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Chitra Das
M.Sc. (Agriculture), Department of Agricultural Extension Education, College of Agriculture, Vijayapur, University of Agricultural Sciences, Dharwad, Karnataka, India

SB Patil
Professor, Department of Agricultural Extension Education, College of Agriculture, Vijayapur, University of Agricultural Sciences, Dharwad, Karnataka, India

Corresponding Author:
Chitra Das
M.Sc. (Agriculture), Department of Agricultural Extension Education, College of Agriculture, Vijayapur, University of Agricultural Sciences, Dharwad, Karnataka, India

Economic analysis of custom hiring centres in Vijayapur district: Viability & impact

Chitra Das and SB Patil

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Abstract
Farm mechanization is essential for improving land productivity by facilitating timely, precise agricultural operations, minimizing crop loss, enhancing labor efficiency, and elevating farm work quality. Yet, small and marginal farmers often face financial constraints that prevent them from acquiring necessary equipment. Given agriculture's dual role as both a contributor to and a victim of climate change, it must adapt without exacerbating environmental issues, which has altered agricultural development priorities. CHCs support farmers by addressing labor shortages, ensuring efficient operations, and increasing yields through cost-sharing arrangements. The present study, employing an ex-post facto research design, focuses on the Vijayapur district of Karnataka. It involves a purposive selection of five hoblis with seven CHCs, surveying 140 respondents along with the CHSC operators regarding the operation and functioning of the respective CHSCs. The study revealed that Hoovin Hippargi has proven to be the most financially successful center, achieving the highest profit margin within the district. The research aims to assess the financial performance and operational viability of CHSCs in the research area, ultimately assessing their cost-effectiveness for farmers and the hosting institution (NGO), and benchmarking their performance against other regions. It also seeks to provide insights for policy-making and strategic planning while exploring the role of CHSCs in promoting sustainable agricultural practices.

Keywords: Custom hiring service centers, performance, implements, viability

Introduction
Agriculture is a fundamental sector in the Indian economy, providing the primary source of livelihood for a substantial segment of the population. In the fiscal year 2022-23, agriculture accounted for roughly 15% of the Gross Value Added (GVA) to the national economy, demonstrating an average growth rate of 4.3% over the preceding six years. Of India's total land area, approximately 139.4 million hectares are devoted to cultivation. The sector supports a large number of rural households, with around 82% of farmers classified as small and marginal. Additionally, agriculture and related sectors employ about 54.3% of the Indian workforce. This extensive engagement highlights the critical role of agriculture in sustaining rural livelihoods and contributing to the national economy.

The increasing scarcity of labor and the declining number of draft animals have exacerbated the challenges associated with executing timely agricultural operations. This has resulted in rising labor costs and reduced productivity levels. Farm mechanization has emerged as a promising strategy to address these issues by enabling more timely and accurate agricultural practices, thereby reducing crop losses and improving labor efficiency. Despite these benefits, the high cost of agricultural machinery remains a significant obstacle, especially for small and marginal farmers who may lack the financial resources to invest in such equipment. Custom Hiring Centers (CHCs) provide an effective remedy by offering affordable access to a range of farm machinery. By facilitating the rental of machinery at reasonable rates, CHCs help mitigate the financial burden on farmers, promote the adoption of mechanization, and ultimately enhance agricultural productivity and efficiency (Sampathkumar 2014, Hiremath *et al.*, 2015) [13, 5].

Custom farm mechanization services in India originated in the 19th century, with early examples such as the use of a steam thresher introduced in Punjab in 1912 (Srinivasarao *et al.*, 2013) [16]. In 1971, the Indian Government launched a nationwide initiative to establish agro service

centers, which significantly advanced the practice of custom hiring. Despite this, the focus on custom hiring remained relatively marginal, even with the support of projects like the National Agriculture Technology Project (NATP) and the National Agricultural Innovation Project (NAIP). A notable development occurred in 2014 when the Department of Agriculture, Government of Karnataka, proposed the creation of 186 Custom Hiring Service Centers (CHSCs) managed by two private entities. These entities include the Shri Kshethra Dharmasthala Rural Development Project, a charitable trust linked to the Dharmasthala temple administration in Dakshina Kannada, which operates 161 centers, and the Indian Society of Agribusiness Professionals based in New Delhi, which manages 17 centers. In Vijayapura district, custom hiring services are available through seven centers spread across five taluks—Vijayapura, Basavan Bagewadi, Sindagi, Indi, and Muddebihal—at the hobli level. These services are provided by Kala Chetana Yuva Samasthe, a social and human resource organization, demonstrating the district's commitment to facilitating access to farm machinery and promoting agricultural efficiency.

This paper provides valuable empirical data on the economic performance and viability of CHSCs, which can guide policy-making and give insights for improving future CHSCs by pinpointing their strengths and weaknesses, guiding efficient resource allocation, and establishing performance benchmarks. It aids in strategic and operational decision-making, promotes sustainability, and encourages the implementation of best practices. Furthermore, it facilitates performance comparison with other regions and lays the groundwork for further research, contributing to the advancement of agricultural mechanization.

Materials and Methods

The present study was conducted in Vijayapur district of Karnataka. Vijayapur district was purposively selected for the study because it hosts seven Custom Hiring Service Centers (CHSCs) across its five taluks i.e. Vijayapur, Indi, Basavana Bagewadi, Muddebihal and Sindagi. An ex-post facto research design was employed, as it was suitable for analyzing phenomena that had already occurred. A proportionate random sampling method was used to select participants, resulting in a sample size of 140 farmers from each hobli (CHSC). Additionally, data has also been collected from the CHSC operators regarding the operation and functioning of the respective CHSCs. These farmers were interviewed using a pre-tested and structured questionnaire. Primary data was collected through meticulously designed interviews and questionnaires. This data was then compiled and analyzed using tabular methods, following detailed consultations with experts. Additionally, secondary data on the availability and rental charges of farm equipment and machinery from the CHSCs was gathered from the NGO- Kala Chetana Yuva Samasthe, Vijayapur, Karnataka, Karnataka State Department of Agriculture, Annual Agriculture Statistics, and the District Planning and Statistics Department of Vijayapura.

Results and Discussion

The successful functioning of CHSCSs helps to decrease the burden of high investment and cost of maintenance of the farm implements and machineries at the farm level. However, for long term sustainability of services of these CHSCs established in Vijayapur district, it needs to be economically viable.

Table 1 illustrates the net profit of Custom Hiring Service Centers (CHSCs) providing farm machinery services in Vijayapura district. It details the volume of orders for farm equipment and related auxiliaries placed with each CHSC, amounting to 50 lakhs. Additionally, the table highlights that CHSC service providers in Vijayapura district hold a share of 13.5 per cent. This data underscores both the economic performance of the CHSCs and their significant presence in the local agricultural machinery market affordably (Sidhu & Vatta, 2012; Nagaraj *et al*., 2020) [15, 10]. The analysis revealed that each Custom Hiring Service Center (CHSC) in Vijayapura district had a total annual revenue of Rs. 234,496.43 and a total annual expenditure of Rs. 173,074.29. This resulted in a net profit of Rs. 61,207.85 per CHSC from providing custom hiring services for farm implements. All CHSCs in Vijayapura—specifically Dhavalagi, Hoovin Hippargi, Alamel, Devar Hippargi, Babaleshwar, Mamadapur, and Balloli—achieved profitability. Their annual profits were Rs. 37,250, Rs. 116,375, Rs. 77,850, Rs. 29,250, Rs. 78,080, Rs. 23,800, and Rs. 65,850, respectively. Among these, Hoovin Hippargi emerged as the most profitable center, demonstrating the highest profit margin in the district, which might be due to the balanced management orientation regarding its functioning. This profitability indicates that the CHSCs are effectively meeting local agricultural needs, and their performance suggests a robust business model for farm machinery rental services in the region. The variation in profits among the centers also highlights differences in operational efficiency, market demand, and possibly the range of services offered.

The observation of the study is in alignment with the findings of Chahal *et al*. (2014) [3], Kumar & Mahadevaiah (2017) [9], Shoba (2018) [14], Kumar & Meena (2021) [8].

Table 1: Financial performance and Economic Viability of CHSCs in Vijayapur district

Sl. No.	Operational CHSCs	Order placed (In lakhs)	CHSC Service provider share			50% subsidy request	50% subsidy required	Total Revenue (In Rs.)	Total Expenses (In Rs.)	Net Profit/ Loss
			50% share	Initial maintenance (if any)	Total share					
1	Dhavalgi	50	12.5	1	13.5	12.5	12.5	183800	146550	37250
2	Hoovin Hippargi	50	12.5	1	13.5	12.5	12.5	281975	165600	116375
3	Alamel	50	12.5	1	13.5	12.5	12.5	263300	185450	77850
4	Devar Hippargi	50	12.5	1	13.5	12.5	12.5	210750	181500	29250
5	Babaleshwar	50	12.5	1	13.5	12.5	7.61	298400	220320	78080
6	Mamadapur	50	12.5	1	13.5	12.5	2.99	155750	131950	23800
7.	Balloli	50	12.5	1	13.5	12.5	12.06	247500	180150	65850
	District Total	350	87.5	7	94.5	87.5	72.66	1641475	1211520	428455

Summary and Conclusions

Farm mechanization is a critical component of modernizing agriculture and addresses a pressing need in the current Indian agricultural landscape. The establishment of Custom Hiring

Service Centers (CHSCs) and the availability of various types of farm machinery for tasks ranging from land preparation to post-harvest operations can significantly benefit small and marginal farmers. By offering machinery on a rental basis at affordable rates, CHSCs facilitate access to essential equipment, which farmers readily utilize and appreciate. To further promote the adoption of custom hiring, it is essential for Krishi Vigyan Kendras (KVKs) and university extension services to actively engage in educating farmers about the advantages of these services. Additionally, there is a need to innovate the custom hiring model, particularly for high-cost machinery such as combine harvesters, sugarcane harvesters, onion planters, and laser-guided land levelers. Institutionalizing these innovations will enhance the accessibility and affordability of advanced machinery (Naik, 2019) [11]. Overall, custom hiring services represent a significant advantage for farmers, especially those with limited resources, making CHSCs a valuable asset in improving agricultural productivity and sustainability (Kisku & Singh, 2022; Agrawal & Sharma, 2020) [6, 1]. In Vijayapur district, there has been a notable increase in the level of mechanization across various agricultural practices. Farmers now have access to a diverse range of farm equipment at competitive prices, facilitating a broad spectrum of agricultural activities. This study aims to comprehensively document the economic viability of custom hiring services for farm machinery, alongside assessing the quality of agricultural work they support. The focus is on evaluating how these services contribute to sustainable agricultural production in Vijayapur district, providing valuable insights into both their economic feasibility and their impact on farm productivity and sustainability. The performance of Custom Hiring Service Centers (CHSCs) can be enhanced through several strategies. Efficient management practices that minimize downtime can improve service efficiency and customer satisfaction. Consistent demand for agricultural machinery ensures steady usage and revenue. Building strong relationships with local farmers and agricultural organizations can increase referrals and repeat business. Maximizing rental income during peak seasons or critical farming periods is also crucial. Additionally, other CHSCs can boost their performance and profitability by securing increased support and access to subsidies or financial incentives.

Conflict of Interest

Authors have declared that no competing interests exist.

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