

## Customer Satisfaction with the Services of an Electric Cooperative

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### Abstract:

This study investigated customer satisfaction with the services of an electric cooperative in Northern Negros, examining billing, technical support, and digital platforms; the survey also sought to understand the respondents' profile, comprised predominantly of older, male member-consumer-owners with higher income and educational attainment. While high satisfaction was reported for billing and technical assistance, moderate satisfaction with digital services highlighted key areas needing improvement, yet demographic differences didn't significantly impact overall satisfaction levels. The findings emphasized the need for intuitive digital interfaces with real-time data and immediate notifications. To enhance service delivery, it is recommended for the cooperative to consider upgrading digital platforms, providing real-time data access and empowering informed decision-making, implementing proactive notifications to ensure members receive timely account updates and important announcements, and simplify digital tools while enhancing digital support, payment options, member education, data security, and testing protocols, all while promoting inclusivity through robust offline options. Addressing these elements may meaningfully enhance customer experience and engagement.

**Keywords:** Customer satisfaction, electric cooperative, services

### Introduction:

#### Nature of the Problem

Electric cooperatives play a vital role in delivering reliable and cost-effective electricity, especially in rural and remote areas. As member-owned and community-focused enterprises, their core values are centered on service, sustainability, and quality. Recent research has highlighted the growing importance of customer satisfaction as a key performance indicator, influencing customer loyalty, operational efficiency, and trust (Johnson et al., 2018; NRECA, 2021). Studies have consistently shown that electric cooperatives outperform Investor-Owned Utilities (IOUs) and municipal utilities in customer satisfaction, largely due to their emphasis on service quality and community engagement (ACSI, 2020; Rocha, 2021). Satisfaction is significantly enhanced by reliability of service, billing accuracy, responsiveness, and the integration of digital tools for communication and billing, as demonstrated in the J.D. Power Electric Utility Residential Customer Satisfaction Study (2023). Notable cooperatives like Jackson EMC and Berkeley Electric Cooperative exemplify this success through their commitment to personalized service and strong community ties (Rocha, 2023; J.D. Power, 2023).

In the Philippine context, studies such as that by Batita et al. (2024) on ESAMELCO in Eastern Samar reveal high satisfaction in specific areas like power quality and reconnection timing, though gaps remain, especially among older consumers. While these findings indicate the value of electric cooperatives in regional electrification efforts, they also highlight the need for more targeted strategies that address varying consumer expectations across demographic groups. Research remains limited on how individual service dimensions—such as digital support and technical assistance—impact overall satisfaction in Philippine electric cooperatives. Although service quality dimensions like reliability and responsiveness have been previously explored (Navarro et al., 2023), there is still little examination of how these elements interact with emerging trends in technology and digital communication, signaling a need for more focused, contemporary investigations in this field.

This study aims to assess customer satisfaction across key service areas within an electric cooperative, addressing existing research gaps and offering actionable insights to enhance service delivery. Grounded in the cooperative's mission to provide reliable, efficient, and cost-effective electricity to its member-consumer-owners, the research seeks to identify service strengths and areas for improvement. As the sole distribution utility in the target areas, the study emphasizes the need for continuous evaluation to uphold and improve the quality of service.

#### Current State of Knowledge

Customer satisfaction is a critical measure of success for electric cooperatives, influenced by factors such as billing accuracy, technical support, service reliability, and digital service platforms (Thompson & Lee, 2020; Harris et al., 2021). The community-driven nature of cooperatives fosters trust and transparency, further enhancing satisfaction. Digital innovations, such as mobile apps and online portals, offer convenience and transparency, aligning with modern consumer expectations (Wilson et al., 2021). Accurate, transparent billing and flexible payment options also play a central role in building trust and improving satisfaction, especially in rural areas where traditional banking may be limited (Zhang et al., 2019; Olatunji et al., 2020). Enhanced billing communication, including clear explanations of charges and timely updates, strengthens customer confidence (Kumar et al., 2021). Moreover, effective technical support—marked by rapid response, problem resolution, and proactive communication—is essential for customer loyalty in electric cooperatives (Campbell et al., 2019).

Technical knowledge and customer engagement play a crucial role in enhancing local tech support services for electric cooperatives. Hernandez et al. (2020) found that well-trained, empathetic support staff who provide clear and courteous explanations during service calls significantly improve customer satisfaction. As technology evolves, digital tools such as automated ticketing systems and real-time service tracking have become essential for managing technical issues efficiently and reducing customer frustration (Khan et al., 2021). Additionally, Lindberg et al. (2020) emphasized that cooperatives with strong environmental policies and renewable energy initiatives report higher satisfaction, particularly among younger, environmentally conscious members. This alignment with social and environmental values distinguishes cooperatives from traditional electric utilities, reinforcing customer loyalty through shared principles and responsible service.

Customer satisfaction in Philippine electric cooperatives is strongly influenced by billing services, technical support, and digital offerings. Santos et al. (2020) emphasized that reliability and transparency, particularly in billing, are key drivers of satisfaction, with customers preferring clear and accessible invoices. Accurate and transparent billing processes foster trust and reduce confusion (De Guzman & Santiago, 2020), while modern systems like online billing and automated responses enhance convenience and reduce errors (Lopez et al., 2021). Billing flexibility, such as versatile payment options, further boosts satisfaction, especially among rural consumers facing financial constraints (Navarro et al., 2022). Technical support also plays a vital role, with prompt and reliable responses to outages and concerns increasing trust and retention (Gonzalez et al., 2021; Mendoza et al., 2020). In rural areas, where blackouts are more common, localized and knowledgeable support teams greatly improve the customer experience (Aquino et al., 2021). Additionally, the integration of digital tools, including mobile apps and online payments, significantly improves service efficiency and overall satisfaction (Villanueva et al., 2022).

Customer-centric technical support and the integration of digital services are key drivers of customer satisfaction in Philippine electric cooperatives. Dela Cruz et al. (2022) emphasized the value of empathetic, personalized assistance in tech support, noting that well-trained teams who offer tailored solutions significantly enhance customer experiences. As electric cooperatives increasingly adopt digital platforms, tools like online billing, real-time service tracking, and issue monitoring have been found to improve convenience and satisfaction, especially in remote areas with limited physical access (Bautista et al., 2020). Cruz et al. (2021) highlighted the transformative impact of mobile apps, particularly among younger, tech-savvy users, by enabling them to monitor usage, payments, and request support more efficiently. Lopez et al. (2022) further stressed that digital transparency—through features like real-time cost tracking and consumption data—builds customer trust and loyalty by empowering users with greater control over their energy use.

Customer satisfaction is vital for the sustainability and trustworthiness of electric cooperatives, influenced significantly by reliable service, clear billing, efficient technical support, and digital accessibility. Wang et al. (2020) and Smith et al. (2019) found that billing clarity and accuracy often surpass even low rates in determining customer satisfaction, while Chen et al. (2021) emphasized that digital tools like real-time updates and mobile apps foster transparency and trust. Technical support plays a pivotal role, with Green et al. (2020), Kim et al. (2022), and Perez et al. (2019) noting that quick response times and effective communication during outages are critical in maintaining customer loyalty. Community engagement and participatory governance also bolster long-term satisfaction (Anderson et al., 2020). Moreover, personalized services and flexible payment systems — as highlighted by Miller et al. (2022) and Garcia et al. (2021) — enhance convenience and build stronger cooperative-member relationships. Technological integration in support systems (Rao et al., 2022) and proactive maintenance (Jones et al., 2021) further empower cooperatives to meet member needs efficiently. Overall, digital transformation and a customer-centered approach are essential strategies for increasing satisfaction in the electric cooperative sector.

Customer-rated satisfaction reflects the effectiveness and adherence to standards of electric cooperatives in the Philippines, with factors like service reliability, transparent billing, and accessible customer support playing crucial roles. Mendoza et al. (2020) highlighted that regular updates on service improvements and the adoption of modern technologies boost perceptions of cooperative efficiency. Manalo et al. (2019) found that both tangible aspects, such as digital payment systems and modern offices, and intangible factors, like personnel responsiveness, significantly impact satisfaction, especially in rural areas. Rivera et al. (2021) emphasized that engaging members through feedback mechanisms fosters trust and improves satisfaction. Billing integrity is a core driver of member approval,

as Cruz and Santos (2019) revealed, with flexible and transparent billing systems reducing complaints, particularly in underserved regions. Dela Cruz and Reyes (2021) underscored the importance of timely technical support, with well-trained staff and proactive maintenance being critical to building trust during service interruptions. Additionally, digital platforms, as noted by Villanueva et al. (2020), have revolutionized service delivery, offering real-time billing views, outage tracking, and automated alerts, thus enhancing engagement and overall customer satisfaction in electric cooperatives.

### **Theoretical Underpinnings**

This study is grounded in customer satisfaction theory, which compares customer expectations with actual experiences to determine satisfaction levels (Thomassen, 2003). The theory highlights that both physical and non-physical aspects of service delivery, such as infrastructure and customer interaction, influence satisfaction (Zeithaml & Bitner, 2003). Thomassen emphasizes that factors like word-of-mouth, individual needs, prior experiences, and marketing shape expectations, and customers assess satisfaction through conscious and unconscious comparisons. In the context of electric cooperatives, this theory serves as a valuable framework for understanding how organizational policies and service delivery impact customer perceptions and overall satisfaction.

### **Objectives**

The study aimed to determine the level of customer satisfaction with the services of an electric cooperative in Northern Negros during the Calendar Year 2024. Specifically, this study sought to answer the following questions: 1) the profile of the respondents in terms of the variable age, sex, average family monthly income, and highest educational attainment; 2) the level of customer satisfaction with the services of an electric cooperative according to the area of billing services, technical support services, and digital services; and 3) the significant difference in the level of customer satisfaction with the services of an electric cooperative when grouped and compared according to the variables.

### **Methodology:**

This section presents a discussion of the research methodology used, the subjects and respondents of the study, the research instruments used, the validity and reliability of the instruments, the procedure for data gathering, and the statistical tools and procedures for data analysis.

### **Research Design**

A descriptive research method was employed to determine the level of customer satisfaction with the services provided by an electric cooperative in Northern Negros for the Calendar Year 2024. This method, as described by Creswell et al. (2018), aims to systematically capture the current state of a phenomenon without altering any variables, making it ideal for assessing the "what" of a situation. In this study, the focus was on understanding customer experiences and perceptions regarding digital services, technical support, and billing processes. By identifying patterns and trends in customer responses, descriptive research provides a clear snapshot of satisfaction levels and highlights areas for service improvement. This approach also supports the formulation of data-driven policies to enhance cooperative service delivery and member engagement.

### **Study Respondents**

The study involved 384 member-consumer-owners who availed of electricity services from the electric cooperative in Northern Negros. A stratified random sampling technique was employed to ensure proportional representation across key subgroups, such as age, sex, or region. This method, as supported by Triveni et al. (2024), enhances the accuracy of population estimates by reducing variance, particularly when subgroups exhibit significant differences in characteristics. By dividing the population into strata and drawing random samples from each, the approach ensures that the unique perspectives of residential, commercial, and industrial consumers—each with distinct service expectations—are accurately captured. This makes stratified random sampling especially effective for assessing customer satisfaction within a diverse electric cooperative membership.

### **Instruments**

A self-made questionnaire was utilized as the primary instrument to collect data on the level of customer satisfaction with the services of an electric cooperative. The survey was divided into two parts: the first section gathered the respondents' demographic profile, including name, age, sex, average monthly family income, and highest educational attainment. The second section was a checklist designed to measure customer satisfaction, consisting of 30 items categorized under three key service areas—Billing Services, Technical Support Services, and Digital Services. A 5-point Likert scale was used to assess satisfaction, with "5" indicating "Always," "4" as "Sometimes," "3" as "Often," "2" as "Rarely," and "1" as "Almost Never," allowing for a nuanced understanding of customer perceptions across

each service dimension. It was subjected to validity (4.74-excellent) and reliability (0.786-acceptable). All of them were interpreted as worthy and good; respectively.

### Data Gathering Procedure

Once the instrument was validated and deemed reliable, the researcher prepared enough copies to distribute to the study participants. The quantitative data for this study was collected using a survey questionnaire. According to Kothari (2020), questionnaires are commonly employed in quantitative research for systematic data collection, especially when a larger sample is involved. The versatile nature of questionnaires, available in various formats such as paper, online, and interviews, makes them an efficient tool for gathering both subjective and objective data. In this study, the researcher sought permission from the head of the electric cooperative to distribute the questionnaires to its customers. Upon receiving approval, the researcher distributed the questionnaires to the targeted respondents, and their responses were analyzed to assess the level of customer satisfaction with the services of the electric cooperative.

### Data Analysis and Statistical Treatment

Objective No. 1, descriptive-analytical scheme and frequency and percentage distributions were used to determine the classification of respondents according to age, sex, average family monthly income, and highest educational attainment.

Objective No. 2 utilized a descriptive-analytical scheme and mean to determine the level of customer satisfaction with the services of an electric cooperative in the following areas: Billing Services, Technical Support Services, and Digital Services.

Objective No. 3 used a comparative analytical scheme and Mann-Whitney U test to determine whether or not significant differences exist in the level of customer satisfaction with the services of an electric cooperative when grouped and compared according to the variables.

### Ethical Consideration

Research ethics are fundamental principles that guide research design and practices, ensuring the protection of participants' rights, avoiding bias, and enhancing the validity and integrity of the research process (Bhandari, 2021). Ethical considerations influence not only the topics chosen for research but also the methods employed. Participants in studies are typically assured confidentiality or anonymity, which extends beyond just protecting their names to include prohibiting the use of self-identifying information. These measures are crucial for safeguarding participants' dignity and trust in the research process. Furthermore, the research design must weigh the benefits of the study against potential harm to participants, researchers, the wider community, and the institution. Potential harms, such as emotional distress, reputational damage, and loss of resources, can be unpredictable and difficult to control, making careful ethical considerations essential (Fleming et al., 2018).

### Results and Discussion:

This section presents, analyzes, and interprets the data that were gathered consistent with its predetermined objectives.

**Table 1**  
*Profile of the Respondents*

| Variable                       | Category                         | Frequency  | Percentage    |
|--------------------------------|----------------------------------|------------|---------------|
| Age                            | Younger (below 43 years old)     | 190        | 49.5          |
|                                | Older (43 years old & above)     | 194        | 50.5          |
| Sex                            | Male                             | 201        | 52.3          |
|                                | Female                           | 183        | 47.7          |
| Average Family Monthly Income  | Lower (below Php57,000)          | 188        | 49.0          |
|                                | Higher (Php57,000 & above)       | 196        | 51.0          |
| Highest Educational Attainment | Lower (Elementary & High School) | 165        | 43.0          |
|                                | Higher (College & Postgraduate)  | 219        | 57.0          |
| <b>Total</b>                   |                                  | <b>384</b> | <b>100.00</b> |

Table 1 presents the frequency and percentage distribution of the three hundred eighty-four (384) member-consumer-owners of an electric cooperative in terms of age, sex, average family monthly income, and highest educational attainment in tabular form.

The respondents comprised 194 older member-consumer-owners, 50.50%, and 190 younger respondents, or 49.50%. It also shows that 201 (52.30%) were male member-consumer-owners; however, 183 (47.70%) were female. As for the average family monthly income, 196 or 43% of the member-consumer-owners have a higher income, while lower-income members were 188 or 49%. In addition, member-consumer-owners with higher educational attainment were 219 or 57%, while 165 or 43% have only reached secondary education.

This study's results imply that customers' satisfaction with the services of an electric cooperative in Northern Negros during the Calendar Year 2024 is composed of older member-consumer-owners, dominated by male respondents with higher income and have gone high educational attainment.

**Table 2**

*Level of Customer Satisfaction with the Services of an Electric Cooperative in the Area of Billing Services*

| Items                                                                                                | Mean        | Interpretation |
|------------------------------------------------------------------------------------------------------|-------------|----------------|
| <i>As member-consumer-owner of an electric cooperative, I am satisfied with their services in...</i> |             |                |
| 1. making the billing process easy to understand.                                                    | 4.08        | High           |
| 2. delivering billing statements on time every month.                                                | 3.92        | High           |
| 3. providing clear explanations of charges and fees on the bill.                                     | 3.92        | High           |
| 4. offering a variety of payment options.                                                            | 4.00        | High           |
| 5. having courteous and helpful billing staff when I ask questions.                                  | 3.99        | High           |
| 6. resolving billing issues promptly and efficiently.                                                | 3.96        | High           |
| 7. giving advance information about any changes in rates or billing policies.                        | 4.03        | High           |
| 8. allowing me to easily access billing information online or through other digital channels.        | 4.02        | High           |
| 9. ensuring billing statements accurately reflect my energy usage.                                   | 4.51        | Very High      |
| 10. maintaining a transparent and fair billing process.                                              | 4.01        | High           |
| <b>Mean</b>                                                                                          | <b>4.04</b> | <b>High</b>    |

Table 2 shows the data on the level of customer satisfaction with the billing services of an electric cooperative. The overall mean score of 4.04 is interpreted as high level. The highest mean score of 4.51, interpreted as a very high level, is on item number 9, "Ensuring billing statements accurately reflect my energy usage."

On the other hand, item numbers 2 and 3, "delivering billing statements on time every month" and "providing clear explanations of charges and fees on the bill," respectively, have the lowest mean score of 3.92, which is interpreted as high level.

This implies that having the lowest satisfaction with billing services, particularly in delivering billing statements on time and providing clear explanations of charges, can have significant implications for customer trust, financial transparency, and overall service impressions. Poor billing experiences can cause dissatisfaction, customer complaints, and higher loss rates because consumers may be confused or misled about what they are paying for (Smith et al., 2019). Furthermore, unclear billing methods can cause payment delays, conflicts, and unfavorable word-of-mouth, damaging the company's reputation (Johnson, 2020). Ineffective billing procedures can increase operating expenses due to frequent customer inquiries and the need for more support staff (Davis, 2021). Ensuring timely and transparent billing is essential for keeping customers and building loyalty while improving overall service quality (Anderson et al., 2022).

**Table 3**

*Level of Customer Satisfaction with the Services of an Electric Cooperative in the Area of Technical Support Services*

| Items                                                                                                | Mean | Interpretation |
|------------------------------------------------------------------------------------------------------|------|----------------|
| <i>As member-consumer-owner of an electric cooperative, I am satisfied with their services in...</i> |      |                |
| 1. being easy to contact when I need technical support.                                              | 3.47 | Moderate       |
| 2. providing prompt assistance when I report service issues or outages.                              | 3.47 | Moderate       |
| 3. having knowledgeable technicians who can address my concerns.                                     | 4.01 | High           |
| 4. communicating expected resolution times during outages.                                           | 3.48 | Moderate       |
| 5. maintaining power lines effectively.                                                              | 3.98 | High           |
| 6. giving regular updates on service improvements or technical changes.                              | 4.02 | High           |

|             |                                                                                   |      |             |
|-------------|-----------------------------------------------------------------------------------|------|-------------|
| 7.          | having respectful and professional technical support staff.                       | 4.51 | Very High   |
| 8.          | taking my complaints or service issues seriously.                                 | 4.52 | Very High   |
| 9.          | resolving my technical issues to my satisfaction.                                 | 4.02 | High        |
| 10.         | ensuring the overall quality of technical support services meets my expectations. | 4.00 | High        |
| <b>Mean</b> |                                                                                   | 3.95 | <b>High</b> |

Table 3 shows the data on the level of customer satisfaction with the services of an electric cooperative in the area of technical support services. The overall mean score of 3.95 is interpreted as a high level. The highest mean score of 4.52 interpreted as a very high level, is on item number 8, "taking my complaints or service issues seriously."

Moreover, the lowest mean score of 3.47, interpreted as moderate level, item numbers 1 and 2, "being easy to contact when I need technical support" and "providing prompt assistance when I report service issues or outages," respectively.

This implies that low satisfaction with an electric cooperative's technical support services, particularly in areas like ease of contact and resolution to service concerns, can contribute to decreased consumer trust and overall dissatisfaction. Customers want consistent service, particularly during power outages or technical difficulties. If an electric cooperative fails to provide immediate and accessible assistance, frustration and complaints may increase, potentially leading to diminished customer numbers and bad publicity (Smith et al., 2019).

Furthermore, inadequate technical assistance can reduce efficiency in operations and increase expenses. When service issues go unsolved for an extended duration, users might turn to make multiple service requests, exceedingly supportive channels, and exhausting resources (Brown, 2020). According to one study on customer service expectations, 82% of clients anticipate fast responses, and delays can considerably interfere with overall satisfaction (Williams, 2021).

A Northern Davao Electric Cooperative study in the Philippines showed that low service quality is closely related to low customer satisfaction, emphasizing the importance of effective and easily accessible support services (Bacatan, 2022).

**Table 4**

*Level of Customer Satisfaction with the Services of an Electric Cooperative in the Area of Digital Services*

| Items                                                                                                | Mean | Interpretation  |
|------------------------------------------------------------------------------------------------------|------|-----------------|
| <i>As member-consumer-owner of an electric cooperative, I am satisfied with their services in...</i> |      |                 |
| 1. designing a user-friendly and easy-to-navigate website.                                           | 4.01 | High            |
| 2. helping me quickly find information about my account and services online.                         | 4.46 | High            |
| 3. providing secure online payment options.                                                          | 4.07 | High            |
| 4. offering convenient digital services like apps and web portal                                     | 4.52 | Very High       |
| 5. allowing me to easily track my energy consumption through digital tools.                          | 1.00 | Very Low        |
| 6. regularly updating digital services to improve my experience.                                     | 3.51 | High            |
| 7. ensuring my personal information is secure online.                                                | 3.98 | High            |
| 8. providing clear online resources about outages and service restoration.                           | 3.96 | High            |
| 9. sending timely notifications (e.g., SMS, emails) about my account status.                         | 1.00 | Very Low        |
| 10. meeting my expectations for modern and convenient digital services.                              | 4.05 | High            |
| <b>Mean</b>                                                                                          | 3.46 | <b>Moderate</b> |

Table 4 presents the level of customer satisfaction with the services of an electric cooperative in the area of digital services. The overall mean score of 3.46 is interpreted as a moderate level. The highest mean score of 4.52, interpreted as a very high level, is on item number 4, "offering convenient digital services like apps and web portal."

On the other hand, the lowest mean score of 1.0, interpreted as a very low level, is item numbers 5 and 9, "allowing me to easily track my energy consumption through digital tools" and "sending timely notifications (e.g., SMS, emails) about my account status," respectively.

Low satisfaction with an electric cooperative's digital services, particularly in facilitating simple tracking of energy use using digital tools and sending timely account status alerts, can substantially influence member engagement and trust. Members increasingly expect specific and convenient service platforms that allow them to monitor their

electrical consumption in real time and receive timely account updates. Failure to fulfill these expectations might result in dissatisfaction, lowered satisfaction, and potential losses. A study found that utilities that invest in interaction with consumer technology, such as enhanced marketing and energy feedback systems, can improve member service and satisfaction (Forbes Agency Council, 2019).

**Table 5**

*Difference in the Level of Customer Satisfaction with the Services of an Electric Cooperative in the Area of Billing Services when Grouped and Compared According to the Aforementioned Variables*

| Variable                       | Category | N   | Mean Rank | Mann Whitney U | p-value | Sig. level | Interpretation  |
|--------------------------------|----------|-----|-----------|----------------|---------|------------|-----------------|
| Age                            | Younger  | 190 | 197.12    | 17551.500      | 0.416   |            | Not Significant |
|                                | Older    | 194 | 187.97    |                |         |            |                 |
| Sex                            | Male     | 201 | 201.03    | 16676.500      | 0.112   |            | Not Significant |
|                                | Female   | 183 | 183.13    |                |         |            |                 |
| Average Family Monthly Income  | Lower    | 188 | 196.64    | 17646.500      | 0.471   | 0.05       | Not Significant |
|                                | Higher   | 196 | 188.53    |                |         |            |                 |
| Highest Educational Attainment | Lower    | 165 | 187.11    | 17177.500      | 0.405   |            | Not Significant |
|                                | Higher   | 219 | 196.56    |                |         |            |                 |

Table 5 reveals the difference in the level of customer satisfaction with the services of an electric cooperative in the area of billing services when grouped and compared according to variables.

Using the Mann-Whitney U test, in terms of age garnered a p-value of 0.416, sex has a p-value of 0.112, average family monthly income has a p-value of 0.471, and the highest educational attainment has a p-value of 0.405, is greater than the 0.05 significance level. The result indicated that no significant difference exists. The null hypothesis is, therefore, accepted.

The result is that there is no significant difference in customer satisfaction with an electric cooperative's billing services when assessed by age, sex, educational attainment, and average family monthly income, which shows that service quality is regarded similarly across these demographic classifications. This consistency indicates that the cooperative's billing services regularly meet or fail to meet customers' needs, regardless of demographic considerations.

**Table 6**

*Difference in the Level of Customer Satisfaction with the Services of an Electric Cooperative in the Area of Technical Support Services when Grouped and Compared According to the Aforementioned Variables*

| Variable                       | Category | N   | Mean Rank | Mann Whitney U | p-value | Sig. level | Interpretation  |
|--------------------------------|----------|-----|-----------|----------------|---------|------------|-----------------|
| Age                            | Younger  | 190 | 187.38    | 17457.000      | 0.367   |            | Not Significant |
|                                | Older    | 194 | 197.52    |                |         |            |                 |
| Sex                            | Male     | 201 | 189.40    | 17768.000      | 0.563   |            | Not Significant |
|                                | Female   | 183 | 195.91    |                |         |            |                 |
| Average Family Monthly Income  | Lower    | 188 | 196.98    | 17581.500      | 0.434   | 0.05       | Not Significant |
|                                | Higher   | 196 | 188.20    |                |         |            |                 |
| Highest Educational Attainment | Lower    | 165 | 182.38    | 16397.000      | 0.118   |            | Not Significant |
|                                | Higher   | 219 | 200.13    |                |         |            |                 |

Table 6 reveals the difference in the level of customer satisfaction with the services of an electric cooperative in the area of technical support services when grouped and compared according to variables.

Using the Mann-Whitney U test, in terms of age garnered a  $p$ -value of 0.367, sex has a  $p$ -value of 0.563, average family monthly income has a  $p$ -value of 0.434, and the highest educational attainment has a  $p$ -value of 0.118, is greater than the 0.05 significance level. The result indicated that no significant difference exists. The null hypothesis is, therefore, accepted.

The finding that customer satisfaction with an electric cooperative's technical support services did not vary significantly by age, sex, educational level, or average family monthly income shows a consistent sense of service quality across demographic groups. This consistency indicates that the cooperative's technical support services frequently fulfill or fail to meet customer demands, regardless of demographic considerations.

In contrast, other industries' research has found that demographic characteristics may influence consumer satisfaction levels. For example, insurance research shows that concentrating on individual qualities rather than basic rating categories like age or marital status might improve customer experiences (PwC, 2022). This shows that specific methods that take advantage of demographic shifts may impact satisfaction levels.

**Table 7**

*Difference in the Level of Customers Satisfaction with the Services of an Electric Cooperative in the Area of Digital Services when Grouped and Compared According to the Aforementioned Variables*

| Variable                       | Category | N   | Mean Rank | Mann Whitney U | p-value | Sig. level | Interpretation  |
|--------------------------------|----------|-----|-----------|----------------|---------|------------|-----------------|
| Age                            | Younger  | 190 | 186.35    | 17262.000      | 0.278   | 0.05       | Not Significant |
|                                | Older    | 194 | 198.52    |                |         |            |                 |
| Sex                            | Male     | 201 | 189.90    | 17869.000      | 0.627   | 0.05       | Not Significant |
|                                | Female   | 183 | 195.36    |                |         |            |                 |
| Average Family Monthly Income  | Lower    | 188 | 184.45    | 16911.500      | 0.160   | 0.05       | Not Significant |
|                                | Higher   | 196 | 200.22    |                |         |            |                 |
| Highest Educational Attainment | Lower    | 165 | 197.62    | 17222.500      | 0.428   | 0.05       | Not Significant |
|                                | Higher   | 219 | 188.64    |                |         |            |                 |

Table 7 reveals the difference in the level of customer satisfaction with the services of an electric cooperative in the area of digital services when grouped and compared according to variables.

Using the Mann-Whitney U test, in terms of age garnered a  $p$ -value of 0.278, sex has a  $p$ -value of 0.627, average family monthly income has a  $p$ -value of 0.160, and the highest educational attainment has a  $p$ -value of 0.428, is greater than the 0.05 significance level. The result indicated that no significant difference exists. The null hypothesis is, therefore, accepted.

The fact that there is no significant difference in customer satisfaction with an electric cooperative's digital services across demographic groups—such as gender, age, level of education, and average family monthly income—indicates a broadly perceived service quality. This consistency may imply that the cooperative's digital offerings regularly fulfill or fail to meet customer demands, regardless of demographic considerations.

Digital engagement has typically floated behind other industries in the energy business, resulting in low customer satisfaction levels. According to J.D. Power research, 32% of utility websites and apps fail to fulfill basic usability and design requirements, while 28% do not have a mobile app.

## Conclusions:

The study found that most respondents were older, male, with higher income and education levels. Customer satisfaction with billing and technical support services was high, while digital services received the lowest satisfaction scores. There were no significant differences in satisfaction across age, sex, income, or education levels in billing,



technical, or digital services. The low satisfaction with digital services highlighted consumers' dissatisfaction with tracking energy consumption and receiving timely account alerts, indicating the need for improved digital platforms. To address this, the cooperative should enhance its digital tools, offering real-time tracking, notifications, and customizable options. Upgrading mobile apps and websites, providing multi-channel notifications, and offering digital literacy training for older members could improve satisfaction. Regular feedback from customers should also be gathered to refine digital services and meet member expectations.

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