, both in case of rural and urban, around 98% are small enterprises.

3.1 Following are the linear regression and logit regression equations estimated for registered enterprises and unregistered enterprises.

[2] The latest census conducted on Micro, Small and Medium Enterprises (MSME) is the Fourth All India Census of MSME 2006-07. The data was collected till 2009, results of which were published in 2011-12. The census adopted different methodology for Registered and Unregistered Sectors. While complete enumeration of enterprises was adopted in Registered Sector, Sample Survey was resorted to in Unregistered Sector. However, for activities under Wholesale/Retail trade, legal, educational & social services, hotel & restaurants, transports and storage & warehousing (except cold storage), which were excluded from the coverage of Fourth All India Census of MSME 2006-07, data was extracted from Economic Census 2005 conducted by Central Statistics Office, Ministry of Statistics and Programme Implementation for finalising the report on MSME Sector.

Registered Enterprises:

$$GVA\_LOG = a * sector\_code + b * frame\_type + c * operation\_duration + d * power\_source + e * org\_type + f * operation\_nature + g * public\_bank\_branches + h * log\_tot\_emp + i * own\_category + j * activity\_nature$$

$$TOT\_EMP = a * sector\_code + b * frame\_type + c * operation\_duration + d * power\_source + e * org\_type + f * operation\_nature + g * public\_bank\_branches + h * log\_GVA + i * man\_by + j * activity\_naure$$

$$WOM\_ENT = a * sector\_code + b * frame\_type + c * operation\_duration + d * power\_source + e * org\_type + f * operation\_nature + g * public\_bank\_branches + g * log\ \_GVA * + i * man\_by + j * activity\_nature$$

Unregistered Enterprises:

$$GVA\_LOG = a * sector\_code + b * own\_category + c * operation\_duration + d * power\_source + e * org\_type + f * operation\_nature + g * public\_bank\_branches + g * log\_tot\_emp + h * activity\_nature$$

$$TOT\_EMP = a * sector\_code + b * own\_category + c * operation\_duration + d * power\_source + e * org\_type + f * operation\_nature + g * public\_bank\_branches + g * log\_GVA + h * actvity\_nature$$

$$WOM\_ENT = a * sector\_code + b * own\_category + c * operation\_duration + d * power\_source + e * org\_type + f * operation\_nature + g * public\_bank\_branches + g * man\_by + i * log\_GVA + h * actvity\_nature$$

3.2 Variables: Data description [3]

SI. No.	Variable Name	Data Description
1	CEN_SL_NO	Census Serial Number
2	FRAME_TYPE	Type of Frame Code: DIC-1, ASI-2, KVIC/KVIB-3, Coir Board-4
3	SECTOR_CODE	Sector Code: Rural 1, Urban 2
4	DIST_CODE	District Code
5	OPER_DUR_MM	Duration of Operation in 2008-09
7	ORG_TYPE	Type of Organisation: Proprietary or HUF -1, Partnership -2, Pvt Company – 3, Pub ltd Company – 4, Cooperatives – 5, Others - 6
8	POWER_SRC	Main Source of Power: No Power Needed – 1, Coal – 2, Oil – 3, LPG/CNG – 4, Electricity – 5, Non-Conventional Energy – 6, Traditional Energy/Firewood – 7, Others – 8
9	OPER_NATURE	Nature of Operation: Perennial – 1, Seasonal – 2, Casual - 3
11	ACTI_NATURE	Nature of Activity: Manufacturing/Assembling/Processing/Job Work – 1, Repairing & Maintenance – 2, Services - 3
12	WOMEN_ENT	Is Unit a Women Enterprise: Yes – 1, No -2
13	MAN_BY	Whether Managed by a Male or Female
14	OWN_CAT	Pl. Indicate Owners/Occupiers Social Category: SC-1, ST-2, OBC-3, Others - 4
15	ACC_EXIST	Is Unit Maintaining Account: Yes - 1, No - 2
16	EXPORTING	Whether the Unit is Exporting
17	EMP_TOTAL	Number of Total Employees
18	TOTAL_WAGE	Total Wage bill during 2006-07 in Rs.
19	GVA_200607	Gross Value Added During 2006-07
20	LOAN_STATUS	Whether the Unit has Taken Loan
21	OWN_RELIGN	Owner/Occupiers Religion

Methodology

Apart from the simple OLS regression, we have used the binary choice model (logistic regression) for our analysis. The intuition behind this approach is that the dependent variable is qualitative in nature. These models are used in situations where the dependent variable can take only 2 values – 1/0 or Yes/No. For example, the decision of voting for a candidate, the decision of marriage, to check whether a certain drug is effective in curing a disease or not, etc. There are different approaches to develop a model whose dependent variable is a binary response variable. One such model is the Logit model/Logistic Model. Logistic regression – It is a method "used to predict a dependent variable with an array of explanatory variables such

[3] Data layout provided by 4th all India MSME census. It can be downloaded from http://www.dcmsme.gov.in/ito_msme/censuses.htm

that the dependent variable is binary or categorical". The following equation is used to represent a logistic regression model

$$log(\frac{y}{1-y}) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_n X_n$$

The curve fitted by the aforementioned equation is not linear. This equation fits a curve called a sigmoid curve. The sigmoid curve is an 'S-shaped curve' which goes from 0 to 1. "Logistic regression predicts the probability of occurrence of an event". The cumulative distribution function (c.d.f.) of the logistic distribution is given as

$$Prob(Y = 1/X) = F(X'\beta)$$

$$F(X'\beta) = \frac{exp(X'\beta)}{1 + exp(X'\beta)}$$

This is the probability of y = 1. The expression $1 - F(X'\beta)$ gives the probability of y = 0. These predicted probabilities lie between 0 and 1. Logit models are estimated using the Maximum Likelihood (ML) Method. The ML method is a way of estimating the parameters of a model by maximising the likelihood function which is the joint probability density function of the sample values xi. The interpretation of the logit model is as follows. "In this model, the log odds of the dependent variable are modelled as a linear combination of the explanatory variables". A one unit increase in the predictor or explanatory variable changes the log odds by the coefficient value. So, with these logit coefficients, we can only interpret whether the outcome of y = 1 is more likely or less likely. It is more likely if the sign of the coefficient is positive and less likely if the sign of the coefficient is negative. The magnitude of change in Prob (y =1) cannot be ascertained from these coefficients. Marginal Effects - While estimating logit models, usually marginal effects or odds ratios are reported. "The marginal effects reflect the change in Prob (y = 1) given a 1 unit change in the explanatory variable. The marginal effect for the logit model is calculated as"

$$\frac{\partial(Prob(Y = 1))}{\partial X_j} = F'(X'\beta).\beta_j$$

The marginal effect is the product of the logit coefficient βj and $F'(X'\beta)$. $F'(X'\beta)$ is always positive. So, the sign of the marginal effect is the same as the sign of the logit coefficient. These marginal effects depend on the value of Xj. So, we estimate the marginal effects at a particular value of Xj.

4. **Descriptive analysis and Results:**

4.1 Descriptive Analysis

The analysis is carried out on fourth MSME census data for Rajasthan in 2006-07. Below tables lists the summary statistics for the Rajasthan' registered sector. Rajasthan has a total of 76,000 enterprises, out of which, 55,000 are working enterprises rest which are closed and non-traceable.

The share of rural and urban enterprises is approximately similar, 50.12% and 49.87% for rural and urban respectively. We notice that as per the distribution of workforces, share of micro enterprises is the highest, 76.8% and 67.2% in rural and urban respectively. While small enterprises and medium enterprises on the other hand seemed to be located in the urban area as compared to the rural area.

Table 4.1.1: Distribution of working enterprises by the type of enterprise.

Employment	**Micro**	**Small**	**Medium**
[4]All	52241	2541	103
[5]Rural	76.8	19.8	3.4
[6]Urban	67.2	28.9	3.9

From the below table, we notice that approximately 70% of the business activities of the MSMEs are of the nature of Manufacturing/Assembly and processing for both rural and urban in Rajasthan. This is followed by Repairing & Maintenance and Services. While manufacturing industries are concentrated in the Urban area, the services and repairing industries are clustered more in the rural parts of the state. This concentration of manufacturing industry in the urban area could also be justified from the above table since these industries fall in either in the small and medium category and these categories are located in the urban area.

Table 4.1.2: Distribution of working enterprises by the nature of activity.

Nature of activity	**Manufacturing/Assembly /Processing**	**Services**	**Repairing and Maintenance**
All	38548	7211	9126
Rural	70.1	14.1	15.6
Urban	70.4	12.2	17.4

Now, if we categorise the working enterprises in terms of nature of operation, we find that 95% of the enterprises operate perennially (*throughout the year*) (from table 4.1.3). Similarly, we look at the distribution of working enterprises (see table 4.1.4) we find that out of the 54,885 enterprises 48,580 industries are proprietary with more presence in the urban area.

[4] These are numbers

[5] These are percentage share

[6] These are percentage share

Table 4.1.3: Distribution of working enterprises by the nature of operation.

Nature of operation	Perennial	Seasonal	Casual
All	52961	1905	19
Rural	95.4	4.6	0.05
Urban	97.64	2.4	0.02

Table 4.1.4: Distribution of working enterprises by the type of organization.

Organisation _Type	Proprietary	Partnership	Private Co.	Public Ltd. Co	Co-operative	Others
All	48580	3191	2366	335	88	325
Rural	90.9	4.3	3.6	0.5	0.2	0.5
Urban	86.1	7.4	5.03	0.7	0.8	0.6

After analysing the general characteristic, we shall do a gender wise disaggregation of the entrepreneurship profile in the MSME sector. Out of 54.89 thousand enterprises, 48,900 industrial units are owned by men while, 5900 industrial units are owned by female. This points to the gender wise disparity in the ownership. Also, if we further analyse the gender representation by the place of operation, we find that for male entrepreneurs it is highest in the rural area while for the female entrepreneurs it is located in the urban area. Hence, we see a stark divide in terms of rural-urban divide when we do a gender wise disaggregation.

Table 4.1.5: State Wise entrepreneurship profile by gender.

Gender Representation	Female	Male
[7]All(in thousands)	5.9	48.9
Rural	10.2	89.9
Urban	11.6	88.4

After the gender wise disaggregation, we turn to look at the profile of the entrepreneurship on the basis of caste. We find that a severe under-representation of the marginalised community in the entrepreneurship profile. For instance, the number of entrepreneurs who are from Scheduled Caste and Scheduled Tribe is barely one fifth of the total entrepreneurs belonging to the "Others" category.

Table 4.1.6: State Wise entrepreneurship profile by category.

Enterprises by category	SC	ST	OBC	Others

[7]Numbers are in thousand

All (in thousands)	4.5	1.5	20.40	28.56
Rural	9.9	4.3	44.6	41.3
Urban	6.4	1.02	29.7	62.8

Finally, we look into the distribution in terms of the main sources of energy. We find that out of the 54,885 enterprises, close to 40,000 enterprises use electricity as the predominate form of energy consumption.

Table 4.1.7: Distribution of working enterprises by the main source of energy.

Source of energy	No power needed	Coal	Oil	LPG/CNG	Electricity	Non-Conventional Energy	Traditional Energy/ Firewood	Others
All	10214	1143	1035	175	40886	40	847	565
Rural	21.5	1.8	3.1	0.3	69.4	45	2.3	1.4
Urban	15.7	0.7	0.3	0.7	79.5	0.1	0.8	0.7

After having a glimpse of the nature and characteristics of MSMEs in Rajasthan, we shall proceed to the empirical investigation to analyse the performance of MSME and its contribution towards State Gross Value added and employment generation.

Statistics are similar for unregistered enterprises, only in case of power source, enterprises having electricity as its source comes around 45%.

4.2 Empirical Results

GVA contribution of registered enterprises

Table 2 reports the OLS estimates with log GVA_2006_07 (*Gross Value Added During 2006-07*) as the dependent variable, for the registered firms and independent variables include Sector Code: (*takes the value 1 for rural and 2 for urban*), Frame_Type (*Type of Frame Code: DIC-1, ASI-2, KVIC/KVIB-3, Coir Board-4*), Operation of duration in months, power source, organisation type, operation nature, activity nature, owners category, Public_bank_branch and log of total employment.

Table 1 : GVA contribution of registered enterprises

REG_LOG_GVA	Coef.	St.Err.	t-value	p-value	Sig
SECTOR_CODE : base 1	0	.	.	.	
2	**.212**	**.04**	**5.35**	**0**	***
FRAME_TYPE : base 1	0	.	.	.	
2	.261	.133	1.96	.059	
3	**-.175**	**.085**	**-2.07**	**.047**	***
POWER_SRC : base 1	0	.	.	.	
2	-.012	.102	-0.12	.904	
3	**.218**	**.068**	**3.23**	**.003**	***
4	.054	.114	0.47	.641	
5	**.35**	**.052**	**6.70**	**0**	***
6	**.29**	**.1**	**2.90**	**.007**	***
7	-.307	.203	-1.51	.141	
8	.129	.08	1.61	.118	
ORG_TYPE : base 1	0	.	.	.	
2	**.458**	**.123**	**3.73**	**.001**	***
3	**.99**	**.084**	**11.80**	**0**	***
4	**1.401**	**.12**	**11.64**	**0**	***
5	-.163	.237	-0.69	.496	
6	.099	.178	0.56	.58	
OPER_NATURE : base 1	0	.	.	.	
2	-.091	.153	-0.59	.557	
3	.007	.305	0.02	.982	
OWN_CAT : base 1	0	.	.	.	
2	.099	.068	1.46	.155	
3	**.089**	**.038**	**2.31**	**.027**	***
4	**.222**	**.038**	**5.89**	**0**	***
ACTI_NATURE : base 1	0	.	.	.	
2	**-.136**	**.037**	**-3.68**	**.001**	***
3	**-.31**	**.047**	**-6.64**	**0**	***
OPER_DUR_MM	**.078**	**.019**	**4.04**	**0**	***
PUB_BANK_BRH	0	0	0.90	.376	
LOG_TOT_EMP	**.933**	**.025**	**37.41**	**0**	***
Constant	7.543	.464	16.26	0	***

The above regression results highlight that, enterprises in urban area are associated with a 21% increase in an enterprise's GVA contribution to the state in comparison to enterprises located in rural.

Frame type corresponds to registration with government agencies. Enterprise registered with Annual Survey of Industries is associated with 26% increase in an enterprise GVA and enterprise registered with[8] Khadi and Village Industries Commission (KVIC) is associated with

[8] The Khadi and Village Industries Commission (KVIC) is a statutory body formed in April 1957 (During 2nd Five Year plan) by the Government of India, under the Act of Parliament, 'Khadi and Village Industries Commission Act of 1956'. It is an apex organisation under the Ministry of Micro, Small and Medium Enterprises, with regard to khadi and village industries within India, which seeks to - "plan, promote, facilitate, organise and assist in the establishment and development of khadi and village industries in the rural areas in coordination with other

17% decrease in an enterprise's GVA as compared to enterprise registered with District Industries Centres [9](DIC). One possible reason for this relationship, is that the requirement to be registered to the ASI is higher in comparison with that of the KVIC or the DIC. Hence, the industries registered would be of higher size thereby one could conjecture that their contribution to the state's GVA would be higher. Data also highlights that per enterprise GVA is higher for ASI and KVIC as compared to enterprises registered with DIC.

Source of power has been a major challenge for micro enterprises. In case of Rajasthan majority (74%) of the enterprises have electricity as power source, regression results show that, oil, electricity and non-conventional energy power sources are associated with 22%,35% and 29% increase in GVA respectively compared to firms with no power. These results point out to the urgent need for the electrification of the industry, since it has a positive externality in terms of increasing the State's GVA. Hence, the state government should take up concerted action in ensuring that electricity is available to enterprises, especially the micro enterprises.

Another important factor is organisation type, it determines access to credit, nature of working, shareholders and their share. Partnership, Private company and Public limited company shows significant coefficient, their contribution to GVA is 45%, 99% and 140% more when compared to proprietary or Hindu undivided family (HUF). From the descriptive statistics, one could observe that the sizeable number of enterprises falls in the proprietary or HUF and that number of public limited companies falls a pale comparison to this category despite having a contribution of 140% to the state economy. Also, one would observe that these proprietary or HUF enterprises are smaller, and this is a typical case of "dwarfing" that is prevalent in the MSME sector. Hence, the imperative on the government should ideally be focused on rationalise rules and giving incentives that would help these firms to grow larger.

Caste is quite pervasive in Indian society, and about ⅔rd. of Rajasthan's population belongs to SC, ST and OBC. Castes have their own network; results show that belonging to OBC and Others category have positive contributions in GVA. Also, contribution of OTHERS is 22% more than SC and OBC's 8% more than SC.

Perennial nature of the enterprises contributes more than compared to operations of the firm who operates seasonally and casually, the same is highlighted by the coefficient of operation duration months.

In Keynesian economics, production is a function of labour and capital, labour is represented by total employment. The result shows that 1% increase in employment will lead to 0.93% increase in GVA.

Characteristics of registered enterprises headed by Women

Women account for almost half of the labour force and are not yet at par with men in terms of employment. Moreover, when it comes to entrepreneurship, women entrepreneurs face far more challenges as compared to men like credit constraints, infrastructure constraints, and balancing household activities/responsibilities. For inclusive and sustainable growth, the

agencies engaged in rural development wherever necessary. These are labour intensive in nature and low on capital.

[9] Director of Industries (DI)/District Industries Centre (DIC) is a district-level registration authority for manufacturing/service enterprises

participation of women is imperative. For the above analysis[10] a woman entrepreneur is defined as an enterprise owned and controlled by a woman having a minimum financial interest of 51 per cent of the capital and giving at least 51 per cent of the employment generated in the enterprise to women.

Data highlights that the representation of women entrepreneurs is far less than men, only 5,900 out of 55,000 enterprises (11%) have women entrepreneurs. The above regression analysis seeks to analyse what factors, structural or cultural, affect the likelihood of an enterprise having a woman entrepreneur.

Table 2: Characteristics of registered enterprises headed by Women

REG_WOMEN_ENT	**Coef.**	**St.Err.**	**t-value**	**p-value**	**Sig**
SECTOR_CODE : base 1	0	.	.	.	
2	.233	.138	1.69	.09	
FRAME_TYPE : base 1	0	.	.	.	
2	**-.356**	**.174**	**-2.05**	**.04**	***
3	**.735**	**.165**	**4.44**	**0**	***
POWER_SRC : base 1	0	.	.	.	
2	-.66	.39	-1.69	.091	
3	**-.584**	**.22**	**-2.65**	**.008**	***
4	-.246	.405	-0.61	.544	
5	**-.392**	**.124**	**-3.16**	**.002**	***
6	-.029	1.084	-0.03	.979	
7	**.63**	**.228**	**2.76**	**.006**	***
8	-.137	.249	-0.55	.582	
ORG_TYPE : base 1	0	.	.	.	
2	-.136	.202	-0.67	.501	
3	**-.738**	**.191**	**-3.86**	**0**	***
4	**-.66**	**.293**	**-2.25**	**.024**	***
5	-.338	.518	-0.65	.514	
6	-.655	.415	-1.58	.115	
OPER_NATURE : base 1	0	.	.	.	
2	.054	.282	0.19	.849	
3	**1.395**	**.611**	**2.28**	**.022**	***
1	.251	.239	1.05	.294	
OWN_CAT : base 2	0	.	.	.	
3	-.112	.228	-0.49	.622	
4	**.447**	**.225**	**1.99**	**.047**	***
ACTI_NATURE : base 1	0	.	.	.	
2	**-1.149**	**.212**	**-5.43**	**0**	***
3	**.349**	**.102**	**3.42**	**.001**	***
MAN_BY : base 1	0	.	.	.	
2	**4.699**	**.152**	**30.84**	**0**	***
OPER_DUR_MM	-.042	.035	-1.20	.232	
PUB_BANK_BRH	**.003**	**0**	**5.88**	**0**	***
GVA_0607	**.112**	**.032**	**3.56**	**0**	***
Constant	-4.173	.503	-8.29	0	***

[10] Government of India – "A woman entrepreneur is defined as an enterprise owned and controlled by a woman having a minimum financial interest of 51 percent of the capital and giving at least 51 percent of the employment generated in the enterprise to women

In case Logit model, interpretation can be done by calculating marginal effects. Below table presents marginal effects

Marginal Effects:

REG_ENT_EMP	dy/dx	Std.Err.	z	P>z
2.SECTOR_CODE	0.011	0.007	1.660	0.098
FRAME_TYPE				
2	-0.015	0.007	-2.210	0.027
3	0.043	0.012	3.560	0.000
POWER_SRC				
2	-0.032	0.016	-1.940	0.053
3	-0.029	0.010	-2.960	0.003
4	-0.013	0.021	-0.630	0.526
5	-0.020	0.007	-2.900	0.004
6	-0.002	0.062	-0.030	0.979
7	0.045	0.018	2.500	0.012
8	-0.008	0.014	-0.560	0.573
ORG_TYPE				
2	-0.006	0.009	-0.690	0.490
3	-0.030	0.007	-4.090	0.000
4	-0.028	0.010	-2.630	0.009
5	-0.015	0.021	-0.710	0.478
6	-0.027	0.015	-1.860	0.062
OPER_NATURE				
2	0.003	0.014	0.190	0.851
3	0.106	0.070	1.510	0.131
OWN_CAT				
1	0.011	0.010	1.100	0.271
3	-0.005	0.009	-0.480	0.629
4	0.021	0.010	2.210	0.027
ACTI_NATURE				
2	-0.045	0.007	-6.290	0.000
3	0.020	0.006	3.340	0.001
2.MAN_BY	0.744	0.022	33.670	0.000
OPER_DUR_MM	-0.002	0.002	-1.190	0.234
PUB_BANK_BRH	0.000	0.000	6.940	0.000
GVA_0607	0.005	0.002	3.310	0.001

Results shows that at 5% level of significance, the Frame Type variable shows firms registered with ASI are 1% less likely and with KVIB are 4% more likely to have a women entrepreneur. This says that women are more likely to head small enterprises. When it comes to power sources, traditional energy and firewood dummy has positive coefficient and electricity and oil dummy has negative coefficient, it represents that traditional firewood as power source are 4% more likely to have a women entrepreneur. Also, with respect to the functioning, if the enterprise is headed by women, there is a higher likelihood that it has a woman entrepreneur.

General statistics showed that majority of the enterprises are HUF, all other categories have negative marginal effects, so less likelihood of having a women entrepreneur. Caste discrimination works through various traditional mechanisms, social hierarchy and culture. Only others category is coming out as significant. This highlights that Credit constraints present an important bottleneck when it comes to women headed enterprises. To look at the impact of public credit, which is represented by number of public branches at district level, it shows positive impact, the increase in number of public bank branches in a district increases the likelihood of women entrepreneurs.

Employment Pattern of registered firms

Micro, small and medium enterprises (MSMEs) provide large employment opportunities at lower capital cost than large industries. Data from the Annual Report of the MSME ministry (2018-19) indicates that the sector employed 1,110 lakh persons. Here we analyse the factors important in increasing employment.

Table 3 : Employment Pattern of registered firms

LOG_TOT_EMP	Coef.	St.Err.	t-value	p-value	Sig
SECTOR_CODE : base 1	0	.	.	.	
2	-.02	.032	-0.62	.542	
FRAME_TYPE : base 1	0	.	.	.	
2	**.475**	**.07**	**6.82**	**0**	***
3	**.266**	**.067**	**3.96**	**0**	***
POWER_SRC : base 1	0	.	.	.	
2	**.339**	**.08**	**4.24**	**0**	***
3	.052	.064	0.81	.426	
4	.069	.079	0.88	.387	
5	.034	.029	1.17	.253	
6	.066	.166	0.39	.696	
7	**.738**	**.228**	**3.23**	**.003**	***
8	.104	.062	1.68	.104	
ORG_TYPE : base 1	0	.	.	.	
2	**.332**	**.037**	**8.98**	**0**	***
3	**.553**	**.053**	**10.51**	**0**	***
4	**.503**	**.088**	**5.71**	**0**	***
5	**.72**	**.223**	**3.22**	**.003**	***
6	.16	.122	1.31	.199	
OWN_CAT : base 1	0	.	.	.	
2	-.125	.076	-1.64	.112	
3	-.02	.024	-0.83	.412	
4	**.108**	**.024**	**4.49**	**0**	***
MAN_BY : base 1	0	.	.	.	
2	.068	.035	1.93	.063	
ACTI_NATURE : base 1	0	.	.	.	
2	**-.286**	**.021**	**-13.62**	**0**	***
3	**-.242**	**.026**	**-9.48**	**0**	***
OPER_DUR_MM	-.053	.017	-3.06	.005	***
PUB_BANK_BRH	0	0	1.24	.224	
GVA_0607	**.378**	**.014**	**26.98**	**0**	***
Constant	-2.936	.253	-11.63	0	***

Enterprises, registered with ASI and KVIC/KVIB have a positive contribution to the employment in comparison with the enterprises who are registered with the DIC, their contribution is 47% and 26% respectively. Similarly, if the enterprise uses coal and firewood/traditional energy contributes significantly more to the employment, highlighted by the respective magnitude of 33% and 73%. But presence of public credit has limited impact as coefficient is insignificant. This could be because credit source for the majority of the firms has less reach to formal credit.

MSME is myriad with problem of informal enterprises or unregistered enterprises. More than 85% of the enterprises are informal enterprises. When we look at organisation type, Partnership, Pvt Company, Pub ltd Company and cooperatives contributes higher than HUF. This explains that scope of improving employment lies more with firms with large workers capacity.

Coefficient of operations duration month, increase in duration of month by 1 unit will decrease employment by 5%. This is because of the of seasonal and casual nature of many employment activities like food and beverages industry, leather industry etc.

This was for registered sector, now let's see the results for unregistered sector.

Performance of Unregistered MSME

Contribution of Unregistered Firms to State GVA

Studying these enterprises become important, MSME 4th census has opted for a sample survey for unregistered enterprises. A total of 8,100 enterprises were surveyed. Three regression equations are estimated for gross value added, employment generation and women entrepreneurship, same as registered enterprises.

TABLE 4: Contribution of Unregistered Firms to State GVA

UNREG_LOG_GVA	Coef.	Std Err.	t-value	p-value	Sig
SECTOR_CODE : base 1	0	.	.	.	
2	**.329**	**.102**	**3.21**	**.003**	***
POWER_SRC : base 1	0	.	.	.	
2	-.148	.115	-1.29	.206	
3	**.222**	**.107**	**2.09**	**.045**	***
4	.27	.176	1.53	.135	
5	**.235**	**.057**	**4.13**	**0**	***
6	-.377	.527	-0.71	.481	
7	-.242	.18	-1.35	.188	
8	.121	.127	0.95	.348	
ORG_TYPE : base 1	0	.	.	.	
2	.27	.148	1.82	.079	
5	**-.463**	**.155**	**-2.99**	**.005**	***
6	**-.513**	**.153**	**-3.34**	**.002**	***
1	**.332**	**.15**	**2.21**	**.034**	***
2	-.082	.186	-0.44	.661	
OPER_NATURE : base 3	0	.	.	.	
OWN_CAT : base 1	0	.	.	.	
2	.004	.202	0.02	.983	
3	**.224**	**.074**	**3.05**	**.005**	***
4	**.217**	**.07**	**3.08**	**.004**	***
ACTI_NATURE : base 1	0	.	.	.	

2	.161	.123	1.31	.2	
3	-.006	.058	-0.10	.921	
OPER_DUR_MM	**.069**	**.023**	**3.02**	**.005**	***
PUB_BANK_BRH	0	.001	0.28	.778	
LOG_TOT_EMP	**.711**	**.096**	**7.40**	**0**	***
Constant	8.748	.309	28.34	0	***

Unregistered enterprises present in urban sector increases GVA by 33% as compared to rural area. Oil as a source of power will increase GVA by 22% as compared to enterprise have no power, and firms having electricity increases GVA by 24% as compared to no power firms. If we look at owner's category, it highlights those enterprises having owners belonging to OBC and Others increases GVA by 22% compared to owners belonging to SC category. This highlights under-representation of SC ST categories. Similarly, one could observe that the effect of employment is positive and that the increase of 1% in total employment increases GVA by 0.7%. Also, the operation duration coefficient is positive, same as registered sector.

Determinants of total employment by Unregistered Enterprises

We find that urban enterprises contribute 13% more than rural enterprises in terms of the total employment generation. If one looks at the organisation type, we notice that only cooperatives come out as significant and looking at the magnitudes one could say that cooperatives contribute 128% higher than proprietary or HUF in terms of employment generation. Enterprises using oil power source decreases employment by 9% and those using coal and traditional energy sources increases employment by 20% and 42% respectively when compared to those who use no power. This result is the opposite of the GVA regression result, where oil, coal and electricity are coming out as significant, but employment generation increases via firms using traditional resources. Similarly, casual nature of operation decreases employment by 11% as compared to firms that works perennially. We find that none of the owners' category is significant. Gross value added also contributes positively to employment generation which, means that 1 % increase in GVA, increases employment by 0.2%.

Table 5: Determinants of total employment by Unregistered Enterprises

LOG_TOT_EMP	Coef.	St.Err.	t-value	p-value	Sig
SECTOR_CODE : base 1	0	.	.	.	
2	**.134**	**.039**	**3.48**	**.002**	***
OPER_NATURE : base 1	0	.	.	.	
2	.103	.067	1.52	.138	
3	.071	.073	0.97	.338	
ORG_TYPE : base 1	0	.	.	.	
2	.247	.147	1.68	.104	
5	**1.285**	**.291**	**4.41**	**0**	***
6	.069	.058	1.20	.241	
POWER_SRC : base 1	0	.	.	.	
2	**.202**	**.085**	**2.38**	**.024**	***
3	**-.09**	**.034**	**-2.62**	**.014**	***
4	-.046	.082	-0.56	.581	
5	.004	.026	0.14	.887	
6	-.15	.147	-1.02	.316	
7	**.418**	**.041**	**10.19**	**0**	***
8	-.061	.157	-0.39	.7	
ACTI_NATURE : base 1	0	.	.	.	
2	-.092	.063	-1.47	.152	
3	**-.113**	**.026**	**-4.38**	**0**	***

OWN_CAT : base 1	0	.	.	.	
2	.007	.083	0.08	.937	
3	-.025	.036	-0.68	.5	
4	-.002	.042	-0.05	.962	
PUB_BANK_BRH	0	0	1.14	.264	
OPER_DUR_MM	**-.023**	**.01**	**-2.34**	**.026**	***
ln_gva_200607	**.21**	**.025**	**8.33**	**0**	***
Constant	-1.631	.263	-6.19	0	***

Now let's look at characteristics of women headed unregistered enterprises.

Table 6: Characteristics of unregistered enterprises headed by Women

UNREG_WOMEN_ENT	**Coef.**	**St.Err.**	**t-value**	**p-value**	**Sig**
SECTOR_CODE : base 1	0	.	.	.	
2	-.27	.283	-0.95	.34	
POWER_SRC : base 1	0	.	.	.	
2	**-2.039**	**.814**	**-2.51**	**.012**	***
3	**-2.782**	**.464**	**-6.00**	**0**	***
4	0	.	.	.	
5	**-1.588**	**.222**	**-7.16**	**0**	***
6	1.254	.835	1.50	.133	
7	**-2.799**	**.441**	**-6.35**	**0**	***
80	0	.	.	.	
ORG_TYPE : base 1	0	.	.	.	
2	.986	.557	1.77	.076	
5	.766	1.244	0.62	.538	
6	-2.04	1.326	-1.54	.124	
OPER_NATURE : base 1	0	.	.	.	
2	.526	.299	1.76	.079	
3	**1.66**	**.356**	**4.66**	**0**	***
ACTI_NATURE : base 1	0	.	.	.	
2	**-1.767**	**.764**	**-2.31**	**.021**	***
3	**-2.082**	**.325**	**-6.41**	**0**	***
OWN_CAT : base 1	0	.	.	.	
2	-.684	.605	-1.13	.258	
3	-.183	.273	-0.67	.503	
4	.437	.331	1.32	.187	
OPER_DUR_MM	**.227**	**.089**	**2.54**	**.011**	***
PUB_BANK_BRH	-.001	.001	-0.74	.459	
ln_gva_200607	**-.794**	**.125**	**-6.36**	**0**	***
Constant	4.423	1.869	2.37	.018	***

Logit regression coefficient's magnitude cannot be interpreted; hence we calculate marginal effects. Following are the results are of the marginal effects of the women entrepreneurship estimated using the logit regression.

Marginal Effects:

UNREG_WOMEN_ENT	dy/dx	Std.Err.	z	P>z
2.SECTOR_CODE	-0.018	0.018	-0.990	0.324
POWER_SRC				
2	-0.124	0.025	-4.890	0.000
3	-0.138	0.015	-9.040	0.000
4	.			
5	-0.110	0.016	-6.800	0.000
6	0.182	0.146	1.250	0.213
7	-0.138	0.014	-9.630	0.000
ORG_TYPE				
2	0.086	0.058	1.470	0.141
5	0.063	0.122	0.520	0.605
6	-0.075	0.023	-3.270	0.001
OPER_NATURE				
2	0.040	0.026	1.550	0.122
3	0.166	0.050	3.340	0.001
ACTI_NATURE				
2	-0.094	0.023	-4.010	0.000
3	-0.102	0.013	-7.700	0.000
OWN_CAT				
2	-0.039	0.031	-1.250	0.213
3	-0.012	0.019	-0.640	0.520
4	0.034	0.025	1.390	0.165
OPER_DUR_MM	0.015	0.006	2.420	0.015
PUB_BANK_BRH	-0.000	0.000	-0.730	0.465
ln_gva_200607	-0.053	0.008	-6.230	0.000

Power Source: Enterprises having traditional energy sources are 18% more likely to have a women entrepreneur as compared to firms having no power needed, rest are negative. For Org Type: None are significant as compared to base, none of the Owner's Category is significant. Here, Operations duration month is positive, increase by 1 unit is .01% more likely to have a women entrepreneur. In terms of Activity Nature, Firms involved Repairing maintenance are 9% less likely to have women entrepreneur, also services, 10% less likely.

Conclusion and Policy Imperatives

If we compare registered vis a biss unregistered and look at how similar factors are affecting GVA, employment and women entrepreneurship. We find vital policy suggestions:

GVA

Variables	Registered	Unregistered
Sector Code	Urban contributes 21% more as compared to rural enterprises	Urban contributes 32% more as compared to rural enterprises
Frame Type	Firms registered with ASI (26%) contributing more and firms registered with KVIC (17%) contributing less as compared to firms with DIC	Not registered, hence no frame type

Power Source	Oil and Electricity contributes higher than HUF	Oil and Electricity contributes higher than HUF
Organisation Type	Partnership, Pvt Company and Pub ltd Company contributes higher than HUF	Cooperatives contribute less than HUF
Owner's category	OBC and OTHERS Contribute more than SC, 8% and 22% respectively	OBC and OTHERS Contribute more than SC by 22%
Operation duration	Increase in operation effects employment generation positively (7%)	Increase in operation effects employment generation positively (8%)
Activity Nature	Repairing and maintenance and Services Contribute less than Manufacturing, Assembling and Processing	Not significant

Employment

Variables	Registered	Unregistered
Sector Code	Coefficient not significant	Urban contributes 13% more as compared to rural enterprises
Frame Type	Firms registered with ASI (48%) and KVIC (26.6) contributing more as compared to firms with DIC	Not registered, hence no frame type
Power Source	Coal and Firewood, higher than HUF	Coal, Oil and Firewood Higher than HUF
Organisation Type	Partnership, Pvt Company and Pub ltd Company contributes higher than HUF	Cooperatives contribute higher than HUF
Owner's category	OTHERS Contribute more than SC	Not significant
Operation duration	Increase in operation effects employment generation negatively	Increase in operation effects employment generation negatively
Activity Nature	Repairing and maintenance and Services Contribute less than Manufacturing, Assembling and Processing	Services Contribute less than Manufacturing, Assembling and Processing

Women Entrepreneurship

Variables	Registered	Unregistered
Sector Code	Coefficient not significant	Coefficient not significant
Frame Type	Firms registered with ASI are 1% less likely and who are registered with KVIC are 4% more to have a women entrepreneur Activity	Unregistered, hence no frame type
Power Source	Oil and Firewood, higher than HUF	Coal, Oil and Firewood Higher than HUF
Organisation Type	Partnership, Pvt Company and Pub ltd Company have lower likelihood of having a women entrepreneur as compared to HUF	None are significant as compared to base
Owner's category	OTHERS Contribute more than SC	Not significant
Operation duration	Increase in operation effects employment generation negatively (0.02%)	Increase in operation effects employment generation positively (0.01%)
Activity Nature	Repairing and maintenance and Services Contribute less than Manufacturing, Assembling and Processing	Services Contribute less than Manufacturing, Assembling and Processing

Some of the policy insights from this study could be seen as follows. Urban sector holds significance for GVA and Unregistered Employment, but not for women entrepreneurship. When it comes to power source traditional energy contributes to Employment and Women Entrepreneurship more than other power sources but comes as insignificant for GVA.

When we look at earning gaps, employment gaps, our analysis shows that, owners' category and OTHERS Contribute more than SC in case of registered sector, for both Employment and Women Entrepreneurship, but is insignificant for unregistered sector. In GVA, both OBC and OTHERS contribute more than SC

More than 90% of the farms belong to HUF/proprietary organization type, all organization type as compared to base (HUF) have negative marginal effect on women entrepreneurship but pvt. Company, pub ltd. Company and cooperatives have positive contribution to GVA and Employment in registered sector.

Operation duration is an important factor for all three variables, GVA, employment and women entrepreneurship come out positive for GVA, negative for employment, hence, higher employment is generated by seasonal or casual operations.

It shows that, given Rajasthan's demographics, firms registered with KVIC is contributing more to employment. Hence, as a short-term strategy to cater to high unemployment in the state, small firms with employment potential needs to be encouraged. Further, study presents that employment per enterprise is high when duration of operation is 6 and 8 months, it highlights that nature of function are seasonal, there could be schemes specially targeted to

such operations and going forward perennial operations need to increase, this could be done by moving up the supply chain, for e.g., Food processing. Manufacturing, Assembly and processing contributes to both GVA and employment generation, these operations could be scaled up to have economies of scale, development of clusters could be one way forward. Moreover, informal enterprises possess another challenge, they face more constraints in comparison to registered firms. Hence, going forward, formalization of unregistered enterprises should be the focus.

Newly introduced schemes like Tool Room & Technical Institutions, established across India catering to relevant sectors such as general engineering, foundry & forging, electronics, fragrance, glass, sports good and footwear, beekeeping activity and agarbatti making projects will generate employment, moreover credit linked subsidy, interest subvention scheme, procurement and market support provides them cushioning in the short and medium term. Long term strategy should be moving up the value chain, which basically generates the high revenue, so that they can generate collateral and take loans from formal institutions, this will also enhance formalization in the economy. China has moved up the value chain and has entered into more complex, sophisticated and high skill goods, many countries like Vietnam, Thailand have benefitted from entering the value chain. India could also utilise the gap, given the present requirement of labour-intensive employment. Study has highlighted the role of KVIC and DIC registered enterprises contribution to employment, this provides an opportunity for high employment intensity firms to be a part of the value chain.

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