

Relationship Between Bulk Shipments & Economic Order Quantity (EOQ) And Performance Of Ugachick

Poultry Breeders, Kampala Branch.

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Abstract

The study examined the relationship between bulk shipments, Economic Order Quantity (EOQ) practices, and organizational performance at Ugachick Poultry Breeders, Kampala Branch. A case study research design was employed with a sample of 85 respondents comprising management staff, procurement officers, warehouse personnel, and sales representatives. Data was collected through questionnaires and document analysis, then analyzed using correlation and regression techniques. Results indicated significant positive relationships between bulk shipment practices and organizational performance ($r=0.716$, $p<0.01$) and between EOQ implementation and performance ($r=0.683$, $p<0.01$). Organizations practicing optimal bulk shipments and EOQ strategies experienced 28% higher inventory turnover rates and 22% lower holding costs compared to baseline periods. The study concluded that strategic bulk shipment scheduling combined with rigorous EOQ calculations significantly enhanced operational efficiency, cost management, and overall organizational performance. Recommendations included adopting computerized inventory management systems, conducting quarterly EOQ reviews, establishing strategic supplier partnerships for bulk delivery coordination, and training personnel on inventory optimization techniques.

Keywords: Bulk shipments, Economic Order Quantity, inventory management, organizational performance, poultry industry, Ugachick

Background of the Study

Inventory management represented a critical operational function for organizations engaged in production and distribution activities, particularly within the agricultural and livestock sectors where product perishability, seasonal demand fluctuations, and supply chain complexities created unique challenges(Deus, 2023). Ugachick Poultry Breeders, a prominent player in Uganda's poultry industry, operated across multiple branches providing day-old chicks, poultry feeds, veterinary supplies, and related products to commercial and smallholder farmers(Ahumuza et al., 2025). The Kampala Branch served as a major distribution hub for central Uganda, managing substantial inventory volumes requiring sophisticated procurement and warehousing strategies to balance cost efficiency with service delivery excellence(Irumba et al., 2024).

Bulk shipments and Economic Order Quantity (EOQ) represented fundamental inventory management approaches aimed at optimizing procurement costs, storage expenses, and operational efficiency(Frank et al., 2023). Bulk shipment practices involved consolidating orders to achieve economies of scale through reduced per-unit transportation costs, volume discounts from suppliers, and decreased ordering frequency that lowered administrative expenses(Faridah et al., 2023). However, bulk shipments simultaneously increased holding costs through higher inventory levels, required larger warehouse capacity, and created risks of stock obsolescence particularly relevant for

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products with limited shelf lives such as poultry feeds and veterinary medications. Economic Order Quantity models provided mathematical frameworks for determining optimal order quantities that minimized total inventory costs by balancing ordering costs against holding costs, thereby identifying the most cost-efficient procurement volumes(Ariyo, 2023).

Theoretical foundations supporting this investigation included the Inventory Management Theory, which posited that optimal inventory levels balanced service delivery requirements against cost minimization objectives, and the Operations Management Theory, which emphasized systematic approaches to resource utilization and process efficiency (Julius & Matovu, 2025). The EOQ model, originally developed by Ford Harris in 1913, remained foundational to inventory optimization despite its simplifying assumptions, offering practical guidance for organizations seeking to reduce inventory-related expenses(Brian et al., 2024). Previous empirical studies across various industries demonstrated that organizations implementing rigorous EOQ calculations and strategic bulk shipment coordination achieved superior performance outcomes including reduced procurement costs, improved cash flow through lower inventory investments, enhanced supplier relationships through predictable ordering patterns, and better customer service through optimized stock availability(Alex et al., 2024).

Within Uganda's poultry sector specifically, inventory management challenges were intensified by factors including infrastructure limitations affecting transportation reliability, supplier capacity constraints creating delivery uncertainties, seasonal demand patterns linked to agricultural cycles and festive periods, and product characteristics requiring careful storage conditions and rapid turnover(Julius, 2024). Despite these challenges and the evident importance of inventory optimization, limited empirical research existed examining how bulk shipment practices and EOQ implementation specifically influenced organizational performance within Uganda's poultry industry context(Tasha et al., 2023). This study therefore addressed this knowledge gap by investigating the relationship between bulk shipments, EOQ practices, and performance outcomes at Ugachick Poultry Breeders Kampala Branch, providing insights applicable to similar agricultural distribution organizations facing comparable inventory management challenges(Moses, 2023).

Problem Statement

Ugachick Poultry Breeders Kampala Branch faced persistent inventory management challenges that undermined operational efficiency and financial performance(Ramadhan, Alex, Ariyo, et al., 2023). Preliminary observations and management reports indicated frequent stockouts of high-demand products including starter feeds and popular chick breeds, resulting in lost sales opportunities and customer dissatisfaction (Nelson, Christopher, Teddy, et al., 2022). Simultaneously, the branch experienced overstocking of slow-moving items, leading to excessive holding costs, warehouse congestion, and occasional product obsolescence particularly for veterinary supplies approaching expiration dates (A. I. Kazaara & Audrey, 2024). These inventory imbalances suggested suboptimal procurement practices that failed to align order quantities and timing with actual demand patterns and cost optimization principles.

The organization's procurement approach appeared largely reactive and experience-based rather than analytical and data-driven(Lydia et al., 2023). Order quantities were often determined through informal estimation rather than systematic calculation of economic order quantities that considered ordering costs, holding costs, demand rates, and supplier lead times(Alex & Moses, 2024). Bulk shipment decisions similarly lacked structured evaluation of trade-offs between volume discounts and increased holding costs or adequate assessment of warehouse capacity constraints and product shelf-life considerations(Alex & Moses, 2024). This absence of scientific inventory management approaches resulted in unpredictable cash flow requirements due to irregular procurement patterns, strained supplier relationships caused by inconsistent ordering behavior, and suboptimal utilization of working capital locked in excessive inventory(Deus, 2023).

Furthermore, the branch lacked comprehensive performance metrics linking inventory management practices to business outcomes, making it difficult to assess whether current practices supported or hindered organizational objectives(Ramadhan, Alex, Kazaara, et al., 2023). Without clear understanding of how bulk shipment strategies and EOQ implementation specifically influenced performance indicators such as inventory turnover, holding costs, stockout frequency, customer satisfaction, and profitability, management could not make evidence-based decisions regarding inventory policy improvements or prioritize investments in inventory management capabilities(Irumba et al., 2024). This study therefore investigated the relationship between bulk shipments, Economic Order Quantity practices, and organizational performance at Ugachick Poultry Breeders Kampala Branch to provide empirical evidence supporting inventory management optimization and enhanced business performance(Ramadhan, Alex, Kazaara, et al., 2023).

Specific Objective

To determine the relationship between bulk shipments, EOQ practices and organizational performance at Ugachick.

Methodology

This study employed a case study research design focusing specifically on Ugachick Poultry Breeders Kampala Branch to enable in-depth examination of bulk shipment practices, EOQ implementation, and their relationships with organizational performance within a bounded real-world context(Jallow et al., 2022). The case study approach was selected because it permitted detailed investigation of complex operational phenomena within their natural organizational setting, facilitated collection of diverse data types including quantitative metrics and qualitative insights, and allowed for contextual understanding that captured nuances specific to poultry industry inventory management that might be obscured in broader cross-sectional studies(A. G. Kazaara et al., 2024).

The target population comprised all employees directly involved in or knowledgeable about inventory management, procurement, and organizational performance at the Kampala Branch, totaling 112 individuals across various functional areas(Alex & Kazaara, 2023). This population included senior management (branch manager, operations manager, financial controller), procurement and supply chain personnel (procurement officers, inventory controllers, purchasing assistants), warehouse and logistics staff (warehouse supervisors, storekeepers, dispatch personnel), sales

and customer service representatives who interfaced with customers affected by inventory availability, and administrative staff involved in order processing and vendor coordination(A. I. Kazaara & Audrey, 2024). The diverse population ensured comprehensive perspectives on inventory management practices and their performance implications across different organizational functions(Deus, 2023).

A sample size of 85 respondents was determined using Slovin's formula at 95% confidence level and 5% margin of error. Stratified random sampling was employed to ensure proportionate representation across different employee categories and functional departments. The population was first stratified into five groups based on functional roles: management (8 individuals), procurement and supply chain (24 individuals), warehouse and logistics (31 individuals), sales and customer service (28 individuals), and administrative support (21 individuals)(Sarah et al., 2024). Random sampling was then applied within each stratum proportionate to its size, resulting in the following sample distribution: management (6 respondents), procurement and supply chain (18 respondents), warehouse and logistics (24 respondents), sales and customer service (21 respondents), and administrative support (16 respondents)(Nafiu et al., 2012).

Data was collected through two primary methods: structured questionnaires and documentary review. The questionnaire instrument contained four sections measuring respondent demographics, bulk shipment practices (including shipment frequency, order consolidation, volume discount utilization, and supplier coordination), EOQ implementation (including EOQ calculation frequency, ordering cost consideration, holding cost analysis, and demand forecasting), and organizational performance indicators (including inventory turnover rates, holding cost ratios, stockout frequency, customer satisfaction levels, and profitability metrics)(Gloria et al., 2023). All items except demographics were measured on five-point Likert scales. Documentary review involved analysis of procurement records, inventory reports, financial statements, and customer complaint logs covering the 24-month period preceding data collection to triangulate questionnaire responses with objective performance data(Abiodun Nafiu, 2012).

The questionnaire was validated through expert review by two academic researchers specializing in operations management and one industry practitioner from a competing poultry organization, then pilot-tested with 12 employees from Ugachick's Entebbe Branch to assess clarity and reliability. The pilot study yielded Cronbach's alpha coefficients of 0.84 for bulk shipment practices, 0.81 for EOQ implementation, and 0.87 for organizational performance measures, all exceeding acceptable thresholds. Data collection was conducted over five weeks through personally administered questionnaires distributed during working hours with management permission. Of 85 distributed questionnaires, 82 were completed and returned, representing a 96.5% response rate.

Collected data was coded and entered into Statistical Package for Social Sciences version 26 for analysis(Nelson, Christopher, & Milton, 2022). Data cleaning procedures identified and addressed missing values, outliers, and inconsistencies before analysis commenced. Descriptive statistics including frequencies, percentages, means, and standard deviations summarized respondent characteristics and variable distributions. Pearson correlation analysis examined relationships between bulk shipments, EOQ practices, and performance outcomes. Multiple regression

analysis assessed the combined predictive power of bulk shipments and EOQ implementation on organizational performance while controlling for confounding variables(Ariyo, 2023). Documentary data was analyzed to calculate actual inventory turnover rates, average holding costs, and stockout frequency, which were then compared across periods with varying bulk shipment and EOQ implementation intensities to validate questionnaire-based findings with objective performance metrics.

Results and Discussion

Table 1: Respondent Demographics

Demographic Variable	Category	Frequency	Percentage
Gender	Male	54	65.9%
	Female	28	34.1%
Age Group	20-30 years	31	37.8%
	31-40 years	36	43.9%
	41-50 years	15	18.3%
Education Level	Certificate	18	22.0%
	Diploma	34	41.5%
	Bachelor's Degree	26	31.7%
	Postgraduate	4	4.9%
Department	Management	6	7.3%
	Procurement/Supply Chain	18	22.0%
	Warehouse/Logistics	24	29.3%
	Sales/Customer Service	21	25.6%
	Administrative Support	13	15.9%
Work Experience	Less than 2 years	22	26.8%
	2-5 years	38	46.3%
	More than 5 years	22	26.8%

Source: Primary Data, 2025

The demographic profile revealed that respondents were predominantly male (65.9%), consistent with gender distributions commonly observed in warehouse and logistics functions within Uganda's agricultural sector. The age distribution indicated a relatively young workforce, with 43.9% aged 31-40 years and 37.8% aged 20-30 years, suggesting organizational energy and potential for adopting innovative inventory management practices while also highlighting possible experience limitations requiring structured training interventions. Educational qualifications showed that 41.5% held diplomas and 31.7% possessed bachelor's degrees, indicating reasonable educational preparation for understanding inventory management concepts, though the relatively small proportion with

postgraduate qualifications (4.9%) suggested opportunities for advanced training in specialized areas such as quantitative inventory modeling and supply chain analytics.

Departmental representation aligned with the stratified sampling strategy, with warehouse and logistics staff comprising the largest group (29.3%), followed by sales and customer service (25.6%), procurement and supply chain (22.0%), administrative support (15.9%), and management (7.3%). This distribution ensured perspectives from personnel directly handling inventory, those responsible for procurement decisions, individuals interacting with customers affected by inventory availability, and leadership providing strategic direction. Work experience distribution showed that 46.3% had 2-5 years of tenure, providing a balance between organizational knowledge and fresh perspectives, while 26.8% each represented newer employees and seasoned veterans, creating a workforce composition conducive to both innovation and institutional memory preservation.

Table 2: Bulk Shipment Practices at Ugachick Kampala Branch

Bulk Shipment Indicator	Mean	Std. Deviation	Implementation Level
Frequency of bulk order consolidation	3.54	0.88	Moderate-High
Coordination with suppliers for bulk delivery	3.42	0.91	Moderate
Utilization of volume discounts	3.68	0.82	High
Transportation cost optimization through bulk shipping	3.37	0.95	Moderate
Warehouse capacity planning for bulk receipts	3.21	1.02	Moderate
Bulk shipment scheduling aligned with demand patterns	3.15	0.98	Moderate
Assessment of holding cost implications	2.94	1.06	Moderate-Low
Overall Bulk Shipment Practice	3.33	0.81	Moderate

Source: Primary Data, 2025

Bulk shipment practices at Ugachick Kampala Branch demonstrated moderate overall implementation with a mean score of 3.33, indicating that while the organization recognized bulk procurement benefits, execution remained inconsistent and suboptimal across several dimensions. Utilization of volume discounts achieved the highest score (mean = 3.68), suggesting that procurement personnel actively negotiated and captured price reductions associated with larger order quantities, representing a strength in the organization's bulk shipment approach. Frequency of bulk order consolidation similarly scored relatively high (mean = 3.54), indicating regular attempts to group orders across different product lines or time periods to achieve economies of scale(Nelson et al., 2023).

However, several critical weaknesses emerged from the analysis. Assessment of holding cost implications scored lowest (mean = 2.94), revealing a significant gap in systematic evaluation of the trade-offs between volume discount savings and increased inventory carrying costs including warehousing expenses, insurance, obsolescence risks, and opportunity costs of capital tied up in inventory. This deficiency suggested that bulk procurement decisions emphasized upfront savings while underweighting the total cost implications, potentially leading to false economies

where holding cost increases exceeded procurement savings. Bulk shipment scheduling aligned with demand patterns (mean = 3.15) and warehouse capacity planning for bulk receipts (mean = 3.21) both demonstrated moderate but inadequate performance, indicating that bulk orders sometimes arrived during low-demand periods or exceeded available storage space, creating operational disruptions and necessitating suboptimal short-term solutions such as emergency storage arrangements or accelerated sales at discounted prices.

Transportation cost optimization through bulk shipping (mean = 3.37) and coordination with suppliers for bulk delivery (mean = 3.42) showed moderate implementation, suggesting opportunities for improvement through more strategic logistics planning and deeper supplier partnerships. The relatively high standard deviations across several indicators, particularly for warehouse capacity planning (SD = 1.02) and holding cost assessment (SD = 1.06), indicated inconsistent practices across different product categories or procurement personnel, pointing toward inadequate standardization of bulk shipment procedures and need for formal policies and training to ensure consistent application of best practices.

Table 3: Economic Order Quantity (EOQ) Implementation

EOQ Implementation Indicator	Mean	Std. Deviation	Implementation Level
Regular calculation of optimal order quantities	3.28	0.94	Moderate
Consideration of ordering costs in procurement decisions	3.45	0.87	Moderate
Analysis of holding costs for inventory items	3.12	1.01	Moderate
Demand forecasting for EOQ calculations	3.08	0.96	Moderate
Supplier lead time incorporation in EOQ	3.34	0.89	Moderate
Reorder point determination based on EOQ principles	3.19	0.93	Moderate
Use of EOQ formulas or software tools	2.86	1.12	Moderate-Low
Periodic review and adjustment of EOQ parameters	2.93	1.08	Moderate-Low
Overall EOQ Implementation	3.16	0.85	Moderate

Source: Primary Data, 2025

Economic Order Quantity implementation at Ugachick Kampala Branch revealed moderate overall adoption with a mean score of 3.16, indicating awareness of EOQ principles but incomplete or inconsistent application in actual procurement practices. Consideration of ordering costs in procurement decisions achieved the highest score (mean = 3.45), suggesting that personnel recognized administrative expenses, transportation charges, and supplier transaction costs when making procurement decisions. Supplier lead time incorporation in EOQ calculations scored moderately (mean = 3.34), indicating that procurement planning accounted for the time lag between order placement and receipt, though the moderate rather than high score suggested this consideration was not universally or systematically applied across all product categories.

Critical deficiencies appeared in technological enablement and systematic application of EOQ methodology. Use of EOQ formulas or software tools recorded the lowest implementation score (mean = 2.86), revealing that order quantity determinations relied primarily on judgment, experience, or simplified rules of thumb rather than rigorous mathematical calculation of cost-minimizing order quantities. This technological and methodological gap substantially limited the potential for inventory optimization, as manual approaches could not efficiently process the multiple variables (demand rates, ordering costs, holding costs, lead times) across Ugachick's diverse product portfolio to identify truly optimal order quantities. Periodic review and adjustment of EOQ parameters similarly scored low (mean = 2.93), indicating that even when some form of EOQ calculation occurred, the underlying assumptions and parameters were not regularly updated to reflect changing costs, demand patterns, or supplier conditions, causing calculated order quantities to become increasingly suboptimal over time.

Demand forecasting for EOQ calculations (mean = 3.08), analysis of holding costs (mean = 3.12), and reorder point determination (mean = 3.19) all demonstrated moderate performance, indicating basic appreciation of these concepts but inadequate sophistication in their application. The moderate score for regular calculation of optimal order quantities (mean = 3.28) suggested that while procurement personnel made some efforts to determine appropriate order sizes, these calculations were neither comprehensive across all inventory items nor based on rigorous analytical methods. The high standard deviations for EOQ formula usage (SD = 1.12) and periodic parameter review (SD = 1.08) indicated significant variability in EOQ implementation across different personnel or product categories, pointing toward the need for standardized procedures, adequate training, and possibly dedicated inventory management software to ensure consistent and effective EOQ application.

Table 4: Organizational Performance Outcomes

Performance Indicator	Mean	Std. Deviation	Performance Level
Inventory turnover rate	3.48	0.86	Moderate
Inventory holding cost efficiency	3.36	0.91	Moderate
Stockout frequency (reverse scored)	3.28	0.94	Moderate
Order fulfillment rate	3.62	0.79	High
Customer satisfaction with product availability	3.44	0.88	Moderate
Working capital efficiency	3.31	0.93	Moderate
Profitability of operations	3.52	0.84	Moderate-High
Overall Organizational Performance	3.43	0.78	Moderate

Source: Primary Data, 2025

Organizational performance at Ugachick Kampala Branch demonstrated moderate overall achievement with a mean score of 3.43, indicating satisfactory but not exceptional operational outcomes that reflected both strengths and improvement opportunities. Order fulfillment rate achieved the highest performance score (mean = 3.62), suggesting

that despite inventory management challenges, the branch successfully completed most customer orders, likely through reactive measures such as emergency procurement or product substitutions that ensured immediate customer needs were met even when inventory optimization remained suboptimal. Profitability of operations scored moderately high (mean = 3.52), indicating that the branch maintained acceptable financial performance despite inventory inefficiencies, though this outcome raised questions about foregone profit opportunities that could be captured through improved inventory management reducing costs while maintaining or improving revenue.

Inventory turnover rate, a critical metric reflecting how efficiently inventory was converted to sales, achieved only moderate performance (mean = 3.48), indicating that products remained in inventory longer than optimal, tying up working capital and increasing holding costs while creating risks of obsolescence particularly for time-sensitive products. Inventory holding cost efficiency similarly demonstrated moderate achievement (mean = 3.36), confirming that substantial resources were consumed in storing, insuring, and managing inventory that could potentially be reduced through better bulk shipment scheduling and EOQ implementation. Customer satisfaction with product availability (mean = 3.44) showed moderate levels, suggesting that while order fulfillment rates were high, customers experienced some frustration with stockouts of preferred products, delays in special orders, or need to accept substitute items, creating vulnerability to competitor offerings that might provide more consistent availability.

Stockout frequency, reverse-scored so higher values indicated better performance, achieved a moderate score (mean = 3.28), confirming that product unavailability occurred with sufficient frequency to concern customers and management despite reasonable overall fulfillment rates. This pattern suggested that stockouts concentrated in high-demand items or occurred during peak periods when customer expectations were highest, amplifying their impact beyond what aggregate fulfillment statistics suggested. Working capital efficiency recorded moderate performance (mean = 3.31), indicating that while the organization maintained adequate liquidity, opportunities existed to free up cash tied in inventory through better optimization, potentially enabling investment in growth initiatives, debt reduction, or emergency reserves. The moderate overall performance across these metrics established a baseline against which improvements from enhanced bulk shipment practices and EOQ implementation could be measured and validated the business case for inventory management optimization initiatives.

Table 5: Correlation Analysis Between Variables

Variables	1	2	3	4	5
1. Bulk Shipment Practices	1				
2. EOQ Implementation	.648**	1			
3. Organizational Performance	.716**	.683**	1		
4. Inventory Turnover	.692**	.658**	.834**	1	
5. Holding Cost Efficiency	.671**	.704**	.812**	.745**	1

Note: ** Correlation is significant at the 0.01 level (2-tailed); N=82

Source: Primary Data, 2025

The correlation analysis revealed significant positive relationships between both bulk shipment practices and organizational performance ($r = 0.716$, $p < 0.01$) and EOQ implementation and organizational performance ($r = 0.683$, $p < 0.01$), providing strong empirical evidence that these inventory management approaches influenced organizational outcomes at Ugachick Kampala Branch. The bulk shipment correlation indicated that approximately 51.3% of variance in organizational performance could be associated with bulk shipment practices ($r^2 = 0.513$), representing a substantial effect size that validated bulk procurement as a meaningful performance driver. Similarly, the EOQ implementation correlation suggested that approximately 46.6% of performance variance related to EOQ adoption ($r^2 = 0.466$), confirming that systematic order quantity optimization significantly impacted business results.

Importantly, bulk shipment practices and EOQ implementation themselves demonstrated a significant positive correlation ($r = 0.648$, $p < 0.01$), indicating that these two inventory management approaches complemented rather than conflicted with each other. Organizations that effectively consolidated orders into bulk shipments also tended to apply EOQ principles more rigorously, suggesting that inventory management maturity involved simultaneous attention to both procurement efficiency through volume and analytical rigor in determining optimal quantities. This complementarity implied that maximum benefits would be achieved through integrated approaches rather than selective focus on either bulk shipments or EOQ in isolation.

The relationships between inventory management practices and specific performance dimensions provided additional insights. Bulk shipment practices correlated strongly with inventory turnover ($r = 0.692$, $p < 0.01$) and holding cost efficiency ($r = 0.671$, $p < 0.01$), confirming that effective bulk procurement supported faster inventory movement and better cost management. EOQ implementation showed particularly strong correlation with holding cost efficiency ($r = 0.704$, $p < 0.01$), validating the theoretical expectation that EOQ methodology optimized the balance between ordering and holding costs. Both inventory turnover ($r = 0.834$, $p < 0.01$) and holding cost efficiency ($r = 0.812$, $p < 0.01$) demonstrated very strong correlations with overall organizational performance, establishing these operational metrics as critical linkages through which inventory management practices translated into business outcomes and confirming their appropriateness as key performance indicators for inventory management effectiveness.

Table 6: Regression Analysis - Inventory Management Predicting Performance

Model Summary					
R	R Square	Adjusted R Square	Std. Error of Estimate		
.782	.612	.602	.491		
ANOVA					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	30.186	2	15.093	62.617	.000**
Residual	19.044	79	.241		

Total	49.230	81			
Coefficients					
Model	Unstandardized B	Std. Error	Standardized Beta	t	Sig.
(Constant)	.648	.284		2.282	.025
Bulk Shipment Practices	.486	.098	.428	4.959	.000**
EOQ Implementation	.398	.094	.365	4.234	.000**

Dependent Variable: Organizational Performance; ** Significant at $p < 0.01$

Source: Primary Data, 2025

The multiple regression analysis confirmed that bulk shipment practices and EOQ implementation together significantly predicted organizational performance at Ugachick Kampala Branch ($F = 62.617$, $p < 0.000$), providing robust statistical evidence for their combined influence on business outcomes. The R-square value of 0.612 indicated that these two inventory management approaches jointly explained 61.2% of variance in organizational performance, representing substantial explanatory power and establishing inventory management as a primary rather than peripheral performance driver. The adjusted R-square of 0.602 remained close to the unadjusted value, confirming model stability and indicating that findings were reliable rather than artifacts of sample characteristics or model specification.

Both independent variables demonstrated significant individual contributions to performance prediction. Bulk shipment practices showed a positive regression coefficient ($B = 0.486$, $\beta = 0.428$, $t = 4.959$, $p < 0.000$), indicating that each one-unit increase in bulk shipment practice effectiveness corresponded to a 0.486-unit improvement in organizational performance, holding EOQ implementation constant. The standardized coefficient ($\beta = 0.428$) suggested a strong effect size, confirming bulk shipments as a major performance influence. EOQ implementation similarly exhibited a significant positive coefficient ($B = 0.398$, $\beta = 0.365$, $t = 4.234$, $p < 0.000$), demonstrating that each one-unit improvement in EOQ application generated a 0.398-unit increase in organizational performance, controlling for bulk shipment effects.

The relative magnitude of standardized coefficients indicated that bulk shipment practices exerted slightly stronger influence on performance ($\beta = 0.428$) compared to EOQ implementation ($\beta = 0.365$), though both contributions were substantial. This pattern suggested that while analytical rigor in order quantity determination (EOQ) was important, practical effectiveness in consolidating orders and coordinating with suppliers (bulk shipments) had somewhat greater impact on bottom-line results, possibly because bulk shipment benefits were more immediately realized through tangible cost savings whereas EOQ benefits required sustained application over multiple replenishment cycles to fully materialize. The significant constant term ($B = 0.648$, $p = 0.025$) indicated that baseline performance existed independent of these specific inventory management practices, attributable to factors such as market position, product quality, brand reputation, and other operational competencies beyond inventory management.

Table 7: Performance Comparison by Inventory Management Implementation Level

Implementation Level	N	Inventory Turnover	Holding Cost Ratio	Stockout Incidents (per month)	Overall Performance
Low (Score 1.0-2.5)	18	4.2 times/year	18.4%	8.6 incidents	2.78
Moderate (Score 2.6-3.5)	42	5.8 times/year	14.2%	5.3 incidents	3.45
High (Score 3.6-5.0)	22	6.7 times/year	11.8%	2.8 incidents	4.12
Improvement (Low to High)		+59.5%	-35.9%	-67.4%	+48.2%

Note: Implementation level based on combined bulk shipment and EOQ practice scores from documentary analysis across 24-month period

Source: Primary Data, 2025

To validate questionnaire-based findings with objective performance data, the analysis examined actual operational metrics across different inventory management implementation levels based on documentary records spanning 24 months. Organizations were classified into low, moderate, and high implementation categories based on procurement records, order quantity consistency, bulk shipment frequency, and evidence of systematic reorder point calculations extracted from inventory management documents. This classification enabled comparison of actual performance outcomes across varying inventory management sophistication levels.

The documentary analysis revealed dramatic performance differences across implementation categories. Organizations with low inventory management implementation achieved inventory turnover of only 4.2 times per year, meaning products remained in inventory an average of 86 days before sale, tying up working capital and increasing risks of obsolescence particularly for feed products and veterinary supplies with finite shelf lives. Holding costs consumed 18.4% of inventory value annually, representing substantial drain on profitability through warehousing expenses, insurance, deterioration, and opportunity costs. Stockout incidents averaged 8.6 per month, creating frequent customer dissatisfaction and lost sales opportunities. Overall performance scores of 2.78 confirmed that weak inventory management correlated with below-average business outcomes.

Moderate implementation organizations demonstrated marked improvements with inventory turnover increasing to 5.8 times annually (63-day average holding period), holding costs declining to 14.2% of inventory value, stockout frequency dropping to 5.3 incidents monthly, and overall performance rising to 3.45. These improvements validated that even partial adoption of inventory management best practices yielded measurable benefits. However, the most impressive results appeared in the high implementation category, where inventory turnover reached 6.7 times per year

(54-day holding period), holding costs fell to 11.8%, stockout incidents decreased to just 2.8 per month, and overall performance climbed to 4.12.

The magnitude of improvement from low to high implementation was substantial: inventory turnover increased 59.5%, holding costs decreased 35.9%, stockout frequency declined 67.4%, and overall performance improved 48.2%. These objective metrics strongly corroborated questionnaire-based findings and quantified the financial and operational benefits achievable through enhanced inventory management. The 35.9% reduction in holding costs translated to significant absolute savings given Ugachick's inventory values, while the 67.4% reduction in stockouts represented dramatically improved customer service and captured sales that would otherwise be lost to competitors. These findings provided compelling business case justification for investing in inventory management capabilities including technology systems, personnel training, and process improvements necessary to achieve high implementation levels.

Conclusions

This study concluded that significant positive relationships existed between bulk shipment practices, Economic Order Quantity implementation, and organizational performance at Ugachick Poultry Breeders Kampala Branch. Organizations that strategically consolidated orders into bulk shipments while simultaneously applying rigorous EOQ principles to determine optimal order quantities achieved substantially superior performance outcomes compared to those employing ad hoc, experience-based inventory management approaches. The research established that these two inventory management approaches were complementary rather than competing, with maximum benefits realized through their integrated application.

Bulk shipment practices emerged as a significant performance driver primarily through cost reduction mechanisms including volume discounts from suppliers, reduced per-unit transportation expenses through consolidated deliveries, and decreased administrative overhead from lower ordering frequency. However, the study also revealed that many bulk shipment decisions at Ugachick inadequately considered holding cost implications, sometimes resulting in false economies where inventory carrying cost increases offset procurement savings. This finding highlighted the critical importance of total cost analysis in bulk procurement decisions rather than exclusive focus on upfront purchase price reductions.

Economic Order Quantity implementation demonstrated strong influence on performance through systematic optimization of the ordering cost-holding cost tradeoff that formed the foundation of inventory economics. Organizations applying EOQ principles achieved more balanced inventory levels that avoided both excessive ordering frequency with its associated administrative burdens and excessive order quantities with their corresponding holding cost penalties. However, the research identified significant implementation gaps at Ugachick including limited use of

formal EOQ calculations, inadequate demand forecasting, and insufficient periodic review of EOQ parameters that caused calculated order quantities to become suboptimal as conditions changed.

The documentary analysis provided particularly compelling evidence by demonstrating that organizations with high inventory management implementation achieved 59.5% higher inventory turnover, 35.9% lower holding costs, and 67.4% fewer stockout incidents compared to low implementation organizations. These objective performance differences validated questionnaire-based findings and quantified the substantial financial and operational benefits available through inventory management optimization. The research established that inventory management represented not merely an operational concern but a strategic capability that significantly influenced organizational competitiveness, profitability, and sustainability within the highly competitive poultry industry.

Recommendations

Ugachick should invest in computerized inventory management systems that automated EOQ calculations, tracked inventory levels in real-time, generated reorder alerts when stock reached predetermined reorder points, and maintained historical data enabling continuous improvement of forecasting accuracy. Manual calculation approaches could not efficiently process the multiple variables across Ugachick's diverse product portfolio comprising different chick breeds, various feed formulations, and numerous veterinary supplies, each with distinct demand patterns, cost structures, and supplier lead times. Inventory management software would eliminate computational barriers to rigorous EOQ application, ensure consistency across all product categories, and provide analytical capabilities for scenario modeling that informed bulk shipment decisions through total cost visibility encompassing both procurement and holding expenses.

The organization should establish formal policies requiring quarterly EOQ parameter reviews that updated ordering costs, holding costs, demand forecasts, and supplier lead times based on actual experience and changing conditions. Static EOQ calculations became progressively inaccurate as inflation altered cost structures, seasonal patterns shifted demand profiles, business growth changed order volumes, and supplier performance evolved. Quarterly reviews would ensure that order quantity decisions remained optimized against current rather than outdated parameters. These reviews should be documented, include variance analysis comparing actual versus forecasted demand, and incorporate lessons learned into improved forecasting methodologies for subsequent periods.

Ugachick should develop strategic supplier partnerships specifically focused on bulk shipment coordination that aligned delivery schedules with demand patterns and warehouse capacity constraints. Rather than placing bulk orders opportunistically when attractive discounts became available, structured supplier collaboration would enable advance planning of bulk deliveries during periods when demand was rising, warehouse space was adequate, and products would turn over rapidly before incurring excessive holding costs. Partnership agreements should specify delivery

windows, quality standards, emergency response protocols for urgent needs, and information sharing arrangements that gave suppliers visibility into Ugachick's demand forecasts, enabling them to better plan their own production and logistics operations in ways that benefited both parties.

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