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Economic analysis of custom hiring service centres in Tumakuru district of Karnataka

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Abstract

Economic analysis of custom hiring service centres (CHSCs) involves a systematic assessment of the financial aspects, operational dynamics, and socioeconomic implications of these specialized facilities. The study was an "*expost-facto*" research carried out in Tumakuru district of Karnataka state during the year 2020-21 to study the economic performance of CHSCs in Tumakuru district, eight taluks were selected where the custom hiring service centres working effectively. The results pertaining to an economic analysis of custom hiring service centres showed that "Krushi Yantradhaare Yediyur" is more economically feasible with the highest (2.37) B:C ratio amongst all CHSCs, Krushi Yantradhaare Bellavi needs to attract 977.48hrs of farm machinery services from the farmers to cover fixed and variable costs occurred in the year, Krushi Yantradhaare Yediyur is having a higher (58.22) gross profit margin and higher (49.45) operating margin. An economic feasibility analysis was carried out to evaluate the feasibility of investment made by the different CHSCs. Economic analysis of a CHSC studies mainly on the profit in which the centre is making. This analysis aims to shed light on how custom hiring service centres contribute to regional and national economies, optimize resource allocation, and enhance agricultural productivity. By examining the economic performance of these centres, we can gain valuable insights into their role in promoting sustainable agriculture and rural development.

Keywords: Economic analysis, custom hiring service centre, economic feasibility, investment, economic performance

1. Introduction

Agriculture is the main occupation of most Indian households, as well as an important Indian economy business. Indian agriculture has been characterized by many revolutions that have changed the very face of this sector. In addition to reducing drudgery and promoting the timeliness of agricultural activities, the use of mechanical power has a direct impact on crop productivity. Therefore, there is a great need for taking farm mechanization. The cost of cultivation data shows that labour accounts for more than 40 percent of the total variable cost of production for most of the crops (Anonymous, 2011 & Laxmi et al, 2014)^[1,9]. Due to rapid economic growth, an increase in minimum wages and adoption of employment generation programmes like, MGNREGA have witnessed a significant increase in agricultural wages in the recent years. (Anonymous, 2015) [2]

Farm mechanization helps to achieve timeliness in the farm operations, reduce available input losses, increase the efficiency of expensive inputs such as seed, chemicals, fertilizers, irrigation on the one hand, and increase production, productivity and profitability on the other by reducing unit production costs. The inadequacy of farm power and machinery, particularly among marginal and small-scale farmers, has always been perceived as one of the major challenges in increasing agricultural production and productivity. Proper utilization of farm machinery saves 20-30 percent time, 15-20 percent seeds, 20-25 percent fertilizers, 10-20 percent labour, and an increase in cropping intensity to about 10 percent (Singh, 2005)^[14]. India has a large number of small farms with less than 2 hectares of landholdings and very poor economic conditions. There is no economically viable single farm ownership and use of tractors and equipment on these small farms. Farm power inadequacy is the main constraint in the development and productivity of agriculture. The average farm power needs to be increased from the current 1.43kW/ha to at least 2kW/ha to get timeliness and quality in farm operations (NABARD). Farm mechanization becomes one of the very important tools in resolving this problem. Small and marginal farmers can use the heavy machinery by developing a rental market of farm implements, so large numbers of farmers can be benefited without investment in farm machinery implements. This is done by custom hiring service of agricultural machinery, which is using the machinery according to a farmer's particular need.

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The economic analysis of custom hiring service centres is a multifaceted exploration of the financial, operational, and societal impacts of these unique facilities within the agricultural landscape. Custom hiring service centres, play a pivotal role in the agricultural sector, serving as hubs where farmers can access a diverse range of agricultural machinery and equipment on a rental basis. In recent years, these centers have gained prominence as they contribute significantly to the efficiency and productivity of farming operations. This economic analysis seeks to delve into the intricate web of factors surrounding CHSCs, addressing questions regarding their economic viability, sustainability, and broader implications for rural economies. One of the primary objectives of this analysis is to evaluate how CHSCs influence resource allocation in agriculture. By providing farmers access to costly machinery without the burden of ownership, CHSCs can potentially enhance the sector's resource utilization efficiency. Moreover, by reducing the financial barriers to adopting modern farming techniques, they can contribute to increasing agricultural yields and improving overall economic outcomes for farmers. Additionally, this analysis aims to assess the broader economic impact of CHSCs on rural communities. These centers have the potential to generate employment opportunities, stimulate local businesses, and bolster agricultural value chains. Thus, understanding the economic dimensions of custom hiring service centers is essential for optimizing their role in fostering sustainable agricultural development and ensuring their continued growth and effectiveness within the agricultural sector.

Custom hiring of farm machinery was first introduced in Indian agriculture in the 19th century (Srinivasarao et al., 2013) [15]. Custom hiring gained significance as part of the National Agricultural Technology Project (NATP) and the National Agricultural Innovation Project (NAIP). A noteworthy development occurred in 2014 when the Department of Agriculture, Government of Karnataka took the initiative to establish 186 Custom Hiring Service Centres (CHSCs) in the state. To manage these CHSCs, two private entities were selected. The crucial task of setting hiring charges and operation fees for tractors and other agricultural equipment was delegated to the District Implementation Committee. Through the practice of custom hiring agricultural machinery, even small-scale and marginal farmers have gained access to agricultural mechanization. This accessibility has had far-reaching benefits and enabling these farmers to enjoy the advantages of modern farming techniques without the burdensome costs of machinery ownership. This strategic approach not only aligns with national agricultural development goals but also fosters greater inclusivity within the agricultural sector, thereby promoting economic growth and sustainability in farming communities.

This study provides a guide for the CHSCs to operate economically in order to increase the economic profits by reducing the expenses of the CHSCs and also for understanding the progress and proliferation of CHSC at economic level.

2. Methodology

2.1 Research Design

The research design chosen for this study is the Ex-postfacto research design. This design was deemed suitable because the phenomenon under investigation had already occurred, and it was not possible for the researcher to directly manipulate the independent variables, either because they had already manifested or because they were not naturally adjustable. Ex-post-facto analysis involves a systematic empirical research approach.

2.2 Selection of Respondents

The study was conducted in Tumakuru district, which comprises ten taluks. Among these, eight taluks were intentionally chosen because they had well-functioning CHSCs. These selected taluks are Kunigal, Tumkur, Koratagere, Turuvekere, Gubbi, Tiptur, Madhugiri, and Sira, each of which had CHSCs operating at the Hobli level. A list of CHSCs working successfully is prepared. The total sample size constituted for the study was 13 CHSCs. The information related to the economic analysis of custom hiring service centres were collected from the manager or clerk of CHSC.

2.3 Economic analysis of custom hiring service centres

The annual cost incurred by different CHSC was grouped as fixed costs and variable costs. The fixed costs comprise of depreciation cost, insurance and taxes, establishment cost, and the permanent staff & labour salaries. As the interest on investment cost also should be included in the fixed cost but this cost is not taken for consideration in my study because all the CHSCs in my study area have purchased the machinery on a lumpsum basis without any due for further instalments. The variable costs comprise fuel cost, repair and maintenance cost, lubricants cost, salaries for temporary staff, and payments for casual labours. The annual cost incurred by different CHSCs is presented in Table 2

The data collected from respondents were tabulated and analyzed to evaluate the feasibility of investment made by the different CHSCs. The discounted benefit-cost ratio, Break even point, and Profitability Ratios such as Gross Profit Margin and Operating Margin techniques were employed in evaluating the economic feasibility analysis.

2.3.1 Benefit-cost ratio (BCR)

The discounted gross benefit divided by the discounted gross cost. B-C ratio decides to accept projects with a ratio above one that has B: C > 1. Its formula for estimation is as follows:

Benefit-cost ratio =
$$\frac{\sum_{t=1}^{n} \frac{B_{t}}{(1+r)^{t}}}{\sum_{t=1}^{n} \frac{C_{t}}{(1+r)^{t}}}$$

Where,

 B_t = Benefits in year C_t = Cost in year t n = Investment lifespan t = Time measured in years - Discount rate

r = Discount rate

It refers to the ratio of discounted cash flows to investments. The minimum ratio required is 1:1. This indicates the coverage of costs without any surplus benefits. But usually, the ratio should be more than unity in order to provide some additional returns over the cost for a clear decision.

2.3.2 Breakeven point (BEP)

Breakeven point (BEP) is the point at which the total revenue is exactly equal to the total costs. At this point no profit is made and no losses are incurred. BEP can be expressed in terms of the hiring hours *i.e.*, it represents the number of units required to cover the costs. Hiring hours above that number results in profit and below that number results in a loss. BEP was calculated in terms of fixed costs, variable costs, and hiring charges. Breakeven point analysis per CHSC as a whole and for individual equipment were worked out using the following formula.

$$BEP = \frac{Fixed cost (Rs./year)}{[Price (Rs./h) - Variable cost (Rs./h)]}$$

2.3.3 Margin of Safety

Margin of Safety is the ratio in which the difference between the current sales and the breakeven point is divided by current sales to yield a percentage value. The higher the margin of safety is, the lower the risk is of not breaking even or incurring a loss.

Margin of Safety = $\frac{(\text{current sales level} - \text{breakeven point})}{\text{current sales level}} * 100$

2.3.4 Profitability ratios

Profitability ratio is a measure of profitability, which is a way to measure the performance of a company. Profitability is simply the capacity to make a profit, and a profit is what is left over from income earned after deducting all costs and expenses related to earning the income.

2.3.4.1 Gross profit Margin (GPM)

Gross profit Margin expresses the relationship of gross profit to net sales (cash and credit) in terms of percentage. This ratio is calculated to find the profitability of the business. A high gross profit ratio is a symbol of good management. The main objective of computing this ratio is to determine the efficiency with which production and/or purchase operations and selling operations are carried on. In the present study, the gross profit ratio has been calculated by using the following formula.

Gross profit Margin =
$$\frac{\text{Gross Profit}}{\text{Net Sales}} * 100$$

2.3.4.2 Operating Margin (OM)

Operating Margin is a ratio which establishes the relationship between operating profit and net sales. The higher the operating margin ratio, the better would be the operational efficiency of the business. A higher operating profit ratio means that the business has been able not only to increase its sales but also been able to cut down its operating expenses. The operating Margin can be calculated by using the following formula.

$$Operating Margin = \frac{Operating Profit}{Net Sales} * 100$$

3. Results and Discussion

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads:

3.1 Total fixed cost of CHSC

Table 2 shows the total fixed cost of 13 CHSCs, which is the sum of depreciation cost, insurance and taxes, establishment cost, and the permanent staff & labour salaries. Among all CHSCs, Krushi Yantradhaare Yediyur has the highest fixed cost of Rs.467095 with 50.16 percent, Krushi Yantradhaare Kolala stands the second position with 48.33 percent, Krushi Yantradhaare Tavarekere has a less fixed cost of Rs.427794 with 23.97 percent. Among Individual fixed cost permanent staff & labour salaries is more than any other cost and establishment cost being the lowest share varied between 0.09-0.24 percent.

3.2 Total variable cost of CHSC

Table 2 shows the variable costs of all 13 CHSCs, which is the sum of fuel cost, repair & maintenance costs, lubrication costs, and temporary staff & labour salaries. Lesser the variable cost more is the benefit which means higher profits can be expected and here in a study among 13 CHSCs, Krushi Yantradhaare Yediyur has a less variable cost of Rs.463971 with 49.83 percent, Krushi Yantradhaare Kolala with 51.66 percent with the cost of 289208 has slightly higher variable cost than Krushi Yantradhaare Yediyur and Krushi Yantradhaare Tavarekere has highest variable cost of 76.02 percent with the cost of 1356625 in comparison to all other CHSCs. Across individual variable cost, fuel cost is more in all the CHSC while repair & maintenance cost being the lowest.

Krushi Yantradhaare Yediyur with higher fixed costs may face challenges in adjusting their budgets. Krushi Yantradhaare Hebbur with higher depreciation costs need to consider asset replacement or maintenance strategies to optimize long-term cost-effectiveness. Krushi Yantradhaare Tavarekere with higher variable costs might be more adaptable to changes in demand and also with higher labor costs need to evaluate their staffing levels and efficiency to ensure cost-effectiveness without compromising service quality. Understanding the drivers behind variations in fuel, maintenance, and temporary labor costs can help CHSCs make informed decisions about resource allocation and operational improvements.

This data underscores the importance of cost management and resource optimization for CHSCs to provide sustainable and efficient healthcare services to their communities. Further analysis and investigation into the specific factors driving these cost variations would be valuable for improving the financial sustainability and performance of these centres. From the above result, we can say that Krushi Yantradhaare Yediyur is worth in expectation of favorable profits where Krushi Yantradhaare Tavarekere has less chances of good profit.

Economic analysis of CHSC

Benefit-cost ratio

Table 3 shows the viability of the CHSC's with the B:C ratio, the cost-benefit ratio indicates the returns per invested rupee on CHSC. The magnitude of the ratio also shows the importance of increasing alternative investment opportunities to be allocated to it. The ratio of more than 1 shows the viability of the CHSC where the higher profits

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can be expected and the B:C ratio less than 1 is unviable where the occurrence of loss is expected. The gross return of Honnudike Yantra Mane is more amongst all the CHSC. However, the net returns and B:C ratio is more for Krushi Yantradhaare Yediyur. The net return of Krushi Yantradhaare Mayasandra and Krushi Yantradhaare Tovinakere was found to be a negative dragging B:C ratio below 1. Hence from the result, Krushi Yantradhaare Yediyur is more economically feasible with the highest B:C ratio amongst all CHSCs, and Krushi Yantradhaare Mayasandra & Krushi Yantradhaare Tovinakere are not economically feasible. The results are in the line with the findings of Manohara (2016) ^[10] and Kumar & Mahadevaiah (2018) ^[8].

The financial data provided in the table highlights variations in the financial performance of different CHSCs. This information is crucial for decision-makers to allocate resources effectively, address financial challenges, and ensure the sustainability of healthcare services provided by these centres. Further analysis and strategic planning are necessary to improve the financial health of CHSCs operating at a loss.

Breakeven point (BEP)

The breakeven point is the point at which total fixed and variable costs are equal to total revenue. At the breakeven point, a CHSC does not make a profit or loss. Therefore, the breakeven point is often referred to as the no-profit or no-loss point. The table 3 indicates that among all 13 CHSCs, Krushi Yantradhaare Bellavi needs to attract 977.48 hrs of farm machinery services from the farmers to cover fixed and variable costs occurred in the year otherwise the CHSC will incur a loss and Krushi Yantradhaare Tovinakere need to attract 4085.08hrs of farm machinery services from the farmers to cover its fixed and variable costs occurred in the year in spite the CHSC will incur a loss. The results are in line with the findings of Vaja (2016) ^[18] and Kumar & Mahadevaiah (2018) ^[8].

Margin of safety (MOS)

All sales revenue that a CHSC collects over and above its Breakeven point represents the Margin of Safety. A higher MOS reduces the risk of business losses. Generally, the higher the margin of safety, the better it is. Table 3 indicates that among all 13 CHSCs, Krushi Yantradhaare Bellavi is having a higher (66.52) margin of safety which represents a lower risk of making a loss. Krushi Yantradhaare Mayasandra and Krushi Yantradhaare Tovinakere are having a negative margin of safety in the order of (-29.39) and (-39.90) respectively which shows that the CHSCs are in loss. The results are in line with the findings of Da Costa *et al.* (2016) ^[4].

Profitability Ratio analysis

Gross profit Margin

Gross profit margin is a profitability measure that shows the percentage of gross profit in comparison to sales. A higher gross profit margin shows that the CHSC has more to cover for operating, financing, and other costs. The table 3 depicts that among 13 CHSCs, Krushi Yantradhaare Yediyur is having a higher (58.22) gross profit margin which represents the centre did well in managing its cost of sales and Krushi Yantradhaare Mayasandra is having a lower (12.1) gross profit margin which represents the centre is inefficient in managing its cost of sales. The results are in line with the findings of Tulsian (2014) ^[17].

Operating Margin

Operating margin is a profitability ratio, demonstrates how much revenues are left over after all the variable costs have been paid. A higher operating margin is more favorable compared with a lower ratio because this shows that the CHSC is making enough money from its ongoing operations to pay for its variable costs as well as its fixed costs. The table 3 indicates that among 13 CHSCs, Krushi Yantradhaare Yediyur is having a higher (49.45) operating margin which represents that the CHSC is being well managed and it has less financial risk and Krushi Yantradhaare Mayasandra is having a negative (-9.80) operating margin which represents that the centre's inability to control costs and the CHSC is unprofitable during a certain period of time. The results are in line with the findings of Tulsian (2014) ^[17].

Name of the CHSC	Year of establishment	No. of villages covered	No. of farmers registered	Area covered (Km)	Board of Directors
Krushi Yantradhaare Amrutur (CHSC 1)	2014	30	5234	15	8
Krushi Yantradhaare Yediyur (CHSC 2)	2016	40	2472	18	5
Krushi Yantradhaare Hebbur (CHSC 3)	2014	25	3687	20	5
Krushi Yantradhaare Bellavi (CHSC 4)	2016	20	3825	14	4
Krushi Yantradhaare Kolala (CHSC 5)	2016	15	3287	20	2
Honnudike Yantra Mane (CHSC 6)	2014	42	4387	20	9
Krushi Yantradhaare Dabbeghatta (CHSC 7)	2016	12	2763	15	4
Krushi Yantradhaare Chelur (CHSC 8)	2014	35	4282	23	12
Krushi Yantradhaare Honnavalli (CHSC 9)	2014	30	3827	18	11
Krushi Yantradhaare Kodigenahalli (CHSC 10)	2014	38	4473	23	11
Krushi Yantradhaare Mayasandra (CHSC 11)	2014	30	3276	16	9
Krushi Yantradhaare Tovinakere (CHSC 12)	2014	40	3482	22	9
Krushi Yantradhaare Tavarekere (CHSC 13)	2014	40	3358	20	5

Table 1: Basic profile of the CHSCs in the study area

SL.	Particulars CHSC	CHSC	CHSC	CHSC	CHSC	CHSC	CHSC	CHSC	CHSC	CHSC	CHSC	CHSC	CHSC	CHSC
	1 41 41041415	1	2	3	4	5	6	7	8	9	10	11	12	13
Total Fixed cost (TFC)														
1.	Depreciation	338788	126605	337339	60583.6	104718	431609	87526.9	309913	313863	335603	346579	322518	191045
	cost (D)	(11.51)	(13.6)	(19.24)	(8.57)	(18.70)	(13.03)	(13.09)	(11.12)	(11.83)	(11.94)	(12.37)	(12.26)	(10.70)
2.	Insurance and	72331.7	26369.5	470122	11304	20541.1	85198.6	16840.6	60080	61609	65242	66936.6	64017	42208.3
	Taxes (IT)	(2.45)	(2.83)	(4.00)	(1.59)	(3.66)	(2.57)	(2.51)	(2.15)	(2.32)	(2.32)	(2.39)	(2.43)	(2.36)
3.	Establishment	2740.18	2120	3067.72	1620	1350	4236	856	4058	2746	3517	3042	2717	2541
	cost (EC)	(0.09)	(0.22)	(0.17)	(0.22)	(0.24)	(0.12)	(0.12)	(0.14)	(0.10)	(0.12)	(0.10)	(0.10)	(0.14)
4.	Permanent staff	422000	212000	211760	102000	144000	(24000	100000	226000	504000	422000	C0 4000	212000	102000
	and labour cost	432000	(22.50)	$\frac{311}{00}$	(27.10)	144000	(10.04)	(26.02)	(12.00)	504000	432000	(24.42)	512000	(10.75)
	(PL)	(14.07)	(55.50)	(17.78)	(27.10)	(23.12)	(18.84)	(20.95)	(12.00)	(19.00)	(13.57)	(24.42)	(11.80)	(10.73)
5.	Total fixed cost	845860	467095	722288	265508	270609	1145044	285224	710051	882218	836362	1100558	701252	427794
	(TFC)	(28.74)	(50.16)	(41.20)	(37.56)	(48.33)	(34.58)	(42.67)	(25.49)	(33.26)	(29.76)	(39.30)	(26.67)	(23.97)
					Г	'otal Var	iable cost	(TVC)						
~	Eval as at (E)	1100000	254510	392110	249500	150450	1200000	215500	1150000	950000	1100000	930000	1100500	700000
0.	Fuel cost (F)	(37.37)	(27.33)	(22.36)	(35.30)	(26.87)	(36.24)	(32.24)	(41.28)	(35.82)	(39.14)	(33.20)	(41.86)	(39.22)
7	R & M cost	216995.2	79108.44	210364.7	33912	61623.24	255595.7	50521.92	180240	184827	195727	200809.8	192051	126624.9
1.	(RM)	(7.37)	(8.49)	(12.00)	(4.79)	(11.00)	(7.72)	(7.55)	(6.47)	(6.96)	(6.96)	(7.17)	(7.30)	(7.09)
0	Lubrication cost	330000	76353	117633	74850	45135	360000	64650	345000	285000	330000	279000	330150	210000
ð.	(LC)	(11.21)	(8.20)	(6.71)	(10.59)	(8.06)	(10.87)	(9.67)	(12.38)	(10.74)	(11.74)	(9.96)	(12.55)	(11.76)
	Temporary staff	450000	54000	210500	02000	22000	250000	52500	400000	250000	240000	200000	205000	220000
9.	and labour cost	450000	54000	310500	83000	52000	350000	52500	400000	350000	348000	290000	305000	320000
	(TL)	(15.29)	(5.79)	(17.71)	(11./4)	(5./1)	(10.57)	(7.85)	(14.36)	(13.19)	(12.38)	(10.35)	(11.60)	(17.93)
10	Total variable	2096995	463971.4	1030608	441262	289208.2	2165596	383171.9	2075240	1769827	1973727	1699810	1927701	1356625
10.	cost (TVC)	(71.25)	(49.83)	(58.79)	(62.43)	(51.66)	(65.41)	(57.32)	(74.50)	(66.73)	(70.23)	(60.69)	(73.32)	(76.02)

Table 2: Total fixed cost and Total variable cost of CHSC

Table 3: Economic analysis of CHSC

Sl. No.	. Particulars	CHSC 1	CHSC 2	CHSC 3	CHSC 4	CHSC 5	CHSC 6	CHSC 7	CHSC 8	CHSC 9	CHSC 10	CHSC 11	CHSC 12	CHSC 13
1.	Total annual cost	2942819.4	931066.08	1752896.128	706769.6	559817.612	3310639.684	668395.496	2785291	2652045.375	2810088.042	2800367	2628953	1784419
2.	Gross returns	3191138	1842000	2270930	1234400	952450	3942639	884340	3248000	3125458	3660088.042	2550367	2428953	1904419
3.	Net returns	248318.6	910933.92	518033.872	527630.4	392632.388	631999.316	215944.504	462709.3	473412.625	850000	-250000	-200000	120000
4.	B:C ratio	1.084381	2.3737	1.29553	1.746538	1.70135	1.19089	1.323	1.16612	1.1785	1.30248	0.910725	0.92392	1.067248
5.	Breakeven point (hours)	2257.39	989.75	1700.43	977.48	1191.39	1881.51	1661.82	1767.92	1900.27	1448.19	3778.26	4085.08	2280.34
6.	Margin of Safety (%)	22.69	66.10	41.76	66.52	59.19	35.56	43.08	39.45	34.92	50.40	-29.39	-39.90	21.90
Profitability Ratios														
7.	Gross profit Margin (%)	31.03	58.22	48.97	53.26	53.35	33.65	38.06	34.08	34.31	39.95	12.1	14.9	32.10
8.	Operating Margin (%)	7.78	49.45	22.81	42.74	41.22	16.02	24.41	14.24	15.14	23.22	-9.80	-8.23	6.30

4. Conclusion

The economic analysis of Custom Hiring Service Centres (CHSCs), considering benefit-cost ratios, breakeven points, margins of safety, and profitability ratios, provides valuable insights into their financial performance and sustainability. The B:C ratio serves as a critical indicator of the costeffectiveness of CHSC operations. CHSCs with B:C ratios above 1 are operating efficiently and generating positive returns on their investments, indicating strong financial sustainability. Those with B:C ratios below 1 need to evaluate their operations and financial strategies to achieve cost-effectiveness and profitability. The breakeven point represents the level of activity or output at which CHSCs cover their total costs. A lower breakeven point implies that CHSCs require less activity to cover costs, indicating better cost efficiency. CHSCs with high breakeven points may need to carefully manage their operations and seek ways to reduce costs or increase revenue. The margin of safety reflects the extent to which CHSCs can absorb unexpected declines in revenue or activity without incurring losses. A positive margin of safety suggests financial stability and the ability to weather fluctuations in demand or income. CHSCs with negative margins of safety may face financial risks and should consider strategies to enhance financial resilience. Profitability ratios, such as gross profit margin and operating margin, provide insights into CHSCs' financial

performance. Higher profitability ratios indicate efficient management of costs and resources. CHSCs with strong profitability ratios are better positioned to reinvest in their operations and expand services. To ensure the long-term viability and effectiveness of Custom Hiring Service Centers, a holistic approach to financial management, cost optimization, and revenue diversification may be necessary. This analysis serves as a foundation for informed decisionmaking and strategic planning to enhance the economic sustainability of CHSCs while continuing to provide valuable services to communities.

5. References

- 1. Anonymous. Crop husbandry, agricultural inputs, demand and supply projections and agricultural statistics for the twelfth five-year plan (2012-2017). Planning commission, Government of India, New Delhi, 2011, 18.
- 2. Anonymous. Transforming agriculture through mechanization. FICCI, New Delhi; c2015. p. 16-34.
- Constance J. Financial Feasibility Analysis of a Custom Harvesting Business of Wine Grapes in Fresno County. California State University, California (United States); c2010.
- 4. Da Costa DGN, Malkhamah S, Suparma LB. Use of the safety factor and margin of safety in motorcyclish

accident risk management. Int. J Technol. 2016;9:737-750.

- Hiremath GM, Lokesh GB, Maraddi GN, Patil S. Accessibility of farm machinery services-CHSCs for small and marginal farmers. Int. J Manag. Soc. Sci. 2015;3(2):897-907.
- Hossain MA, Hoque MA, Wohab MA, Miah MM, Hassan MS. Technical and economic performance of combined harvester in farmer's field. Bangladesh J Agric. Res. 2015;40(2):291-304.
- Kamboj P. Study of farm machinery services provided by selected cooperative societies. Agric. Eng. Int. CIGR J. 2012;14(4):123-133.
- Kumar PR, Mahadevaiah GS. Breakeven analysis of custom hiring service centres operating in agriculture-An economic study in Karnataka. Statistics. 2016;9(1):141-148.
- Laxmi N, Tirlapur, Mundinamani SM. Economics of production of major crops in Dharwad district. Karnataka J Agric. Sci. 2014;27(2):165-169.
- Manohara HM. Complementary Agribusiness: An Economic Study of Custom Hiring Services in Agriculture in Karnataka. (Doctoral dissertation, University of Agricultural Sciences GKVK, Bangalore, Karnataka); c2016.
- Pawar DB, Pawar BR, Ansari AA, Asmatoddin M. Economics of custom hired tractor service business in Maharashtra. 2010;2:136-138.
- Sidhu RS, Vatta K. Improving economic viability of farming: A study of cooperative agro machinery service centres in Punjab. Agric. Econ. Res. Rev. 2012;25:427-434.
- 13. Sims B, Rottger A, Mkomwa S. Hire services by farmers for farmers. Rural infrastructure and agroindustries division, Food and agriculture organization of the United Nations, Rome. Diversification booklet number. 2011;9:8-9.
- Singh J. Scope, progress and constraints of farm mechanization in India. Status of Farm Mechanization in India. New Delhi: Indian Agricultural Statistics Research Institute; c2005. p. 48-56.
- 15. Srinivasarao C, Dixit S, Srinivas I, Reddy BS, Adake RV, Borkar S *et al.* Operationalization of custom hiring centres on farm implements in hundred villages in India. Central Research Institute for Dryland Agriculture, Hyderabad, Andhra Pradesh; c2013. p. 88-91.
- Sukhpal S, Kingra HS. Custom hiring services of farm machinery in Punjab: impact and policies. Indian Res. J Ext. Edu. 2013;13(2):45-50.
- 17. Tulsian M. Profitability Analysis (A comparative study of Salt & TATA Steel). J Econ. Finance. 2014;3(2):19-22.
- Vaja KG. Exploration of Custom Hiring Service of Farm Machines in Junagadh. Int. J Agric. Sci. 2016;0975-3710.