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AN EVALUATION OF THE IMPACT OF THE DAIRY INDUSTRY ON EMPLOYMENT GENERATION AND BUSINESS GROWTH IN LOCAL COMMUNITIES

Dr Shweta Khandelwal
Assistant Professor
Department of Geography
University of Rajasthan
Mail - drshwetakhandelwal159@gmail.com

ABSTRACT

The objective of the present study was to evaluate the effect of dairy industries on employment opportunity and growth of business in the Jaipur district of Rajasthan in India. The research was of exploratory and analytical nature conducting with the help of a stratified random sampling technique involving 300 participants from the Jaipur and its vicinity who possesses potentiality for development of dairy industry.

Structural equation modeling was applied to determine the flow between growth in the dairy industry, employment creation and the SME growth within the targeted local region. The research study results made it clear that there is a positive correlation between the dairy industry development and employment and SME development in the local economy. These were in line with earlier studies that have pointed out the dairy sector in supporting livelihoods and boosting economic growth in the region.

As for main findings, the research enriches the existing theoretical background with empirical data concerning the role of the dairy industry for local economic development in the context of Jaipur district. It provides relevant information for the policy maker and other stakeholders in the process of coming up with policies that can harness the dairy sector for the development of the rural areas. The study also presents a number of recommendations for future research that includes the following; Long term effects of the sector development, gender dynamics of sector development, environmental effects of the sector development.

Such findings stress the need for policies that would promote further development of the dairy industry as one of the strategies for employment and local enterprise creation in rural areas. It is for this reason that the study suggests policies aimed at promoting the development of the dairy sector and the dairy cooperatives, supporting women involved in the dairy production and ensuring adequate supporting infrastructure and market facilities. The realisation of these propositions could

possibly further improve the beneficial effects of dairy industry development to local economy in Jaipur district and other analogous areas in India.

Keywords - Dairy Industry, Employment Generation, Business Growth, SME, Jaipur

INTRODUCTION

The dairy industry in India has improved a lot, and it has made the country to be among the leading producers of milk in the world. Present milk production of India has risen to 155 million tonnes in comparison to 17 million tonnes in 1950-51. About 5 million tonnes in 2015-16, which constituted approximately 18 per cent of the world's production. It ranked 15th in the global production of milk as it contributed to 5% of the total production of the worldwide milk production (NDDB, 2017). This growth was due to the effectiveness of programmes such as Operation Flood and rising consumption of dairy products.

The milk production has been an essential input for the growth of rural and semi-urban areas, providing source of income to tens of millions of people across the globe. Many regions like the developing regions in India, the dairy sector not just plays the role for the national economy growth but also plays the role of poverty reduction, food security and for the upliftment of rural livelihood. This sector forms one of the biggest agriculture industries and as such is responsible for creating employment and boosting business activities through production, processing, sale, marketing and distribution of dairy products and byproducts.

In local communities especially in the agrarian societies the milk industry provides several employment opportunities that include dairy farming, animal breeding, processing, packaging and even distribution. Apart from these tangible impacts, the industry also supports creation of other complimentary industries including animal health, feeds, equipment, and transportation, among others, thus enhancing the industry's economic impact. This has a ripple effect on the economy since the money generated by the dairy producing sector engulfs other sectors within the region hence enhancing economic diversification.

Rajasthan has emerged as a significant contributor to India's dairy sector. As of 2015-16, Rajasthan was the second-largest milk-producing state in India, contributing about 12.1% of the country's total milk production (Department of Animal Husbandry, Government of Rajasthan, 2017). The state's dairy business shows promising prospects due to its large cattle population, established cooperative networks, and supportive government policies.

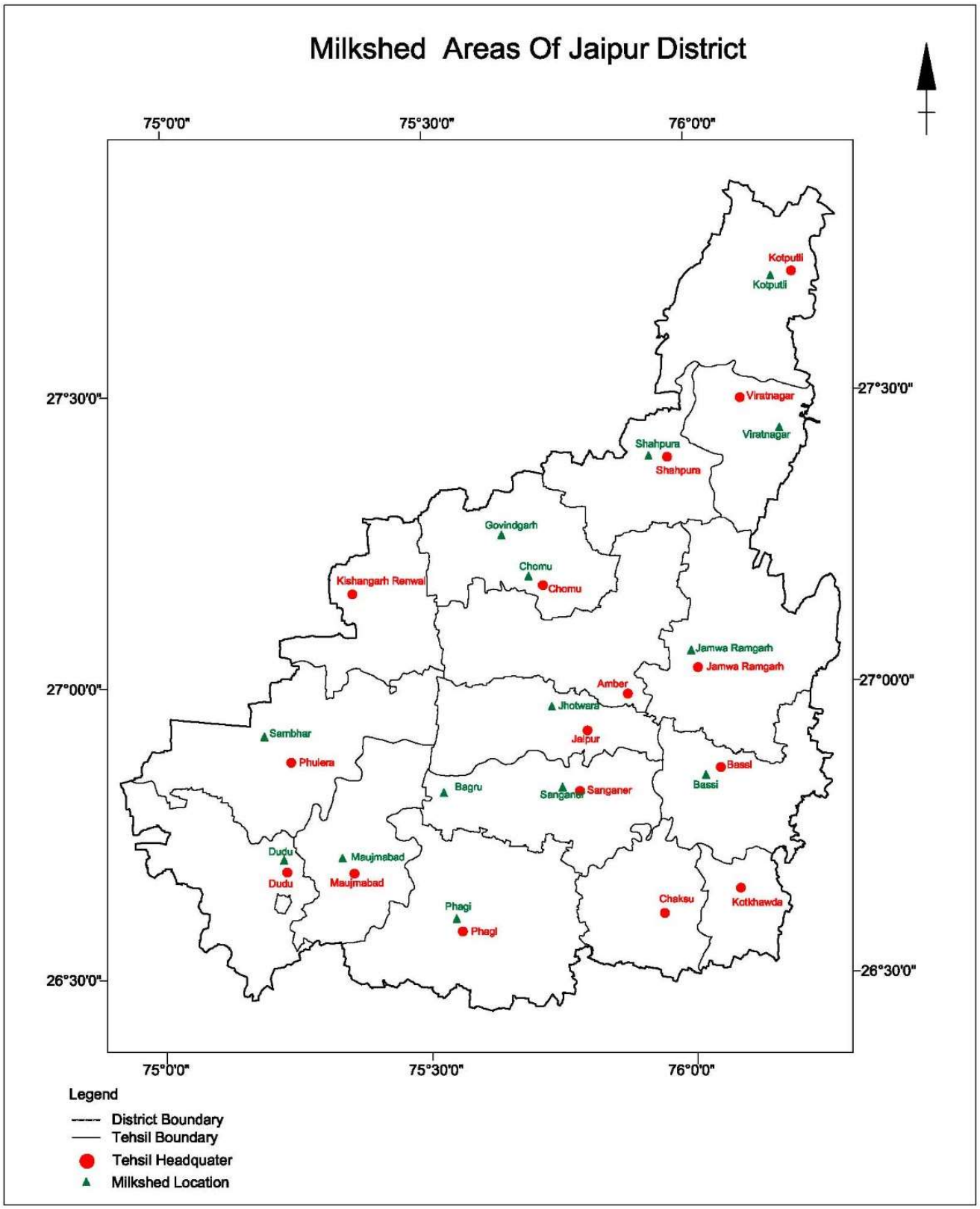
In Jaipur district a large number of population depends on dairy sector for their livelihood. As per the 2012 study based on the Livestock Census, the city of Jaipur had a count of more than 1 lakh cattle. 3 million which lays a good footing for the dairy activities (Government of Rajasthan, Department of Animal Husbandry, 2013). For instance, the Jaipur Zila Dugdh Utpadak Sahakari Sangh Ltd. , one of the leading milk cooperative society in the district demonstrated an average

daily procurement of 380000 liters in 2016-17 financial year, thereby demonstrating the potential of the dairy sector in the area (Jaipur Dairy, 2017).

It has become apparent that dairy farming has taken central stage in bringing about socio-economic transformation in many regions of India especially in the rural and peri-urban regions. Out of these the Jaipur Milkshed region is the most appropriate example where there are huge opportunities for dairy farming and all other related industries. Jaipur has a very strong background of agriculture and, being located closer to the urban markets, offers a favorable ground for the development of the dairy business. This industry not only create employment for the local population but also stimulate business development of other related industries including animal farming, feed production, veterinary, and transport industries.

Jaipur being the largest producer of milk in the country; the dairy sector provides a constant source of income to thousands of small-scale farmers as well as food processing entrepreneurs in the city. Farmers have benefited from the services of Cooperatives and private dairies in marketing their milk through enhancing larger markets for the produce. This has result to employment creation particularly for women and other disadvantaged groups, and it has also boosted the development of other related businesses to the dairy business.

This research analyses the effect of the dairy production on employment creation and business opportunities in the Jaipur area. Thus, it tries to find out how the sector is beneficial for the local economy and how it used position of Jaipur as the center of the dairy production and selling. Thus, it is the intention of the paper to discuss the prospects for the further development of the local dairy industry strengthening and analyse the possible threats, which may hinder the industry's evolution and successful continual growth in the region. The map below illustrates the milkshed areas surrounding Jaipur from which milk is supplied to Jaipur Dairy and other milk distribution companies. These areas include Bagru, Chomu, Sanganer, Kotputli, Shahpura, Dudu, Sambhar, Phagi, Viratnagar, Jamwa Ramgarh, Bassi, Maujamabad, Govindgarh, and Jhotwara.


Milkshed Areas Of Jaipur District
75°0'0"
75°30'0"
76°0'0"
27°30'0"
27°00'0"
26°30'0"
Kotputli
Kotputli
Viratnagar
Viratnagar
Shahpura
Shahpura
Govindgarh
Chomu
Chomu
Kishangarh Renwal
Jamwa Ramgarh
Jamwa Ramgarh
Amber
Jhotwara
Jaipur
Sambhar
Phulera
Bassi
Bassi
Bagru
Sanganer
Sanganer
Dudu
Dudu
Maujmabad
Maujmabad
Phagi
Phagi
Chaksu
Kotkhawda
Legend
District Boundary
Tehsil Boundary
Tehsil Headquater
Milkshed Location

REVIEW OF LITERATURE

Dairy sector has had a great impact in employment generation and growth of businesses in rural areas of India. According to Sharma et al (2014), about 60 million rural households in India depend on the dairy sector pointing to the sector's role in the employment of the rural populace. The research established that three-quarter of all these households are small and marginal farmers that means that the sector has a social responsibility of supporting vulnerable segments of the economy.

According to Kumar (2010), the analysis of the effects of dairying on the income revealed that dairying contributed about 26% of the agricultural GDP of India. The study also highlighted the fact that the dairy sector expanded at a higher rate that the agricultural sector from 2000 to 2010 with the rate of expansion being 4 percent. Such growth has had a number of implications on employment and local economy.

For employment generation, Bardhan et al. , 2012 in their study of West Bengal have identified that dairy farming provides direct and indirect employment. They approximated that with each 1000 litres of milk produced daily, approximately 230 person-days of employment were produced per year. However, insights into the employment potential of the dairy sector were obtained from this study even though it was done in a specific region.

Overall performance of dairy sector has been observed on the rising note, especially in Rajasthan. A similar study was conducted by Jain and Sharma, 2015 to evaluate the dairy cooperatives in Rajasthan and according to this they observed that the milk procurement by the cooperatives had raised by 71 percent between 2001-02 and 2011-12. These cooperative activities have also created more employment and better income to the households in the rural areas.

Focusing on the local firms, Singh et al. (2016) investigated the dairy value chain of Rajasthan. They were able to discover that several sub industries have been created arising from the growth of the dairy industry which include feed manufacturers, veterinaries, and milk processors that have had positive effects on the local economy.

Specifically, in Jaipur district, Jangid and Meena have done the study of the economic effect of dairy farming in 2013. This study revealed that dairy farming played a very important role in the households' income since 30% of the total income was obtained from dairy related activities. This shows the role of the sector in the development of local economy.

There have been several works done on the involvement of women in the dairy sector and employment aspect. Meena et al. , (2009) have reported the study in Rajasthan that women are involved around 60% of the labor participation in dairy farming. This has resulted in increased economic empowerment status of rural women.

About the effect on poverty reduction, Candler and Kumar (1998) was carrying out a long-term analysis of the effects of dairy cooperatives in India. Thus, the authors discovered that the members of dairy cooperatives had greater household income as compared to non-members and, therefore, the integration in the dairy sector may well assist in poverty alleviation.

Technology has also played its part in the development of this sector and its effects on the market as well. Hegde (2006) elaborated how the modern technologies in breeding, animal health and breeding have boosted productivity in the Indian dairy sector and in the process have facilitated employment creation and economic development.

Nonetheless, the issue of how to get the most out of the sector for employment generation as well as nurturing the local enterprises is still another contentious debate. According to Sharma et al. (2011), some of the problems that were felt by the small dairy farmers in India include low production, poor animal health and market access.

In the continuation of the economic contribution of dairy farming, Kabir and Talukder (2011) have carried out a study in Bangladesh which has similar characteristics like India. They were able to determine that dairy farming played a very important role in income generating among the households with an average of 11. Occupying 7% of the total household income, dairy activities are pivotal to the households, and all the more crucial to the global food system. This study though conducted in a country, other than India, can be helpful to understand the possibilities of dairy farming as a means of income in developing countries.

In India Mahajan et al. (2015) studied how dairy cooperatives affect small farmers in Maharashtra state. Thus, cooperative membership was associated with an increase in the milk yield in their study by 27 percent, and with an increase in net returns from dairying by 40 percent. The findings of this study are aimed at showing how cooperatives can improve the economic returns of dairy farming among the small scale producers.

In terms of employment generation Sirohi et al. (2009) suggested that approximately 18 million people were employed in India ‘s dairy sector out of which 5. 5 million in the organized sector Only a few employment opportunities exist in the organized sector and this statistic explains it. They also pointed out that the sector can produce massive employment, mainly self-employment for the landless worker and small farmer.

A number of researchers have focused their attention towards the dairy industry in Rajasthan. In a study on cost structure of milk production in Rajasthan by Meena et al. , (2012) the benefit cost ratio of dairy farming was found to be 1 even for small holders. 27. This profitability has the potential of creating employment and growing the local economies in the sector.

Sharma and Singh (2016) have looked at the impact of dairy cooperatives in giving employment to the rural women in a study conducted only for the Jaipur region. The authors concluded that

women in the rural areas of Jaipur district benefited from the dairy cooperatives through the means of increased income, better decision making power and social status.

The impact of technological advance on dairy industry was discussed by the scholar Kumar et al. in his study conducted in the year 2013. It was also noted that exposing the farmers in Rajasthan to better practices of dairy farming enhanced the milk production by 22 percent the net social returns by 35 percent. The increase in productivity, therefore, has implications on employment and the ability of local businesses to grow.

Chand et al. (2015) examined the role of animal source in the income of farmers India. Therefore they realized that the proportion of income from livestock out of total farm income rose from 4. 3 percent in the year 2002-03 to 11 percent in 2008-09″ In the same year In the same year. 9% in 2012-13 with the major contribution made by dairy sector. This trend shows the increasing role of dairy in the livelihood of farmers in the farming areas.

Squicciarini et al. (2017) also extended the discussion on the contribution of dairy to poverty reduction. In their cross-sectional analysis of several states in India, they report that there is a 16-21 percent reduced likelihood of being poor among the households that are involved in dairy farming as compared to the non-dairy farming households.

Bayan (2015) made a study on the employment generation on dairy sector of Assam. Even though not restricted to Rajasthan, this study can be useful in understanding the employments possibilities of dairy farming in India. When it came to the employment of labour, the author discovered that the dairy farming provided 165 person-days of employment per household per year.

In the past Kumar and Staal (2010) also studied the Indian dairy sector with regards to the scale factor. They discovered that although integrated large scale dairy farming systems were more productive, the small farmers were important in regard to employment generation and rural development. It gives a clear indication that small scale dairy farmers need to be empowered to enable balanced economic development. According to the literature review it could hypothesize the following -

H1: The dairy industry significantly contributes to employment generation in local communities.

H2: The expansion of the dairy industry is positively associated with the growth of local small and medium enterprises (SMEs).

OBJECTIVE OF THE STUDY

I To analyze the role of the dairy industry in creating employment opportunities in local communities.

II To evaluate the contribution of the dairy industry to the growth of small and medium enterprises (SMEs) in the local economy.

RESEARCH METHODOLOGY

This study was primarily exploratory and analytical in nature. It was exploratory as it sought to investigate the impact of dairy industry growth on employment generation and local business growth in Jaipur district, an area where limited research had been conducted previously. The analytical aspect was evident in the use of structural equation modeling to assess the association between dependent and independent variables, as well as the regression of the independent variable on two dependent variables.

The sample population for this study consisted of individuals involved in the dairy industry in Jaipur and its nearby areas where there were possibilities of dairy industry expansion. The study adopted a stratified random sampling technique. This technique was chosen because it allowed for the division of the population into homogeneous subgroups (strata) based on relevant characteristics such as role in the dairy industry (e.g., farmers, cooperative members, SME owners), geographical location within the study area, and scale of operations. This ensured representation from various segments of the dairy industry. The stratified random sampling technique was particularly suitable for this study as it helped to capture the diversity within the dairy sector while maintaining the benefits of random selection within each stratum, thus enhancing the representativeness of the sample and the generalizability of the findings.

Some of the data for this study was collected using a structured questionnaires. The questionnaire was developed with the help of, literature review on dairy industry growth, employment and local business development. These sub-topics comprised of demographic information, participation of dairy industry, perceived employment consequences of the change and business consequences. Closed-ended questions with Likert scales were used alongside open-ended questions so as to also include both quantitative and qualitative data in the self-completed questionnaire.

To ensure that the questionnaire is valid the following procedure was followed. First, the first draft was submitted to 5 experts in agricultural economics and rural development. The feedback of the participants was used to enhance the readability, the pertinence and the coverage of the questions. After that, for the purpose of establishing the reliability and validity of the tool, a pilot study with a small sample of 30 respondents from the target population was conducted. This pilot study was useful in determining whether or not there were any uncertainties as to the questions asked and the time taken by the participants to fill the questionnaire. Therefore, after getting the results from the pilot study, minor modifications were made on the questionnaire to arrive at the final form.

The main technique used to conduct the primary data collection process was interviews conducted on the respondents. For these interviews, a team of trained enumerators, proficient in both Hindi

and the local language/dialect was used. The enumerators were rightly informed about the study objectives and methods of interview so that there would be less variability while collecting data. The interviews were held at the participants' farm, at the place where the cooperatives meet, or at the local market.

The number of respondents that could be used in this study was limited to 300 in order to arrive at a conclusive result. The current sample size was, therefore, selected with reference to the principles of structural equation modeling and the need to have enough statistical power to perform the proposed analyses. In order to capture seasonal fluctuations in dairy activities the data was collected over a three month period.

To increase the response rate and the quality of the data collected the research team worked with the local dairy cooperatives and with the offices of agricultural extension. These partnerships were useful in ensuring trust with the respondents as well as offers local knowledge on the topic. During the period of data collection, quality control measures were conducted frequently so as to assess the data's compliance with the necessary criteria. In cases where there were differences or no data was given the necessary adjustments and follow-ups were made through home visits or phone calls.

The obtained data was than coded, entered into a statistical software and cleared and validated through various methods before structuring the final analysis using structural equation modelling and regression analysis.

RESULTS

Table 1 - Models Info

Estimation Method	ML
Optimization Method	NLMINB
Number of observations	300
Model	Dairy Industry Growth =~IDB1+IDB2+IDB3+IDB4+IDB5
	Employment Generation =~EG1+EG2+EG3+EG4+EG5
	SME Growth in Local Area=~SME1+SME2+SME3+SMEL4+SMEL5
	Employment Generation ~Dairy Industry Growth

	SME Growth in Local Area~Dairy Industry Growth

Table 1 also offers a structural equation model (SEM) of the dairy industry and its connection estimates. The estimation method employed is Maximum likelihood (ML) which is optimized by NLMINB with the sample size of 300 observations. The model looks at the relationship between Dairy Industry Growth (described herein by IDB1 through IDB5) and Employment Generation (described by EG1 to EG5), and SME Growth in the Local Area (described by SME1 to SMEL5). Further, Employment Generation and SME Growth, Local Area are two other variables included in the study which are dependent on Dairy Industry Growth.

Table 2 - Model tests

Label	**X^2**	**df**	**p**
User Model	414	87	< .001
Baseline Model	1031	105	< .001

Table 2 shown below contains the estimates of a structural equation model fit statistics. Chi-square value (X^2) of the user model is 414 with 87 df with a significance level of $p < 0.001$, which is greatly deviating from the model, meaning that the former is greatly different from the latter. The baseline model which is used as the point of comparison has a chi-square value of 1031 with 105 degrees of freedom and p<. 001. These values indicate that both the models are significantly different but the user model is better fitting than the baseline model.

Table 3 - Fit indices

		95% Confidence Intervals		
SRMR	**RMSEA**	**Lower**	**Upper**	**RMSEA p**
0.091	0.112	0.101	0.123	< .001

The following is the model fit indices of the structural equation model The tabular representation of model fit indices of the structural equation model is given below. The values of the Standardized Root Mean Square Residual (SRMR) are 0. 091, indicating moderate fit. The test of close fit, or Root Mean Square Error of Approximation (RMSEA) is 0. 112, CI 95%, from 0. 101 to 0. 123 which means that the model does not fit the data well. The p-value for RMSEA is less than. 001, which means that there is a statistically significant misfit of the model proposed. In total, these indices indicate that the model has a low level of fit, and therefore it is not sufficient for analysis of the data.

Table 4 - Parameters estimates

				95% Confidence Intervals				
Dep	**Pred**	**Estimate**	**SE**	**Lower**	**Upper**	**β**	**z**	**p**
Employment Generation	Dairy Industry Growth	0.14	0.0407	0.0604	0.22	0.284	3.44	< .001
SME Growth in Local Area	Dairy Industry Growth	0.126	0.0397	0.0487	0.204	0.29	3.19	0.001

Table 4 contains estimates of parameters of the structural equation model. The correlation between Dairy Industry Growth and Employment Generation is positive estimate of 0. 14 (SE= 0). 0407, the 95%CI [0. 0604 to 0. 22, and a standardized coefficient (β) of 0. 284. The z-value is 3. 44, and the p-value is less than. 001, indicating statistical significance. Similarly, the Dairy Industry Growth has a positive effect on SME Growth in the Local Area with estimate of 0. 126, SE of 0. 0397 to a lower bound of 0, and an upper bound of 0. 0487 and 0. 204, β of 0. 29, z-value of 3. 19, and a p-value of 0. 001, also showing significance.

Figure 1 - Path diagrams

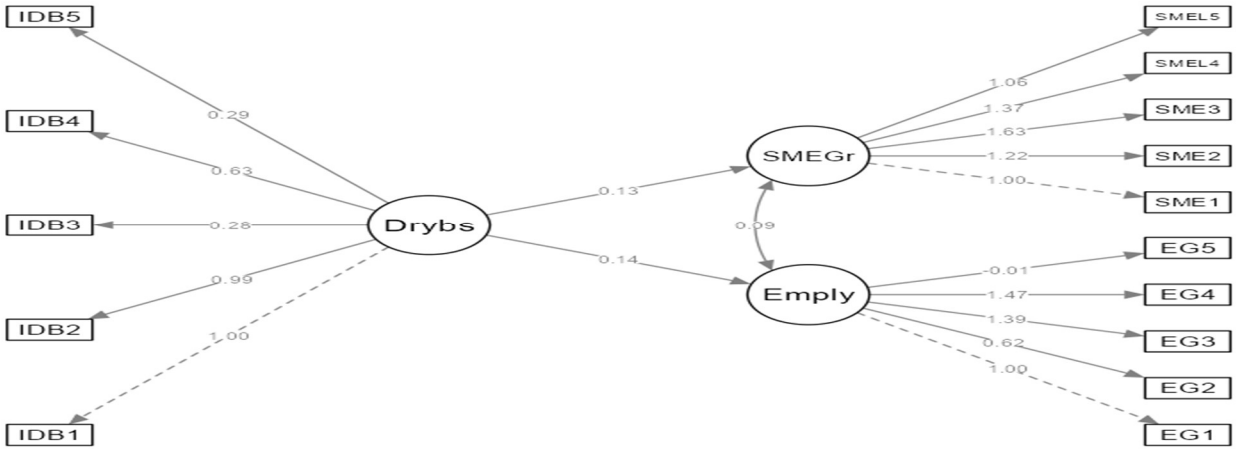


Table 5 - Measurement model

				95% Confidence Intervals				
Latent	**Observed**	**Estimate**	**SE**	**Lower**	**Upper**	**β**	**z**	**p**
Dairy Industry Growth	IDB1	1	0	1	1	0.7453		
	IDB2	0.9927	0.1123	0.7727	1.213	0.80729	8.8432	< .001
	IDB3	0.2797	0.1019	0.0799	0.479	0.17971	2.7442	0.006
	IDB4	0.6315	0.0843	0.4662	0.797	0.50833	7.4871	< .001
	IDB5	0.2857	0.0763	0.1361	0.435	0.24618	3.7429	< .001
Employment Generation	EG1	1	0	1	1	0.57539		
	EG2	0.6156	0.1728	0.2769	0.954	0.2499	3.5622	< .001
	EG3	1.395	0.1855	1.0315	1.759	0.67314	7.5213	< .001
	EG4	1.4742	0.1933	1.0954	1.853	0.7169	7.6284	< .001
	EG5	-0.0135	0.2015	-0.4085	0.381	-0.0045	-0.067	0.947
SME Growth in Local Area	SME1	1	0	1	1	0.44703		
	SME2	1.2171	0.2396	0.7475	1.687	0.48314	5.0794	< .001
	SME3	1.6324	0.3039	1.0368	2.228	0.54428	5.3716	< .001
	SMEL4	1.3665	0.2549	0.867	1.866	0.54189	5.3615	< .001
	SMEL5	1.0596	0.2004	0.6668	1.452	0.52515	5.2881	< .001

Meas Model – Parameter estimates of Latent variables & their Observed Indicators The table shows the measurement model with the parameter estimates for the latent variables and their

counterparts in the observed indicators. For Dairy Industry Growth the indicators IDB1 to IDB5 are positive factor loading, out of which IDB2 has the highest loading of 0. 807 ($p < 0. 001$) and IDB3 has the least of 0. 179 ($p = 0. 006$). All estimates, apart from IDB1 which is constrained to 1, are statistically significant.

Similarly, for Employment Generation, loadings of all indicators from EG1 to EG5 are different, with EG4 'Employment Generation through Self Employment' having the highest value of 0. 717 ($p <. 001$). EG5 is the only one that has $p = 0. 947$ which indicates that it is not a significant contributor to the latent variable.

For all the indicators related to the SME growth in the local area, loadings for SME1 to SMEL5 are all significant at 0. 544, $p <. 001$. This has the implication that the observed indicators are highly associated with the latent variable.

Table 6 - Variances and Covariances

				95% Confidence Intervals				
Variable 1	**Variable 2**	**Estimate**	**SE**	**Lower**	**Upper**	**β**	**z**	**p**
IDB1	IDB1	0.6173	0.0915	0.4379	0.797	0.445	6.74	< .001
IDB2	IDB2	0.4063	0.0817	0.2461	0.566	0.348	4.97	< .001
IDB3	IDB3	1.8081	0.149	1.5161	2.1	0.968	12.13	< .001
IDB4	IDB4	0.8828	0.0802	0.7257	1.04	0.742	11.01	< .001
IDB5	IDB5	0.9761	0.0811	0.817	1.135	0.939	12.03	< .001
EG1	EG1	0.3804	0.038	0.306	0.455	0.669	10.02	< .001
EG2	EG2	1.0711	0.0896	0.8955	1.247	0.938	11.96	< .001
EG3	EG3	0.4422	0.0526	0.3391	0.545	0.547	8.4	< .001
EG4	EG4	0.387	0.0523	0.2845	0.489	0.486	7.4	< .001
EG5	EG5	1.6976	0.1386	1.4259	1.969	1	12.25	< .001
SME1	SME1	0.5856	0.0539	0.4799	0.691	0.8	10.86	< .001
SME2	SME2	0.7115	0.0674	0.5793	0.844	0.767	10.55	< .001

SME3	SME3	0.9258	0.0936	0.7423	1.109	0.704	9.89	< .001
SMEL4	SMEL4	0.6569	0.0662	0.5271	0.787	0.706	9.92	< .001
SMEL5	SMEL5	0.4311	0.0426	0.3476	0.515	0.724	10.12	< .001
Dairy Industry Growth	Dairy Industry Growth	0.7714	0.1271	0.5222	1.02	1	6.07	< .001
Employment Generation	Employment Generation	0.1731	0.038	0.0986	0.248	0.919	4.56	< .001
SME Growth in Local Area	SME Growth in Local Area	0.1339	0.0404	0.0548	0.213	0.916	3.32	< .001
Employment Generation	SME Growth in Local Area	0.0929	0.0212	0.0513	0.135	0.61	4.38	< .001

Table 6 contains variances and covariances of the observed and latent variables of the model. All the p-values are less than. 05 and each variable has a large variance according to the estimates. 001. For example, IDB3 has the highest variance estimate of 1. It can be noted that the variance of the estimate of each of the models is given below: 808 (β = 0. 968), and EG5 also exhibits high variance of 1. 698 (β = 1). With regards to the covariances, Employment Generation is positively correlated with SME Growth in the Local Area with covariance estimate of 0. 093 (β = 0. 61, p <. 001), which means moderate relationship. All the variances and covariances are statistically significant meaning there is reliable measurement and the relationships between variables.

Table 7 - Intercepts

			95% Confidence Intervals			
Variable	**Intercept**	**SE**	**Lower**	**Upper**	**z**	**p**
IDB1	2.037	0.068	1.903	2.17	29.935	< .001
IDB2	2.37	0.062	2.248	2.492	38.008	< .001
IDB3	3.313	0.079	3.159	3.468	41.984	< .001
IDB4	2.27	0.063	2.147	2.393	36.036	< .001
IDB5	2.26	0.059	2.145	2.375	38.401	< .001

EG1	1.703	0.044	1.618	1.789	39.123	< .001
EG2	2.76	0.062	2.639	2.881	44.726	< .001
EG3	1.91	0.052	1.808	2.012	36.791	< .001
EG4	1.857	0.052	1.756	1.958	36.042	< .001
EG5	3.68	0.075	3.533	3.827	48.921	< .001
SME1	1.813	0.049	1.717	1.91	36.714	< .001
SME2	1.957	0.056	1.848	2.066	35.178	< .001
SME3	2.067	0.066	1.937	2.196	31.209	< .001
SMEL4	1.997	0.056	1.888	2.106	35.861	< .001
SMEL5	1.703	0.045	1.616	1.791	38.237	< .001
Dairy Industry Growth	0	0	0	0		
Employment Generation	0	0	0	0		
SME Growth in Local Area	0	0	0	0		

The table 7 also gives intercepts of the observed variables in the model. All intercepts that can be obtained are statistically significant, p<. 001. For instance, in IDB3 the intercept is the highest at 3. 313 (z = 41. 984) and EG1 has an intercept of 1. 703 (z=39. 123). The confidence intervals for each intercept are narrow and this indicates a high precision in the estimation. The three latent variables; Dairy Industry Growth, Employment Generation, and SME Growth in the Local Area have specified intercepts equal to zero, implying that all the variances of the variables are explained by the observed indicators. In general, the large intercepts imply high initial values for the observed variables which are measured by the indicators.

DISCUSSION & CONCLUSION

This study intended to investigate the effects of the grow on the employment and growth of business enterprises with specific reference to Jaipur district of Rajasthan in India. The study established that with an increase in the growth of the dairy industry in a given area, there was a positive impact on employment opportunity and SMEs growth in the local economy.

The findings showed that the employment generation was favorable to a large extent by the growth in the dairy industry. This corresponds with other studies done in the past including that by Sirohi et al. , (2009) whereby it was estimated that the Indian dairy sector offered employment to approximately 18 million people. Likewise, applying the same method and working on dairy farming in the state of Assam, Bayan (2015) has also corroborated our results about the employment employment-generating capacity of the dairy farming by estimating person-days of employment per household per year as 165.

Our study also established the fact that increase in the growth of the dairy industry has a positive effect on the growth of SME in the local economy. This is in line with the study conducted the Singh et al. (2016) which noted that the expansion of the dairy industry in Rajasthan has triggered establishment of various supporting industries hence the growth of the economy in the region. Similarly the research conducted by Jangid and Meena (2013) in Jaipur district, revealed that income of the household from dairy farming was high which in turn was indirectly helping the business growth of the area.

The employment generation effect pointed out in the present study also supported by Sharma et al. (2014), who noted that dairy sector in India offers livelihood to about 60 million rural family. Our results are also in agreement with Mahajan et al. (2015) on the impact of membership in dairy cooperatives, which had a positive effect on the overall milk production and net income, thereby, boosting local economy.

The observed correlation between the dairy industry development and the development of local businesses is consistent with the findings of Kumar (2010) who pointed out that the dairy sector increased its growth rate at the rate of 4 percent per annum in the period between 2000 and 2010 while the overall agriculture sector growth rate was comparatively lower. Perhaps this growth trend has helped in the creation of other localized industries associated with the primary industry.

The results on a positive effect of the dairy industry developments on the employment and the local business are especially important in the context of Rajasthan and Jaipur. They corroborate the findings of Meena et al. (2012) on the economically viability of dairy farming for producers in Rajasthan regardless of scale of production and Sharma and Singh (2016) on the contribution of dairy cooperatives in promoting the economic independence of women in Jaipur district.

In conclusion, this study clearly supports the image of dairy industry growth a very positive sign for employment generation and growth of local businesses in the Jaipur district of Rajasthan. It is for these reasons that the dairy sector emerges a key component of the local economic development and the effect that policies aimed at supporting the growth of this industry could be monumental in the development of these rural areas. More research could be done in relation to how sustainable these impacts are and how further investigation could be done to enhance the positivity of these changes in dairies on the economies.

STUDY IMPLICATION

The policy implications of this study are profound to policymakers, industries and the local communities in Jaipur district and Rajasthan. These implications are as follows; policy formulation, rural development strategies, cooperative societies, women in economic empowerment, SMEs, infrastructure development, markets linkages, research and extension services, sustainable practices, monitoring and evaluation. Government should think about its possible actions to support dairy industry, including, but not limited, to the subsidizing of the dairy farmers or giving tax preferences to the related businesses. It could also be most effective to integrate dairy development with other forms of rural development paradigms where dairy was promoted as a potentially remunerative activity for the small and marginal farmers and where dairy based skill development programmes could be initiated. Support to existing Dairy Cooperatives and formation of new Dairy Cooperatives must be an integral part of Dairy Development Programs; Special focus on Gender based Dairy Development Programs. Dairy related SMEs have to be nurtured through incubation centres and easy access to credit. This requires development of infrastructure such as, access roads in the rural areas, upgrading of the cold chains to meet the industries needs among others. Enhancing the link between the producers and the consumers, especially in the urban areas; carrying out research on feasible and sustainable dairy farming practices; and designing efficient systems for monitoring and evaluating the impacts are some of the recommendations. Through these measures stakeholders can strive at ensuring that positive effects of dairy industry development on employment generation and local business development in Jaipur district and other parts of Rajasthan and India are achieved.

FUTURE SCOPE OF THE STUDY

Thus, the findings of the present study regarding the effects of the dairy industry growth on employment generation and local business growth in Jaipur district reveal several research directions for the future. These are as follows: extending the study to other districts of Rajasthan or other states in India, so that comparative analyses could be made and specific factors of the region made known. It could be possible to evaluate the effects of dairy industry growth based on employment and local business evolution during longer time intervals by using longitudinal research designs. Further research could be conducted to explore further the ways in which the development of the dairy industry influences local economies, including more extensive value chain studies. Based on the results on women's empowerment, more research can be directed to the gender aspects of the development of the dairy industry. The impact of the growing dairy industry on environment especially on water and land resources need to be studied to come up with a profitable and sustainable growth strategy. Studies on the role of technology adoption in increasing economic returns from the dairy sub-sector could evaluate the economic returns on identified technologies, and productivity and profitability. Finally, looking into how the dairy has an impact to the other agricultural and non-agricultural sectors could give a broader perspective on the contribution of the dairy sector in general rural economy. These areas of future research

would help towards developing a better understanding of the various ways in which the dairy business affects the local economies, which is valuable information for the policymakers, relevant industries and local communities in their pursuit to harness the potential of the dairy industry for supporting sustainable development of local economies.

References

1. Bardhan, D., Sharma, M. L., & Saxena, R. (2012). Market participation behaviour of smallholder dairy farmers in Uttarakhand: A disaggregated analysis. Agricultural Economics Research Review, 25(347-2016-17047), 243-254.
2. Bayan, B. (2015). Employment generation in the dairy sector of Assam. Journal of Rural Development, 34(2), 183-195.
3. Candler, W., & Kumar, N. (1998). India: The dairy revolution: The impact of dairy development in India and the World Bank's contribution. World Bank Operations Evaluation Department.
4. Chand, P., Sirohi, S., & Sirohi, S. K. (2015). Development and application of an integrated sustainability index for small-holder dairy farms in Rajasthan, India. Ecological Indicators, 56, 23-30.
5. Hegde, N. G. (2006). Livestock development for sustainable livelihood of small farmers. Souvenir of the 39th Annual General Meeting and 48th National Symposium on "Energising Rural India–A Challenge to Livestock Industry." Compound Livestock Feed Manufacturers Association of India (CLFMA), Manesar, Haryana, 50-63.
6. Jain, D. K., & Sharma, K. N. S. (2015). Impact of dairy cooperatives on income and employment in Rajasthan. Indian Journal of Agricultural Economics, 70(2), 258-268.
7. Jangid, M. K., & Meena, G. L. (2013). Economic analysis of dairy farming in Jaipur district of Rajasthan. Asian Journal of Animal Sciences, 7(2), 47-53.
8. Kabir, M. H., & Talukder, R. K. (2011). Economics of small scale dairy farming in Bangladesh under the government support program. Journal of the Bangladesh Agricultural University, 9(1), 79-85.
9. Kumar, A. (2010). Exports of livestock products from India: Performance, competitiveness and determinants. Agricultural Economics Research Review, 23(1), 57-67.
10. Kumar, A., & Staal, S. J. (2010). Is traditional milk marketing and processing viable and efficient? An empirical evidence from Assam, India. Quarterly Journal of International Agriculture, 49(3), 213-225.
11. Kumar, S., Rathore, S., & Mukherjee, A. (2013). Technological interventions and their impact on dairy animal productivity: An economic analysis. Indian Journal of Animal Sciences, 83(7), 725-731.
12. Mahajan, V., Positano, M., & Dharmasiri, L. M. (2015). Enhancing smallholder farmers' access to seed of improved legume varieties through multi-stakeholder platforms. Learning Alliance Paper Series, (1).

13. Meena, G. L., Jain, D. K., & Dhaka, J. P. (2012). Economic analysis of milk production in Alwar district of Rajasthan. Indian Journal of Dairy Science, 65(4), 337-341.
14. Meena, M. S., Malik, B. S., & Bhati, D. S. (2009). Participation of women in dairy farming activities in Rajasthan. Indian Journal of Dairy Science, 62(2), 149-153.
15. Sharma, P., & Singh, A. K. (2016). Women empowerment through dairy cooperatives in Jaipur district of Rajasthan. Indian Research Journal of Extension Education, 15(2), 20-25.
16. Sharma, P., Sharma, N., & Swain, B. (2014). Economic contribution of dairy farming to farm families of semi-arid regions in Rajasthan. Indian Journal of Dairy Science, 67(6), 526-530.
17. Sharma, V. P., Delgado, C. L., Staal, S., & Singh, R. V. (2011). Smallholder dairy value chain development in India and selected states (Assam and Bihar): Situation analysis and trends. ILRI Project Report. Nairobi, Kenya: ILRI.
18. Singh, R., Kumar, P., & Woodhead, T. (2016). Smallholder dairy farmers' access to modern milk marketing chains in India. Agricultural Economics Research Review, 29(2), 257-266.
19. Sirohi, S., Joshi, P. K., & Kumar, A. (2009). Assessment of dairy development in India. Indian Journal of Agricultural Economics, 64(902-2016-67302).
20. Squicciarini, M. P., Vandeplas, A., Janssen, E., & Swinnen, J. (2017). Supply chains and economic development: Insights from the Indian dairy sector. Food Policy, 68, 128-142.
21. Department of Animal Husbandry, Government of Rajasthan. (2013). 19th Livestock Census-2011.
22. Department of Animal Husbandry, Government of Rajasthan. (2017). Annual Report 2016-17.

Annexure -

Table 8 - Construct Coding

Main Dimension	Item	Code
Dairy Business Growth	Farmer organizations and cooperatives that supply liquid milk have increased in my community.	IDB1
	There is an increase in production capacity of the dairy businesses in Jaipur.	IDB2
	There is capital intensity in dairy-related structures (e.g., processing plants, transport).	IDB3
	Dairy businesses in Jaipur have experienced growth in revenues and profits in the past years.	IDB4

	Local dairy products are more marketable and available in more markets than before.	IDB5
Employment Generation	The increase in dairy businesses has resulted in employment of people in the society.	EG1
	Dairy businesses are a major source of direct employment in Jaipur.	EG2
	Development of the dairy industry has led to the creation of new indirect employment.	EG3
	Training activities by the dairy industry have enhanced employment opportunities locally.	EG4
	The dairy industry has enhanced employment security for workers in the Jaipur district.	EG5
Business Growth of Small and Medium Enterprise	The dairy industry has benefited SMEs by increasing demand for related products/services.	SME1
	Dairy-related SMEs such as suppliers and distributors have experienced revenue increases.	SME2
	SMEs in the dairy sector have provided employment to people in Jaipur.	SME3
	The dairy industry has provided incentives for new SMEs to start their businesses.	SME4
	SMEs in the dairy sector in Jaipur are more competitive due to associations with large firms.	SME5