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Factor Affecting Marketing Chain Performance of Agricultural Inputs (In Case of Agricultural Cooperative Union around Dire Dawa)

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Abstract

This study examines the agricultural input market chain, focusing on how cooperative unions can tackle supply issues arising from market competition. Agricultural cooperatives are vital for smallholder farmers in accessing inputs, and this research aims to pinpoint key factors marketing, financial, legal, and service delivery that impact the performance of this market chain. An explanatory research design was used, integrating both qualitative and quantitative methods. The sample consisted of 164 respondents from 460 cooperative unions, selected through a mix of convenience and random sampling techniques. Data was collected via structured interviews and closed-ended questionnaires. Analysis involved multiple linear regressions, Pearson correlation, and descriptive statistics. The findings indicate that marketing, financial, and service delivery factors positively influence market chain performance, whereas legal factors showed insignificant results. For optimal performance, organizations should focus on effective marketing and financial strategies, while adhering to appropriate regulations and service standards.

Keywords: *Agricultural input, cooperative union, Financial factor, Legal factor, Market chain, Market factor, Service delivery factor*

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1. Background of the Study

Agriculture, encompassing crop and livestock production, aquaculture, fisheries, and forestry, is integral to human civilization's development. By creating food surpluses, agriculture has enabled urbanization and sedentary lifestyles. Agricultural inputs are crucial, divided into consumable inputs (e.g., fertilizers, seeds, pesticides) and capital inputs (e.g., tractors, harvesters). Rural markets face unique challenges including underdeveloped infrastructure, illiteracy, communication barriers, diverse languages, and logistical issues that complicate the supply chain for agricultural inputs.

Inputs can be categorized into primary yield-saving or yield-enhancing types, with their effectiveness measured by the yield they produce or store. High-quality, affordable inputs are essential for boosting agricultural productivity and meeting economic goals. Efficient market mechanisms for obtaining inputs, credit, equipment, and temporary labor are crucial for agricultural transformation. Recent studies underscore the importance of bulk purchasing and group buying to reduce costs and enhance access to inputs (Mugwagwa, 2019).

Despite advancements, Ethiopian smallholder farmers often use limited modern inputs, contributing to low productivity. The Ethiopian Agricultural Development-led Industrialization (ADLI) strategy aims to improve input supply by focusing initially on food crops and later integrating market orientation. This strategy underscores the need for affordable, timely, and sustainable inputs, yet challenges persist (Mazwi, 2019). Recent reports highlight ongoing issues such as significant supply fluctuations and inadequate infrastructure, which impact input availability and agricultural output (Kong, 2021).

The development of agricultural input markets in Ethiopia has been a persistent concern, with issues including price and quality fluctuations affecting farm household incomes and production capabilities. The concentration in input markets has drawn criticism from various stakeholders, including farmer unions and policymakers (Kong, 2021). Recent innovations in distribution channels such as direct sales through supermarkets and franchised outlets aim to address these issues (Tamilia, 2020). However, challenges remain in meeting the diverse needs of smallholder farmers.

This study aims to identify the key factors influencing the availability of agricultural inputs for cooperative unions in Dire Dawa. It will examine factors such as legal, marketing, financial, and service delivery issues impacting the agricultural input market chain. By addressing these

gaps, the study seeks to inform improvements in regulatory policies, enhance market chain efficiency, and support capacity-building efforts for stakeholders involved in agricultural input supply. The findings will contribute to better understanding and resolving the persistent issues within the agricultural input market system, ultimately aiming to boost agricultural productivity and economic growth among smallholder farmers.

2. Literature review

2.1. Theories of Agricultural input market chain

Ethiopia invests 85% of its workforce in agriculture, and all of its exports are made up of agricultural products (FAO, 2020). Chronic food shortages continue to have an impact on the nation (WFP, 2020). The population of the nation has nearly tripled over the past 40 years, and higher agricultural output is needed to provide for the country's 112 million citizens (World Bank 2019; Feed the Future 2019). According to numerous studies, Ethiopia must address a variety of policy and strategic priorities to enhance agriculture; yet, the country's ineffective agricultural supply chain for the provision of input is highlighted as one of the major obstacles to developing agriculture productivity.

According to Panda (2007), agricultural marketing is the study of all the activities, agencies and policies involved in the procurement of farm inputs by farmers and the movement of the agricultural products from the farms to the consumers. Therefore, in the broadest sense, agricultural marketing entails the aggregate socio-economic, which includes all the primary activities of production, interactions geared towards the utilization of natural resources for human welfare. Agricultural marketing is complicated by the diverse nature of the products to be handled, and their perish ability. A further complication is the scattered nature of agricultural production in most tropical countries like Ethiopia is very large number of separate production units.

According to the International Cooperative Alliance (1995), cooperative is an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise." Cooperative marketing is an application of cooperative ideals to the world of marketing. It involves marketing produce through a cooperative association that was set up freely by its members to carry out one or more marketing tasks. Therefore, "selling together" is the definition of collective marketing. In communal marketing, the cooperative purchases the produce from the members and takes ownership of it (acting as a chain operator). The

foundation of collective marketing is the idea that selling together benefits smallholders more than selling separately. Individually. Individually, these farmers produce low volumes of products and often fetch low prices. By jointly selling farm products, farmers can negotiate better prices and services. Collective marketing can empower farmers in markets.

2.2. Factors Affecting Agricultural Input Market Chain performance

Channel formation and the role of marketing institutions in the channel is a central topic for marketing theory. The continuing dependence on inputs for agricultural production makes their rise in prices a threat to farmer's access. The cost of these inputs affects how quickly they are used in agricultural output. Maintaining higher yields calls on the proper use of seeds and other inputs. The current obstacles to a market chain performing at its best include the widening product diversity, globalization, shorter product life cycles, and more complex regulatory requirements. They all make it more challenging for supply chains to strategically align what they do particularly well with the desired, fluctuating client needs.

In general, better delivery performance (improved responsiveness and reliability of deliveries, fewer stock-outs, higher product quality, more receiver-friendly loads) and increased information availability (better demand insight, more predictable order cycles, accurate, real-time) could significantly increase the profitability of the market chain. The potential for improvement when implementing market concepts is based on the decrease in inventory-carrying costs (reduced overstocks, quicker inventory turns), transportation costs (pooling of transport), the decrease in indirect and direct labor costs, and the increase in sales and sales margins (Duque-Uribe, 2019).

2.2.1. Legal Factors

Legal factors are those that emerge from changes to the regulatory environment, which may affect the broader economy, certain agriculture, or even individual businesses within a specific sector. Agriculture is the foundation of the national economy and plays a major role in the socio-economic development of the country. According to (Abegunde, 2019) In agricultural transformation smallholders input requirement are an issue that deserve much attention by policy makers and governments of different countries and agricultural economists. In 2004, the Ministry of Agriculture and Rural Development (MoARD) was created by proclamation No. 380/2004, merging the Ministry of Agriculture (MoA) and the MoRD. In addition to other things, the Ministry's powers and responsibilities included giving private investors in the agricultural industry broad support and providing the essential assistance for

growing capacity in input production, supply, distribution, and marketing. Higher-level bureaucratic procedures involving the government's input supply system (MoARD, 2005) Although businesses, trade associations, and professions may adopt regulations voluntarily to protect things like reputation or ethical standards, regulation is often the result of the governm ent imposing rules on people and organizations (Damalas, 2017). There are several possible motivations for the regulation of agricultural inputs. Regulation is often justified when input use implies externalities, such as dangers to the health of farmers or consumers, or hazards to the environment. Such regulation may restrict the use of dangerous chemicals, or may ban seed imports from countries with seed-borne diseases not present in the importing country. A study conducted in the Philippines revealed that the use of harmful pesticides actually decre as rather than increases rice yield when health costs are taken into account.Additionally, it is f requentlyclaimed that regulation should be justified by government screening or testing that w ill point farmers in the direction of the best inputs.Last but not least, regulatory regimes freque ntly require and oversee the quality of inputs that are supplied, ensuring that they are pure and properly labeled (Onyeaka, 2022).

2.3.2. Marketing Factor

The supply of yield enhancing inputs in Sub Saharan Africa (SSA) is restricted and highly priced in relation to international market prices. Within SSA, fertilizer use is mainly confined to export cash crops. There are identified five pillars that are required to develop input markets and achieve market efficiency. Increasing supplies and market efficiency can reduce input prices. These five pillars are the policy environment; human capital development; access to finance; market information; and regulatory frame works. These generic components need to be adopted in the context of country-specific situations. Holistic improvements in all areas will reduce transaction costs and improve accessibility to fertilizers in rural areas (World Bank., 2004). According to Wolde (2004), claims that in 1996, Ambassel began importing fertilizer, which accounted for 35.1% of fertilizer imports. Each of the three importers had a separate wholesale, retail, and distribution network. In 1996–1997, three more wholesalers/distributors, Dinsho, Guna, and Wondo, entered the fertilizer industry.

Ethiopia has one of the lowest rates of nutrients utilized per hectare of farmed land in the world, despite an increase in global fertilizer usage. For instance, the projected average global fertilizer nutrient consumption per hectare of arable land is 97 kg; in Europe, it is more than 200 kg; and in Ethiopia, it is only 17–20 kg. The situation with organic fertilizer is not any better. Rural homes have been compelled to redirect animal waste due to a lack of fuel wood.

The results of many studies According to Adugna (2009) and Abay (2007), the distance that farmers must travel to the market to purchase their input is a continuous variable that is measured in kilometers. Particularly evident is how rural populations in isolated locations struggle with a lack of transportation options.

Many developing country governments, donors, and nongovernmental organizations are still battling with the problem of market access. Agricultural markets are emphasized as a potential route to rural development since they are thought to be crucial for reducing poverty and fostering economic progress. For smallholder rural farmers, however, finding markets can be difficult. For rural smallholder farmers, market access difficulties create local to global links that can be both opportunities and challenges (IFAD, 2003). Co-operatives serve as a vehicle for input distribution, according to (Asemahagn, 2020), Given that the physical availability of inputs is frequently a significant barrier to access, with limited and unreliable rural distribution networks in the majority of African countries. Despite the fact that access to and use of agricultural inputs had increased as a result of liberalization up until 1996–1997, significant issues with the fertilizer market's operation persisted. These issues included poorly developed retail markets that limited market access to retail outlets and credit supply that seemed to discourage competition and promote market concentration, which created uncertainty and risk for new entrants. The experience also demonstrates the need for institutional tactics to be given careful consideration when designing market policy reforms.

2.2.3. Financial Factor

In order to build an agricultural marketing system that is functionally effective, strategic studies analyze how to match the market chain with the actor's strategic aims. In order to target both domestic and international markets, develop market infrastructure and information systems, develop and implement regulatory frameworks, and build capacity in terms of skill, knowledge, and finances, Ethiopia created an agricultural marketing strategy in 2005 (Fernández-Arias, 2020). The arrival of the extension package program and the regional government's assumption of responsibility for guaranteeing input loans made the function of development agents in input loans administration significantly more important. Increased financial institution involvement should also result in them taking on more of the risk associated with these loans, gradually lessening the need for loan guarantees from the local governments. Cooperatives' efficiency in organizing the delivery of several services to smallholders, Cooperatives frequently offer technical help regarding the usage of those inputs in addition to providing inputs. Finally, co-ops offer finance by lending out inputs that must

be returned when the harvest is sold (McKee, 2020). Sub-Saharan Africa has shown that male headed households have more access to land, education, and information on new technologies. There is clearly a case for improving current smallholder credit systems to ensure that a wider spectrum of smallholders are able to have access to credit, more especially female-headed households (). Tesfaye, 2001)

The way that credit is administered and channeled differs by location. The Agricultural Bureau oversees the credit necessary for the extension program at various levels in the Dire Dawa region. The agricultural bureaus determine whether loans are necessary, handle loan applications, and provide purchase orders to the suppliers. The beneficiaries interact directly with the bank regarding the credit needed for the regular program through their groups or service cooperatives, supported by the technical support provided by the cooperative promotion bureaus at various levels. The regional governments enforce repayment through administrative means and their administrative machinery at all levels. Even while regional governments work hard to enforce repayments, there are still issues with debt recovery (Elston, 2023). The market for fertilizer is insufficiently competitive, which deters new entrants and restricts investment in market infrastructure. Since businesses typically operate in multiple locations, they essentially have a monopoly-like level of control over those locations (Başer A. S., 2021).

2.2.4. Service Delivery Factor

According to (Nedumaran, 2019) Typical services to the agricultural sector include: agricultural research, agricultural extension and information services; education and training; rural financing and insurance marketing of agricultural products and market promotion; input delivery services for plant production regulatory services often provided by governments and technical support services i.e. all activities related to the provision of the technical and social infrastructure for agriculture (e.g. transport, supply of fuel and spare parts, planning of resettlement schemes etc.)

In accordance with (Kifle, 2022) The ESE's primary seed distribution system includes marketing through cooperatives as well as wholesale and retail sales at its seed processing and distribution facilities. Currently, small farmers make up the majority of ESE's clientele, as opposed to the state farms and cooperatives that made up the majority of its clientele before to 1991. The demand for enhanced seeds is currently significantly greater than the supply.

In Kenya, neighborhood friends and other informal sources of information are primarily used to provide precise and timely information. Farmers appreciate the actual and timely market information service since they are unable to read periodicals and sell their products accordingly). (Maity, 2021) The available data emphasizes the necessity of government action to promote post-harvest technologies, credit, marketing, and grain price support initiatives. Type of service: This includes all of a given service's essential components, including agricultural extension, research, etc (Afrad, 2019) .

3. Material and Methods

3.1. Research Design

Research design was blue print for the overall research operation, making research as efficient as possible generating maximal information with minimal expenditure of effort, time and money. Research design refers to the early planning of the steps that need to be utilized for gathering the pertinent data and the methodologies to be applied in their analysis, while keeping the goal of the research and the resources (people, time, and money) that are available. The studied was use to explanatory research design conduct in order to identify the extent and nature of cause – of effect of relationship between agricultural inputs market chain and different factors.(legal marketing, service delivery and financial). Explanatory research focuses on analysis of a situation or a specific problem to explain the patterns of causal relationships between variable (Al-Ababneh, 2020).

Mixed research was a methodology that blends qualitative and quantitative research and allows for cross-fertilization of ideas through the utilization of various data sources. Both qualitative and quantitative research methods going to use in this study. The study considered total population of 460 employee from the cooperative union which are found around Dire Dawa area agricultural co-operative union. Therefore, the target population of this study were staffs of co-operative union and small holder farmer that are member of the co-operative unions. Target population of those selected office was 518, by using tyro yeman's formula using 95% confidence interval sample size of 164 were selected. Both probability and non-probability sampling strategies was employied to build the study's sampling frame. Non-probability sampling is also known as purposive or judgment sampling since the items for the sample are chosen purposefully by the researcher rather than utilizing random sampling procedures (Thomas, 2022). The probability convenience sampling technique was used to identify cooperative unions distributed in around Dire Dawa.

In this study, the researcher used both primary and secondary sources of data for the proper achievement of the objective of the study. Questionnaires can be used for explanatory research. All the analysis methods were assisted by the SPSS (Statistical Package for Social Science) software Version 20. Inferential statistics correlation and linear regression analysis was used to understand the relationship between each study variables. Multiple Linear Regression (MLR) analysis technique used to analyze the influence among variables (*i.e.* single dependent variable and several independent variables) with the object of using the independent variables whose values are known to predict the single dependent value.

The prediction of Y is accomplished by the following equation

$$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \dots\dots\dots \beta t + e.$$

$Where$:

Y: $Dependent\ variable\ (market\ chain\ Performance)$

$\beta 0$: $Intercept$

$\beta 1, \dots\dots\dots \beta t$: $Vectors\ of\ estimated\ coefficient\ of\ the\ explanatory\ variables$

$X1, \dots\dots\dots\dots X4$: $Vectors\ of\ explanatory\ variables\ (independent\ variables)$

$X1 = legal\ factor$

$X2 = marketing\ factor$

$X3 = service\ delivery\ factor$

$X4 = Financial\ factor$

$e = errors\ linked\ to\ usage\ of\ data\ (error\ term)$.

4. Data Analysis and Discussion

Using Yamane's (1967) sample size determination formula, 226 sample respondents from public organizations were chosen in order to fulfil the research's goal.200 of the 226 respondents who were intended for the study's sample size completed and returned the questionnaires, yielding a response rate of 89% this response rate was sufficient to draw conclusions for the study and served as a representative sample.

4.1. Descriptive Analysis of Study Variables

The researcher considers, for his measure, an inherent assumption, which states that with the usage of any Liker scale that although the scale is truly ordinal in nature, it is assumed to be on an ordinal scale with which statistical properties such as the mean can be justifiably used. It is an assumption made quite frequently in empirical studies (Mark D. Cannon, Amy C. Edmondson, 2005)

Table 1. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Legal Factor	158	1.25	4.75	2.6143	.66980
Marketing Factor	158	1.25	4.50	2.4929	.64337
Service Delivery Factor	158	1.25	4.75	2.5384	.69549
Finance Factor	158	1.25	4.75	2.6486	.68700
N (list wise)	158				

Sources:-survey 2024

The descriptive statistics for the four factors under analysis are as follows: The Legal Factor (Rlf2) has a minimum value of 1.25, a maximum of 4.75, a mean of 2.6143, and a standard deviation of 0.66980. The Marketing Factor (Rmf) ranges from 1.25 to 4.50, with a mean of 2.4929 and a standard deviation of 0.64337. For the Service Delivery Factor (Rsdf), values range between 1.25 and 4.75, with a mean of 2.5384 and a standard deviation of 0.69549. Finally, the Finance Factor (Rff) also spans from 1.25 to 4.75, with a mean of 2.6486 and a standard deviation of 0.68700. These statistics reflect the distribution and variability of responses across the sample of 158 participants for each factor.

4.2. Correlation analysis

The correlation analysis shows strong positive relationships among the factors studied. The Rmcp2 factor is highly correlated with the Legal Factor (Rlf2) (r = 0.833), Marketing Factor (Rmf) (r = 0.851), Service Delivery Factor (Rsdf) (r = 0.782), and Finance Factor (Rff) (\(r = 0.835), all at a significance level of (p < 0.01). Similarly, the Legal Factor (Rlf2) correlates strongly with the Marketing Factor (Rmf) (r = 0.864 \)), Service Delivery Factor (Rsdf) (r = 0.828), and Finance Factor (Rf) (r = 0.888), indicating robust interconnections. The Marketing Factor (Rmf) is significantly related to both the Service Delivery Factor (Rsdf) (r = 0.854) and the Finance Factor (Rff) (r = 0.831). Finally, the Service Delivery Factor (Rsdf) is also positively correlated with the Finance Factor (Rff) (r = 0.822). All correlations are significant at the 0.01 level, suggesting that enhancements in one factor are likely to positively impact the others.

Table 2:-Correlation analysis

		Rmcp2	Rlf2	Rmf	Rsdf	Rff
Rmcp2	Pearson Correlation	1	.833	.851	.782	.835
	Sig. (2-tailed)		.000	.000	.000	.000
	N	158	158	158	158	158
Rlf2	Pearson Correlation	.833	1	.864	.828	.888
	Sig. (2-tailed)	.000		.000	.000	.000
	N	158	158	158	158	158
Rmf	Pearson Correlation	.851	.864	1	.854	.831
	Sig. (2-tailed)	.000	.000		.000	.000
	N	158	158	158	158	158
Rsdf	Pearson Correlation	.782	.828	.854	1	.822
	Sig. (2-tailed)	.000	.000	.000		.000
	N	158	158	158	158	158
Rff	Pearson Correlation	.835	.888	.831	.822	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	158	158	158	158	158

. Correlation is significant at the 0.01 level (2-tailed).

Source: own survey by SPSS 2024

4.3. Multiple Linear Regression Analysis

Multiple linear regression analysis is a well-known statistical technique which fits a relationship between one dependent and more than one independent variable. It is necessary to determine whether the gathered data reject any fundamental assumptions of the standard linear regression models before executing the analysis of multiple regression models, as a violation of an assumption can lead to biased and distorted parameter estimates. Those are linearity, normality, multicollinearity, homoscedasticity and independence of residuals.

Table 3: Independent Residuals Assumption test

Model	R	Square	ısted R Square	Error of the Es .	Durbin-Watson
	.884[a]	.782	.776	.31218	1.975

a. Dependent Variable: Rmcp2

b. Predictors: (Constant), Rff, Rsdf, Rmf, Rlf2

Sources:-survey 2024

The regression model assessing the impact of the predictors on Rmcp2 shows a high correlation coefficient of (R = 0.884), indicating a strong overall relationship. The (R^2) value is 0.782, meaning that approximately 78.2% of the variance in Rmcp2 can be explained by the predictors, including the Legal Factor (Rlf2), Marketing Factor (Rmf), Service Delivery Factor

(Rsdf), and Finance Factor (Rff). The Adjusted \(R^2 \) of 0.776 accounts for the number of predictors and sample size, while the Standard Error of the Estimate is 0.31218, reflecting the average distance between the observed and predicted values. The Durbin-Watson statistic is 1.975, suggesting that there is no significant autocorrelation in the residuals, indicating that the model's assumptions are reasonably met.

Analysis of Variance

Table 4 : ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	53.403	4	13.351	136.996	.000[b]
Residual	14.910	153	.097		
Total	68.313	157			

a. Dependent Variable: Rmcp2

b. Predictors: (Constant), Rff, Rsdf, Rmf, Rlf2

Sources:-survey 2024

The ANOVA results for the regression model with Rmcp2 as the dependent variable reveal a highly significant model. The Regression sum of squares is 53.403 with 4 degrees of freedom, yielding a mean square of 13.351. This indicates that the predictors Legal Factor (Rlf2), Marketing Factor (Rmf), Service Delivery Factor (Rsdf), and Finance Factor (Rff) account for a substantial portion of the variance in Rmcp2. The Residual sum of squares is 14.910 with 153 degrees of freedom, resulting in a mean square of 0.097, representing the variance unexplained by the model. The Total sum of squares is 68.313 with 157 degrees of freedom. The F-statistic is 136.996 with a significance level of $p<0.001p < 0.001p<0.001$, demonstrating that the model is statistically significant and effectively captures the relationships among the predictors and Rmcp2.

Table 5: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std.Error	Beta		
Constant	.238	.105		2.276	.024
Legal Factor	.167	.094	.169	1.774	.078
Marketing Factor	.439	.89	.428	4.926	.000
Service Delivery Factor	.019	.075	.020	.251	.802
Finance Factor	.300	.84	.313	3.556	.001

The regression analysis provides the following coefficients for the predictors of Rmcp2: The Constant term is 0.238 with a standard error of 0.105, and is statistically significant (t = 2.276), (p = 0.024). The Legal Factor has an unstandardized coefficient of 0.167 and a standardized beta of 0.169, but it is not statistically significant (t = 1.774), (p = 0.078). The Marketing Factor has an unstandardized coefficient of 0.439 and a standardized beta of 0.428, and is highly significant (t = 4.926), (p < 0.001). The Service Delivery Factor has an unstandardized coefficient of 0.019 with a standardized beta of 0.020, but is not significant (t = 0.251), (p = 0.802). The Finance Factor has an unstandardized coefficient of 0.300 and a standardized beta of 0.313, with significance (t = 3.556), (p = 0.001). This indicates that the Marketing and Finance Factors significantly contribute to the model, while the Legal and Service Delivery Factors do not.

This equation can be used to sort and estimate the regression analysis of each indifferent variable's causal effects.

$$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + e$$

$\beta 0 = constant\ value = 0.238$

$\beta 1, (legal\ factor) = 0.167$,

$\beta 2$, $(marketing\ factor) = 0.439$,

$\beta 3, (service\ delivery\ factor) = 0.019$,

$\beta 4, (financial\ factor) = 0.300$

$Y\ (Market\ Chain\ Performance)$

$$= 0.238 + 0.167\,X1 + 0.439\,X2 + 0.019X3 + 0.300\,X4 + e$$

5. Summary of Major Findings

The study aimed to identify factors impacting the performance of the marketing chain within cooperative unions. Cronbach's alpha coefficient indicated that the reliability of the variables was acceptable, with values above 0.7. The demographic data revealed that 84.5% of respondents were male, with 30.5% aged between 41 and 50, and most holding a primary education level. A majority of respondents had between 1.5 to 2 hectares of land and were involved in the marketing chain. Descriptive statistics showed that respondents generally felt neutral or dissatisfied with the performance of cooperative unions and government supply systems. The mean score for market chain performance was M = 2.675 with SD = 0.6596, indicating moderate dissatisfaction. Correlation analysis highlighted significant positive relationships among variables, with legal and service delivery factors showing positive but insignificant effects on market chain performance, while marketing and finance factors had significant positive influences. The regression analysis, with an R^2 value of 0.782, revealed that 78.2% of the variance in market chain performance could be explained by the independent variables, leaving 21.8% attributed to error.

6. Conclusion

The findings underscore the need for improved agricultural input supply and effective market chain performance for smallholder farmers in Dire Dawa, East Ethiopia. The study emphasizes the importance of aligning market chain operations with farmer needs to boost productivity. The analysis concluded that while legal and service delivery factors did not significantly influence market chain performance, marketing and financial factors (including credit and collateral) were crucial. Effective marketing of inputs such as seeds, fertilizers, and pesticides, coupled with improved financial access, can enhance agricultural productivity. However, challenges such as raw material delivery issues and limited access due to socio-economic conditions, including conflict and currency shortages, continue to hinder progress. Addressing these factors is essential for optimizing the market chain and supporting agricultural development.

7. Recommendations

To enhance the agricultural input market chain system within cooperative unions, the following recommendations are proposed based on the study's findings:

1. Strengthen Marketing and Financial Systems: Given the significant impact of marketing factors (accessibility and availability) and financial factors (credit and collateral) on agricultural inputs, it is crucial to develop a robust market system that ensures adaptable connections between cooperative unions. This will facilitate better access to raw materials, as rural farmers often struggle to purchase inputs with cash.
2. Policy Implementation: The government should focus on agricultural input policies and regulations that target increasing productivity through cooperative unions. Special attention should be given to inputs like pesticides, fertilizers, and improved seeds. Without effective delivery systems, there is a risk of farmers shifting to alternative crops like chat, which could exacerbate production declines and economic inflation in Dire Dawa.
3. Prioritize Input Accessibility: Policymakers must prioritize the availability and accessibility of agricultural inputs, particularly fertilizers, pesticides, and seeds, both locally sourced and imported. This will support smallholder farmers and address challenges in the input market.
4. Regulation and Protection: The Ministry of Agriculture and the Cooperative Federation should enforce practical regulations to protect smallholder farmers from market abuses and environmental harm. This involves addressing the identified issues and ensuring fair practices in the agricultural input market chain.

By implementing these recommendations, the efficiency and effectiveness of the agricultural input market chain can be significantly improved, benefiting both cooperative unions and smallholder farmers.

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Conflict of Interest

The author declares that there is **no conflict of interest** associated with this research. The study was conducted independently without any financial, personal, or institutional influence affecting its design, implementation, or findings.

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