

ECONOMIC AND BEHAVIORAL FACTORS INFLUENCING ELECTRICITY, TELECOMMUNICATIONS AND DISCRETIONARY SERVICES PRICE SENSITIVITY AMONG HOUSEHOLDS IN BOSNIA AND HERZEGOVINA

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Abstract

This study examines household consumer reactions to proposed electricity tariff increases in Bosnia and Herzegovina. The Van Westendorp Price Sensitivity Meter was applied in a representative survey of electricity users to identify acceptable price ranges. The survey gathered price thresholds for potential rate changes, as well as data on service satisfaction, perceptions of fairness and demographic factors. Results reveal that tolerance for higher electricity prices is extremely narrow. Electricity is an essential household good with inherently inelastic demand and consumers resist price hikes rooted in fairness concerns and distrust of utility providers. Consistent with international evidence, many respondents viewed tariff increases as symptoms of corruption or mismanagement. Stated willingness to pay was not found to increase with satisfaction; willingness to pay frequently failed to reflect satisfaction. Gender differences were observed, with female respondents less willing than men to accept surcharges for improved reliability.

By contrast, consumers show far greater price flexibility for non-essential services (e.g., telecommunications or entertainment subscriptions), underscoring electricity's unique status in household budgeting. These findings carry direct policy implications. Electricity pricing reforms should address perceived unfairness and lack of trust. In line with established recommendations for tariff reform, the evidence suggests more open communication strategies and capacity-building within utilities to address consumer concerns and sustain public support.

Keywords: household electricity prices, price sensitivity, willingness to pay, consumer behavior

1. INTRODUCTION

In Bosnia and Herzegovina's (BIH) complex socio-economic landscape, a paradox of consumer behavior has emerged. Over the past two decades, telecommunications and other discretionary services have transformed through technological progress and rising household spending. Consumers have accepted price increases motivated by benefits such as faster internet, more channels, and improved connectivity. However, this acceptance has often been reluctant, driven by necessity and limited alternatives rather than genuine perceptions of fairness. As later results show, most consumers reject further telecom price increases, revealing a gap between actual payment behavior and stated willingness to pay. In practice, consumers continue paying high telecom bills because services are essential and alternatives are limited, but at the attitudinal level they reject these prices as unfair. This distinction between revealed preferences (actual payments) and stated preferences (expressed attitudes) reconciles the apparent contradiction. On the other hand, the energy sector, which provides the most essential services, remains caught in a state of economic and political gridlock. Despite its importance for quality of life and economic activity, any proposal for even minor adjustments to electricity prices is met with public and political resistance. Statements from energy company officials framing price corrections as a "necessity" to maintain financial stability are often countered by political leaders assuring the public that price hikes

are not being considered, reflecting strong sensitivity (Lakic, 2024).

Maintaining artificially low electricity prices provides short-term protection but creates unsustainable economic reality across the sector. The strain is evident in utility performance. Elektroprivreda HZHB saw profits collapse from 52 million KM in 2023 to 0.7 million KM in 2024 (Kolobara, 2025). Elektroprivreda Republike Srpske reported a drop from nearly 145 million KM to about 3.2 million KM (Energologija, 2025). JP Elektroprivreda BiH, the country's largest utility, recorded a loss of 57.96 million KM in 2024 (EPBIH, 2025).

Persistent financial shortfalls cripple the sector's ability to fund critical investments. The underinvestment in modernizing aging infrastructure and developing renewable energy sources (RES) is not a hypothetical future risk but a present reality. For instance, in 2023, capital investments by Elektroprivreda BiH were realized at a rate significantly below what was planned, a failure attributed to systemic issues. This investment deficit threatens BiH's energy security and its capacity to meet decarbonization goals mandated by international agreements (EPBIH, 2025).

While the effects of price stagnation are clear, the behavioral drivers remain underexplored. This paper addresses the gap by applying a behavioral economics framework to examine why consumers accept higher

costs for entertainment and communication but resist paying for stability in their most critical utility.

The central hypothesis of this research is that households in BiH show lower price elasticity and a lower willingness to pay (WTP) for price increases for energy compared to telecommunications and other discretionary services. We posit that this disparity is driven not merely by income constraints but primarily by differences in (i) perceived value for money, where the benefits of telecom upgrades are tangible and immediate, while energy system stability is an invisible, abstract benefit; (ii) perceived fairness, influenced by a deep-seated lack of trust in the management of public enterprises versus privately-owned companies; and (iii) price anchoring, where decades of subsidized energy have created a psychological expectation of low prices.

To test this hypothesis, this paper addresses the following key research questions:

2. LITERATURE REVIEW

2.1. Behavioral economics perspective on consumer price sensitivity

To examine consumer behavior in BiH, this study applies a behavioral economics framework that shows how psychological factors shape economic decisions, enabling analysis of differing public reactions to price changes in essential and discretionary services. The analysis centers on WTP, the maximum price a consumer will pay for a service (Stobierski, 2020). WTP is context-sensitive and directly linked to price sensitivity, which measures how demand reacts to cost changes (Kagan, 2025). While electricity is typically considered priceinelastic, this study investigates why it provokes a sensitive reaction to price adjustments compared to discretionary services (Csereklyei, 2020).

One key explanation is Price Anchoring, a cognitive bias where individuals rely heavily on the first piece of information (the "anchor") when making decisions. As Tversky and Kahneman (1974) identified, subsequent judgments are insufficiently adjusted from this anchor. We hypothesize that decades of subsidized electricity in BiH have created a powerful low-price anchor, causing any price increase to be perceived as a drastic deviation. In contrast, the dynamic telecom market never established such a rigid anchor, allowing for greater price flexibility.

The consumer's evaluation of a price is fundamentally tied to their Perceived Value, which Zeithaml (1988) defined as the "consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given". This concept frames value as a subjective trade-off between the benefits gained and sacrifices made, both monetary and nonmonetary (Luo, Li, & Sun, 2022), (Mencarelli & Arnaud, 2012). This framework is central to our hypothesis. For telecommunications, the benefits of a price increase are often tangible and immediate, e.g. faster internet speeds, more channels, and better mobile coverage. For energy, the

- How have the real prices of energy and telecommunication services evolved over the past two decades in relation to general inflation?
- What is the measurable difference in consumers' WTP for a price increase in energy versus telecommunications and discretionary services?
- Which socio-demographic and psychological factors are the strongest predictors of this differential price sensitivity?

The paper is structured as follows. Section 2 reviews literature on behavioral economics and consumer behavior in BiH. Section 3 outlines the mixed-methods approach, combining secondary data analysis with a consumer survey. Section 4 presents results, Section 5 discusses their implications, and Section 6 concludes with key recommendations and future research.

primary benefit of a price increase is abstract and preventative, i.e. the avoidance of future system failures and the assurance of long-term stability. Consumers derive higher perceived value from visible, immediate upgrades than from the maintenance of a status quo, which helps explain their differential WTP.

Reactions are mediated by Perceived Fairness, a subjective judgment of whether a price is reasonable and justifiable. Research shows fairness perceptions are influenced by the seller's inferred motives and institutional trust. A price increase is deemed unfair if the seller is seen as covering internal inefficiencies rather than funding legitimate improvements (Gielisse & Dutilh, 2008), (Bettray, Suessmai, & Dorn, 2017). This relates to our hypothesis that price hikes from state-owned utilities, often perceived as inefficient, are judged more harshly than those from private firms seen as investing in innovation.

2.2. Inflation and household consumption patterns

The effects of inflation on macroeconomic indicators and economic growth are often examined in economic literature. Like in most countries, the prices of goods and services in BiH are increasing (WorldData, 2025). Spasojevic and Djukic (2024) analyzed the impact of inflation on economic growth in BiH. Their results show that inflation in BiH has a nuanced relationship with economic growth because even though high inflation can coincide with GDP growth, the overall impact is complex and influenced by many economic factors.

The changes in macroeconomic indicators translate into changes in consumer behavior as consumers adjust their financial decisions to rising prices. Inflation affects people's perceptions, including attitudes towards money and personal savings and spending. Rising inflation is reducing the purchasing power of households. Manyhert (2022) shows that households in low-income and below-median income EU countries are impacted more strongly, because of higher relative spending on

essential items and less elastic consumer demand. In BiH, people's attitudes towards money in times of inflation was the main focus of a study conducted by Kratovac et al. (2023). The study was based on a survey among households and findings showed that perceived inflation has a statistically significant impact on people's attitudes towards money, as well as on how much money they save and spend.

As a result of global and domestic factors, inflation has influenced household expenditure patterns and altered consumer behavior. According to available statistical data, prices in different sectors have followed different growth dynamics. According to data from Survey on Household Expenses in BiH for the period 2021-2022, average monthly expenses for energy sources amounted to 141.27 KM (71.86 EUR) and accounted for about 8.0% of total monthly expenses. In comparison with data from the 2011 survey, when these expenses amounted to 138.93 KM (70.67 EUR), average monthly expenses for energy sources increased by 2.34 KM (1.19 EUR). In contrast to that, average monthly expenses for communications for the period 2021-2022 amounted to 115.53 KM (58.77 EUR) and accounted for about 6.6% of total monthly expenses. Average monthly expenses for communications increased notably, by 59.75 KM (30.39 EUR), compared to the year 2011, when they amounted to around 55.78 KM (28.38 EUR) and accounted for 3.6% of total monthly expenses. Unlike the expenses for energy sources and communications, average monthly expenses for recreation and culture decreased from 45.4 KM (23.09 EUR) in 2011 to 30.46 KM (15.50 EUR) in the 2021-2022 period when they accounted for 1.7% of total monthly expenses.

Socio-economic implications of inflation are especially important in the context of energy prices, because energy is the material basis for economic growth. Electricity sector plays an important role in achieving climate goals and enabling the energy sector transition, while consumers are considered an important part of this transition because their consumption patterns directly influence the overall effectiveness of the transition.

To achieve progress in the energy transition, investments in new and more efficient technologies alongside the implementation of energy efficiency (EE) measures to reduce consumption are required. These investments often lead to increase in electricity prices for consumers (Lightning, n.d.). However, rising electricity prices can also encourage investments in EE measures. Research by Wang et al. (2019) found out that energy prices negatively affected per capita energy consumption in high and lower-middle income countries while they had a positive impact in upper-middle income countries. On the other hand, results obtained by Wang et al. (2021) showed that electricity prices do not have significant impact on residential electricity consumption, while habits are an important factor that affects consumption behavior. Based on the economic statistics and data from questionnaires researchers found out that residents

without saving habits consume 15.54 kWh more electricity every month on average.

The study by Fredriks et al. (2015) states that many consumers fail to take steps towards EE even though they have knowledge and desire to do so, and that household energy consumption is not primarily driven by financial incentives and the rational pursuit of material interests. This is explained by discrepancy between knowledge, values, attitudes and intentions, and people's observable behavior. Their research was based on behavioral economics and psychology and explains the cognitive biases and motivational factors that help connecting energy-related behavior with the personal values and material interests of consumers.

Generally, electricity awareness levels differs between households. Study conducted by Trotta (2021) that aimed to measure the level of awareness about electricity prices among Finnish households showed low levels of awareness among consumers. The higher levels of awareness were linked to less electricity consumption, but there was a significant number of consumers who were unaware of their own knowledge deficits and were unwilling to receive information about energy consumption and savings. The research in Serbia that aimed to analyze the impact of energy saving instructions on change in consumer behavior showed that they do not have significant impact when electricity price is very low. Inefficient use of energy was explained by low efficiency of devices, and the low will to change habit, but also the impossibility of changing habit without changing devices (Podbregar et al., 2021).

BiH faces similar problems with using energy efficiently. According to the report by Gallop et al. (2021), BiH can do better to use energy more efficiently. Because of very low electricity prices, the incentives for energy savings are limited. Low electricity prices and high related subsidies disproportionately benefit higher-income households and hinder efficiency and an effective transition in BiH. Furthermore, keeping energy prices low resulted in an estimated EUR 3.4 billion of induced support for consumers between 2018 and 2023. The highest consumer support was generated in Federation of BiH (approximately EUR 2.0 billion), followed by around EUR 1.2 billion in Republika Srpska and EUR 92 million in the Brčko District (OECD, 2025).

According to the OECD report, bringing regulated electricity prices closer to market levels would significantly reduce the need for support in the electricity sector. This change would also free up resources to meet investment needs for the energy transition (OECD, 2025). Research by Hubana and Ljevo (2020) shows that investments needed for reliable distribution systems could be made feasible if consumers were willing to pay for increased reliability of electricity supply. Their study analyzed the WTP of residential and business consumers in BiH, revealing that households on average would pay 3.02 KM to avoid a one-hour interruption, while business consumers indicated a WTP of 105.4 KM.

However, it is expected that adjustments of energy prices and subsidies reforms will also have some social implications because of higher energy costs in households (OECD, 2025). Aside from affecting household budgets, rising energy prices contribute to the emergence or deepening of energy poverty. This phenomenon has been widely studied in European and global contexts. Findings by Manyhert (2022) show that rising energy prices contribute the most to increasing living costs in households across the EU. This is further supported by research conducted by Piao and Managi (2023) which shows that there is a positive association between household energy expenditures and life satisfaction and that energy consumption increases with household wealth improvement. In BIH, research by Vuckovic et al. (2025) analyzed how various socio-economic factors influence energy poverty in households. The research results indicate that energy poverty is more common in homes that relies on coal, larger homes and homes in rural areas, while it is less common in

3. METHODOLOGY

This research adopted a mixed-methods approach, combining analysis of historical price data (secondary sources) with a quantitative consumer survey (primary sources) to address the research objectives. The secondary data analysis covered a period of 20 years and examined data on prices for household electricity and several discretionary services. Data for the research were obtained from different sources.

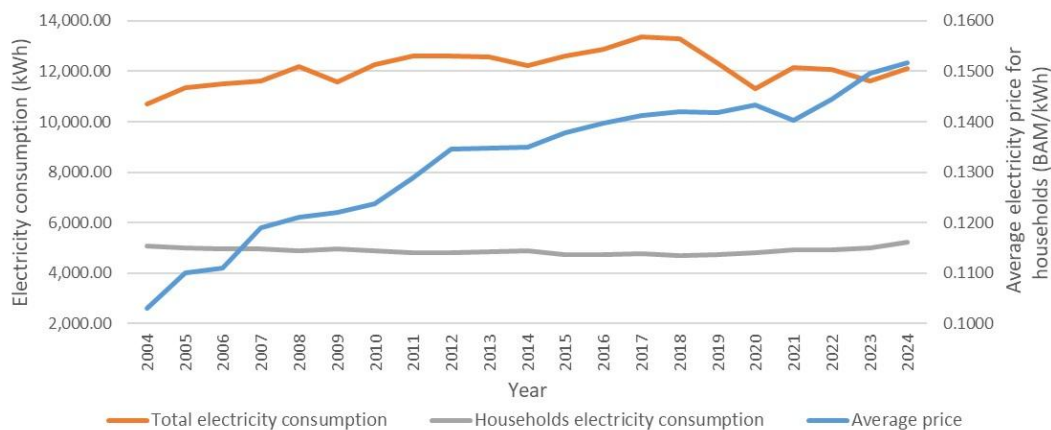
households with higher income and better housing conditions. Even though electricity prices in BiH are well below Western European levels, many households already spend more than 10% of their income on electricity and heating, so any increase in prices is viewed as a threat to the monthly budgets. According to OECD (2025) a gradual increase of about 8% per year is needed to fund reliability and the energy transition.

The literature review confirms that understanding electricity pricing dynamics in BIH is valuable for analyzing household price sensitivity across sectors. Links between low prices, consumption, and energy poverty reveal how pricing both shapes and reflects consumer behavior. Examining these factors clarifies how households perceive and adapt to price changes and their socio-economic effects. Yet, existing research shows that economic and behavioral influences on electricity prices in BIH require deeper analysis, a gap this paper seeks to address.

3.1 Data Sources

Data on the electricity prices for households and household electricity consumption as a share of total electricity consumption shown in Figure 1 were collected from Annual Reports of the State Regulatory Commission for Electricity. For the years with missing data, linear regression was used to estimate the values.

Figure 1: Increase in average electricity prices for households and household electricity consumption as a share of total electricity consumption



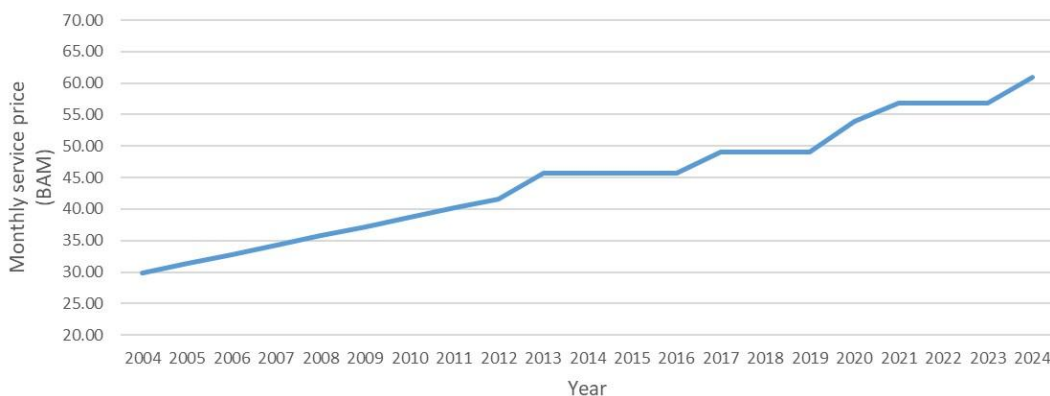
Source: Annual Reports of the State Regulatory Commission for Electricity

Figure 1 shows that electricity prices for households increased by 0.0488 KM/kWh in the observed period of 20 years, with an average annual increase of around 0.0024 KM/kWh. In the same period total electricity consumption in households showed only a slight growth of 8.87 GWh annually. Households' electricity consumption account for about 40.34% of total electricity consumption in BIH.

Telecommunications price trends were approximated using typical bundled service prices (TV + internet +

landline phone) over time, given that reliable long-term public data were limited. Data presented in Figure 2 was collected from price lists of one of the most widespread telecommunication companies in BIH for their combined service package that include TV, internet and landline phone. Since these data was available from the year 2012 onwards, values for the previous years were estimated using linear regression

Figure 2: Increase in average prices for telecommunication services



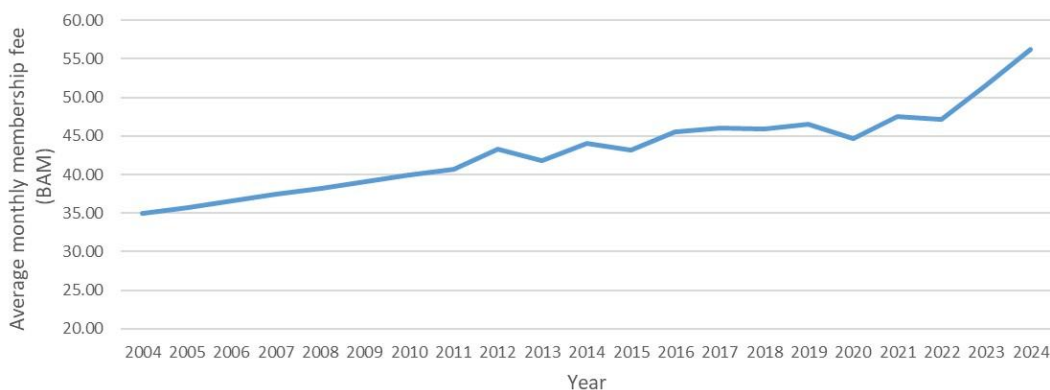
Source: Price lists of the telecommunications company

Figure 2 shows that telecommunication prices for households increased by 31.08 KM in the observed period of 20 years. Average annual increase in telecommunication prices was around 1.55 KM.

Data on average monthly membership fee for fitness clubs and data on average cinema ticket prices were

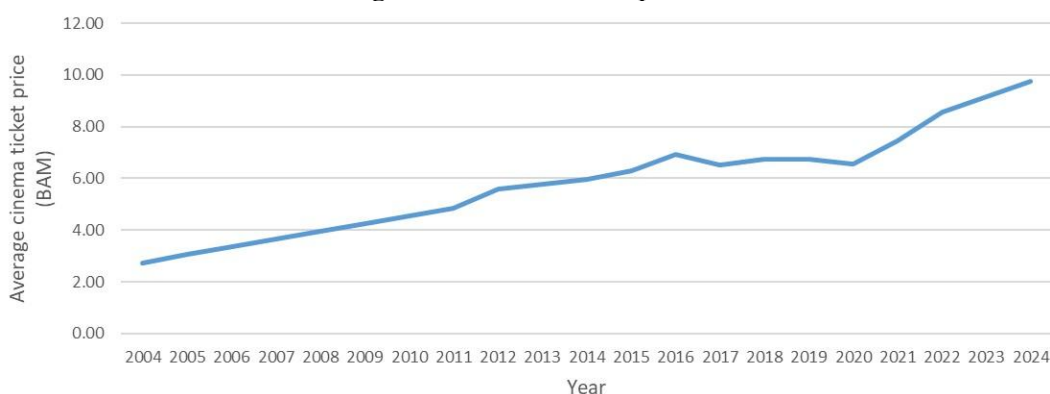
collected from cost-of-living database Numbeo. These data are shown in Figure 3 and Figure 4. Since Numbeo database only included data from the year 2011 onwards, values for the previous years were estimated using linear regression in both cases.

Figure 3: Monthly membership fee for fitness clubs



Source: Numbeo

Figure 4: Cinema ticket prices



Source: Numbeo

From Figure 3 it can be seen that membership fees for fitness clubs increased by 21.30 KM in the observed period of 20 years, with an average annual increase of around 1.06 KM. Cinema ticket prices increased by a

total of 7.00 KM over the same period, with an average annual increase of 0.35 KM.

Obtained secondary data provide context for how essential and discretionary service prices have evolved. These

data serve as a foundation for the survey-based WTP analysis.

3.2 Research approach

After examining secondary data, a survey questionnaire was designed to directly measure consumers' price sensitivity and attitudes. The survey instrument (administered online to respondents across BiH in mid-2025) gathered demographic information (gender, age, education, income, etc.) and then posed a series of structured questions in four parts. In Part II, respondents evaluated prices for standardized service scenarios using the Van Westendorp Price Sensitivity Meter (PSM) technique. For each service, electricity (per kWh), a monthly telecom package (TV/internet/telephone), a fitness membership and a cinema ticket, they indicated four key price points, i.e. a price so low that quality would be in doubt ("too cheap"), a price considered a bargain ("cheap"), a price that is expensive but still might be paid ("expensive") and a price so high they would refuse to pay ("too expensive"). This method, introduced by van Westendorp in 1976, yields an acceptable price range and an optimal price point where consumers are most indifferent. Part III included binary WTP scenarios. Respondents answered "Yes", "No" or "Maybe" to whether they would pay specified price premiums for improved service features, such as +5 KM/month for guaranteed no power outages or +15 KM for doubled internet speed. These scenarios gauge incremental WTP for quality improvements in each sector (electricity reliability, green energy, telecom speed/content, gym amenities and cinema enhancements).

Finally, Part IV gathered attitudinal data using Likert-scale statements (1 = "strongly disagree" to 5 = "strongly agree"). Respondents rated their agreement with statements reflecting perceived fairness, value, and quality, e.g. "Public utilities operate efficiently", "Higher telecom prices are justified by better service", "Any increase in electricity price is unjustified" and "It's easier to pay more for entertainment than for utilities".

Survey data were analyzed quantitatively. The PSM responses were aggregated to derive for each service, i.e. the Point of Marginal Cheapness (PMC), Indifference Price Point (IPP), Optimal Price Point (OPP) and Point of Marginal Expensiveness (PME), as well as the overall range of acceptable prices (PME minus PMC) for that service. These metrics indicate the price range within which most consumers are comfortable and the price that maximizes acceptance. To test demographic influences on price sensitivity (research question 3), oneway ANOVA tests were conducted for each service's PSM thresholds across groups (gender, age, education, income). Similarly, Chi-square tests of independence were used to examine whether WTP for each Part III scenario was significantly associated with gender, age, education or income segments. All statistical tests used a 5% significance level. Finally, cross-tabulations of key Likert items were examined to identify "value gaps" and potential logical contradictions in

consumer attitudes, e.g. comparing those satisfied with a service's quality but perceiving its price as unfair, as a measure of latent dissatisfaction. The mixed methods design ensures that the analysis stays aligned with the initial hypotheses and objectives. The historical trend review addresses RQ1 (price evolution context), the PSM and WTP measures address RQ2 (quantifying differences in WTP between energy and other services) and the demographic and Likert analyses address RQ3 (socio-economic and psychological drivers of price sensitivity).

4 Results

We fielded the survey during 8–31 July and obtained 269 valid responses from BiH, covering 64 different cities. The sample included 106 men and 163 women, with broad variation in education, age and income. The study faces common limitations. In addition, the sample may overrepresent urban, younger and more educated respondents who are more likely to engage with online surveys. This potential skew should be considered when generalizing results to the entire BiH population, particularly rural or older households. The sample is not strictly random, so representativeness is not guaranteed. Participation was voluntary, which introduces self-selection. Responses are self-reported and subject to social desirability and recall bias. The design is cross-sectional, so it identifies associations rather than causality. Some demographic subgroups are small, which widens uncertainty around their estimates.

4.1 Price Sensitivity Analysis

We utilized the Van Westendorp Price Sensitivity Meter to quantify consumers' WTP thresholds across sectors using survey data. Table 1 presents key PSM metrics for electricity, telecom, fitness, and cinema, reflecting respondent distributions of "too cheap," "cheap," "expensive," and "too expensive" price points. The results outline acceptable price ranges for BiH consumers for each service and identify the OPP from the consumer perspective.

The responses reveal a very limited acceptable price range for household electricity. The PMC is approximately 0.157 KM/kWh, the price at which increases would raise concerns. If electricity were significantly cheaper than 0.16 KM, respondents might doubt its quality or neglect conservation efforts, as few currently perceive the price as excessive. The PME, where prices are considered excessive, is approximately 0.195 KM/kWh. The acceptable range is approximately 0.16 to 0.20 KM/kWh, a difference of 0.04 KM (25% of the current price). The IPP, where equal numbers perceive the price as cheap versus expensive, is 0.169 KM/kWh, while the OPP, minimizing the share finding it too expensive and too cheap, is 0.178 KM/kWh. The values are closely grouped around the prevailing price (0.16 KM). BiH consumers view the current electricity price as close to an acceptable maximum; any significant rise above 0.18–0.20 KM/kWh may lead to considerable backlash or hardship due to long-standing low tariffs.

The acceptable price range for a standard telecom package is significantly higher than that of electricity, yet it still indicates a sensitivity threshold. Respondents view approximately 43 KM/month as a "too cheap" price for the defined package (PMC = 42.9 KM), indicating that a lower price may suggest poor quality. The PME reaches 58.7 KM, indicating that most consumers find bundles over 60 KM/month to be excessively priced. The optimal acceptable price center is approximately 47–50 KM (OPP = 47.3 KM; IPP = 50.4 KM). The current market price (65 KM for the package) exceeds the consumer-defined acceptable range. This suggests a potential "value gap" in telecom, where many households pay 65 KM due to necessity or limited alternatives, yet consider amounts exceeding 55–60 KM as uncomfortable. Telecom services are in high demand, leading consumers to accept higher bills; however, many consider the service expensive at 65 KM. Resistance to additional price increases is probable unless justified by evident quality enhancements. The acceptable range width is approximately 16 KM (43–59 KM), representing 37% of the PMC, which is broader than the narrow band of electricity, indicating greater flexibility in telecom pricing. The optimal perceived price (47 KM) being significantly lower than the typical price indicates a hidden dissatisfaction with telecom pricing.

The PSM analysis for a standard fitness membership shows a PMC of 40.36 KM and a PME of 50.98 KM. Respondents find fees of approximately 40 to 51 KM per month for a decent gym reasonable. The optimal perceived price point is approximately 45–46 KM (OPP = 45.9 KM; IPP = 51.0 KM), near the midpoint of this range. Many urban gyms in BiH charge 60 KM per month, as indicated in the survey scenario. The PSM results indicate that 60 KM exceeds the acceptable limit for most respondents, surpassing the PME threshold by nearly 9 KM. This indicates a value perception issue, as

most view a 60 KM fee as "too expensive" for the standard offering, despite similar prices in the market. This may indicate that only a segment of higher-income or value-seeking consumers are willing to pay that rate, while others either forgo gym memberships or perceive they are overpaying. The acceptable range width (PMC to PME) for fitness (10.6 KM) is approximately 26% of the lower bound, reflecting moderate flexibility, which exceeds that of electricity but remains constrained.

The acceptable price range for a cinema ticket, currently averaging 10 KM, is approximately 6.2 KM to 10.0 KM. The PMC is 6.2 KM or lower, leading consumers to question the cinema's quality or perceive it as excessively inexpensive. The PME is 10.05 KM, aligning with the current typical price. Therefore, 10 KM represents the upper limit of what is deemed acceptable for a standard movie experience. The optimal price point is approximately 8.6–8.7 KM (OPP = 8.6; IPP = 8.7 KM), indicating that consumers prefer ticket prices under 10 KM. Cinema is a minor discretionary expense, with a clear limit; ticket prices exceeding double digits significantly reduce interest. Cinemas benefit from the current 10 KM price, which is near the threshold of acceptability, with a significant portion of respondents considering it fair (as discussed in the attitudes analysis). Any further increase (e.g., to 12–15 KM) may lead many moviegoers to reduce attendance. Electricity is anchored to the status quo with minimal tolerance for higher tariffs. Telecom and fitness show higher absolute WTP, yet current market prices already push the top of what many consider acceptable. Cinema is closest to balance, the going rate aligns with the upper bound, and small surcharges risk demand loss. These patterns reflect hard price anchors for essential services and higher, but conditional, WTP for value-added services.

Table 1: Summary of PSM Results for electricity, telecom, fitness and cinema

Variable	Electricity price (KM/kWh)	TV/Internet/Tel. monthly subscription (KM/month)	Fitness monthly fee (KM/month)	Cinema (KM/ticket)
Point of Marginal Cheapness (PMC)	0.1568	42.90	40.36	6.21
Indifference Price Point (IPP)	0.1691	50.37	50.13	8.68
Optimal Price Point (OPP)	0.1780	47.31	45.88	8.57
Point of Marginal Expensiveness (PME)	0.1952	58.68	50.98	10.05

Source: Author's calculation.

4.3. Price sensitivity across demographics (ANOVA)

To test demographic differences in price thresholds, one-way ANOVA was applied.

Men and women did not differ on electricity, telecom, or fitness thresholds for “too cheap” or “expensive” ($p > 0.05$), suggesting both genders use these categories similarly. A notable difference emerged for cinema tickets: women had higher thresholds for “too cheap” and “cheap” pricing ($p = 0.016, 0.042$), implying they are less price-sensitive for small entertainment and associate low prices with lower quality. Gender had little effect on WTP higher prices overall.

Education showed few effects. Electricity, telecom, and fitness thresholds did not differ significantly across groups ($p > 0.05$), suggesting attitudes are societal rather than educational. Only the “too expensive” cinema threshold varied ($p = 0.044$), with educated respondents more tolerant of premium ticket prices, though differences were small. All groups placed the maximum acceptable ticket at 10–12 KM.

Household income strongly influenced discretionary but not electricity prices. Electricity thresholds were unaffected ($p = 0.64–0.75$; “too expensive” $p = 0.12$), indicating general resistance to higher bills. In contrast, higher-income respondents had higher telecom “expensive” and “too expensive” thresholds ($p = 0.048, 0.045$), often accepting prices above 70 KM, while lower-income groups objected above 50 KM. Income effects were strongest for fitness memberships ($p < 0.01$ across categories), reflecting budget and lifestyle differences: low-income respondents joined only if fees were under 30 KM, while wealthier consumers afforded premium clubs. Cinema remained an outlier, with no significant income differences ($p > 0.3$), suggesting affordability for most households at standard prices.

Age had limited effects. Electricity and telecom thresholds were stable ($p > 0.2$). Fitness “too expensive” thresholds showed significance ($p = 0.039$), as older respondents considered fees above 50 KM excessive, while younger people tolerated higher costs. Cinema thresholds were mostly unaffected, though a borderline difference appeared at the “too cheap” point ($p = 0.051$), older people being more skeptical of very low prices. Older viewers were also less inclined to pay extra for VIP seating.

ANOVA shows income as the main factor shaping WTP for discretionary services, while socio-demographics have little effect on electricity, where resistance to price increases is consistent. Gender, age, and education produced only minor effects, reinforcing that the electricity–services gap reflects cultural and behavioral rather than demographic drivers.

4.4. Willingness to Pay for service improvements (Chi-square analysis)

Household WTP for service upgrades varied strongly by sector. Table 2 presents response distributions (“Yes”, “Maybe”, “No”) for each hypothetical surcharge, with Chi-square results for gender, education, income, and age. Key findings are summarized below.

For a guaranteed uninterrupted electricity supply at +5 KM/month, 51% said “Yes,” 24% “Maybe,” and 25% “No,” showing a small majority willing to pay for reliability. For electricity exclusively from renewables at +10 KM/month, 42% said “Yes,” 26% “Maybe,” and 31% “No,” indicating greater hesitation and no clear majority. Education significantly affected willingness for reliability ($p < 0.01$), but no demographic differences were found for the renewable offer (all $p > 0.05$). Telecom upgrades had the lowest support. Only 11% would pay +15 KM/month for doubled internet speed, and just 6% for all premium TV channels, with strong majorities rejecting both. Chi-square tests showed no demographic effects ($p > 0.05$), suggesting low perceived value for faster internet or more channels at current prices.

Fitness enhancements drew somewhat more support. About 18% would pay +15 KM/month for unlimited group classes (18% “Maybe,” 63% “No”), while 22% accepted +20 KM for wellness/spa facilities (16% “Maybe,” 62% “No”). Significant differences were observed: women and younger respondents showed higher WTP for group classes ($p < 0.05, p < 0.01$), while women and the better educated were more open to spa facilities ($p < 0.05$). Income showed no effect, indicating lifestyle rather than affordability drives interest.

Cinema surcharges produced mixed results. For 3D films, 42% agreed to pay +2 KM per ticket, 19% were unsure, and 39% declined, suggesting nearly even division over valuing the experience. For VIP seating at +3 KM, only 26% agreed, 16% were unsure, and 57% opposed, showing strong resistance to luxury upgrades. WTP for 3D films showed no demographic segmentation (all $p > 0.05$). For VIP seating, age mattered ($p < 0.05$): older viewers were more willing to pay, while younger respondents were less inclined. Gender, education, and income had no effect.

Overall, Chi-square results reveal limited WTP for service upgrades, with modest acceptance for electricity reliability and certain fitness or entertainment perks. Demographic effects were sparse, with education influencing electricity reliability, gender and age affecting fitness preferences, and age shaping attitudes toward VIP cinema seating.

Table 2: Willingness-to-Pay rates for service improvements with demographic breakdowns and Chi-Square Test

WTP - question	By gender	WTP-Chi-Square Test			Distribution of answers		
		By education	By income	By age	Yes	Maybe	No

Q1: +5KM electricity reliability	0.55171	0.00856	0.07749	0.13717	51.1%	23.7%	24.8%
Q2: +15 KM 100% renewable energy	0.14545	0.78767	0.16167	0.22731	42.2%	25.9%	31.5%
Q3: +15 KM for double internet speed	0.36060	0.64809	0.06393	0.07046	11.5%	19.3%	68.9%
Q4: +15KM for premium TV channels	0.90894	0.59505	0.88969	0.89879	6.3%	7.4%	85.9%
Q5: +15KM for group trainings	0.04371	0.62213	0.21546	0.00258	18.1%	18.1%	63.3%
Q6: +20KM for wellness and spa	0.03438	0.03016	0.13528	0.10144	21.9%	15.6%	62.2%
Q7: +2KM for 3D movie	0.93204	0.06111	0.29016	0.38486	42.2%	18.9%	38.5%
Q8: +3KM for premium/VIP seats	0.06678	0.22267	0.14552	0.02874	26.3%	16.3%	57.0%

Source: Author's calculation.

4.5. Consumer Attitudes and Value Perceptions (Likert Analysis)

Likert-scale questions in Part IV reveal fairness, value, and quality perceptions underlying WTP patterns. Figure 5 illustrates how consumer beliefs align and diverge across sectors.

Perceptions of public and private services differ. Only 13% agreed that state-run utilities operate efficiently, while 64% disagreed (Q1). By contrast, 55% thought private companies were more efficient, with 16% disagreeing (Q2). Although the private sector is seen as better run, telecom prices are still judged unfair, showing that efficiency and fairness are distinct dimensions.

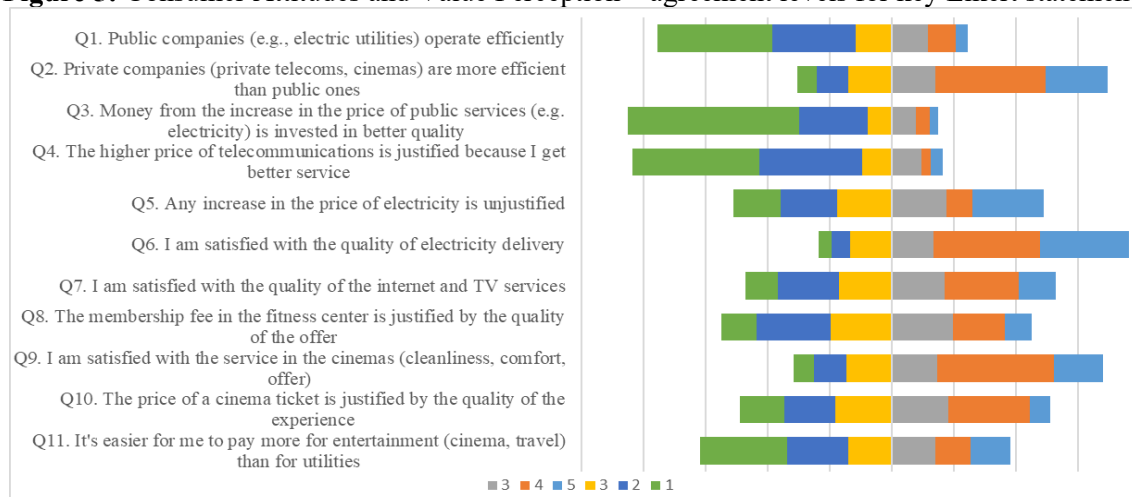
Respondents doubted that higher prices improve quality or service. About 7% thought higher public service fees, like electricity prices, improved quality, while 77% didn't, indicating a lack of trust in price increases for public service enhancement. Only 7% of respondents thought better service warranted a higher telecommunications price (Q4). 74% disagreed.

These majorities suggest that essential utilities and telecom services do not improve service quality for higher costs. The claim that "any increase in the price of electricity is unjustified" received mixed responses. One-third (31%) said no price increase is justified, while 35% said some may be acceptable. Still, 34% were

neutral. Many oppose electricity price increases on principle, but many are uncertain or conditionally supportive.

Service satisfaction varied by sector. For electricity, 63% were satisfied and 10% dissatisfied (Q6), suggesting reliability despite doubts about utility management. Internet and TV satisfaction was lower (36% satisfied, 30% dissatisfied, remainder neutral; Q7). By contrast, discretionary services scored higher: 54% were satisfied with cinema cleanliness and comfort, while 17% were dissatisfied (Q9). These results show consumers distinguish between sectors—satisfied with public utilities, mixed on telecom, and more positive toward leisure services.

Value perceptions in discretionary services were cautious. Only 25% thought fitness fees were justified, while 35% disagreed and 39% were neutral (Q8). One-third of cinemagoers judged ticket prices fair, 31% disagreed, and 36% were neutral (Q10). High neutrality and negativity suggest widespread doubt about entertainment value. On Q11, 48% disagreed that it was easier to pay more for entertainment than utilities, 24% agreed, and the rest were neutral—showing resistance to discretionary price hikes.

Figure 5: Consumer Attitudes and Value Perception – agreement levels for key Likert statements

Source: Author's calculation.

4.5.1. Satisfaction and Willingness Contradictions

Satisfaction with electricity service quality and refusal to pay more are in conflict. The quality of supply was satisfactory to 63% of respondents, reflecting reliability and contentment. Urban blackouts are rare and voltage is stable, so quality is not a major concern. Yet many argued that price hikes are unwarranted. Even satisfied customers do not support paying for maintenance or upgrades. This paradox illustrates status quo bias and the anchoring effect, where people are content with the present situation and see no reason for higher costs, assuming reliability should be standard. Consumers often fail to link higher payments with prevention of future risks, since benefits of grid investment are visible only when failures occur. To illustrate, we compared views that higher prices would be invested in quality with resistance to price increases. Twenty seven percent rejected both ideas, showing a negative outlook. Another 26% were conflicted, recognizing a need for higher prices but not fully accepting them. Only 3% believed funds would improve quality and supported increases. Overall, most distrust utilities or reject surcharges. Because public trust in the energy sector is low, even satisfied customers resist paying more. They believe current service is sufficient and that inefficiency or corruption could waste funds.

In telecommunications, we compared satisfaction with internet and TV service to views on price fairness. A large gap was evident, with 18% satisfied with quality but finding the price unjustified. This was three times the 5% who felt both service and price were fair. Only 1% rated service poor but price fair, a contradictory position. About 27% were dissatisfied with both quality and price. Only 5% are supportive of telecom pricing, while 45% are dissatisfied. This mismatch shows telecom companies can raise prices because services are essential, yet fail to convince consumers they are worth

the cost. Customers often pay reluctantly, believing they like the service but not its price.

Cinema results were more favorable. Twenty eight percent were satisfied with both service and ticket prices, showing cinema is widely enjoyed. Seven percent were satisfied but thought it expensive, while only 1% were dissatisfied yet considered the price fair. Thirteen percent believed tickets were unjustified. Overall, satisfied and price-fair supporters outnumbered critics by two to one. Most view cinema as fair value, with only a minority dissenting, suggesting effective pricing and a small value gap.

The belief that paying more for entertainment than for utilities is easier was widely accepted. Most agreed that discretionary spending feels lighter than higher utility bills. This means people allocate extra money to leisure and show high loss aversion to utility cost increases. Adding five KM to an electricity bill is seen as a loss, while spending the same on a leisure activity is perceived as a gain. Resistance to higher utility prices arises because they are necessary costs, not desirable services.

Consumers thus perceive a value and trust gap in public utilities, especially electricity. Despite satisfactory service, they prefer low prices and doubt higher payments would be used efficiently. By contrast, people are more willing to pay for private and discretionary services when tangible benefits exist. Cinema is seen as fair value, while telecom and fitness are criticized for high costs. Attitudes mirror behavioral findings, as low willingness to pay for electricity stems from fairness concerns and distrust, while reluctant acceptance of other services reflects perceived value and personal benefit. Contradictions such as being satisfied but unwilling to pay for electricity, or liking telecom services while opposing their cost, highlight the role of anchoring, fairness perceptions, and mental accounting in consumer decisions.

5. DISCUSSION

Survey results reveal a mix of attitudes toward electricity pricing in BiH. Respondents reported high satisfaction with service delivery and deep skepticism about rate increases. Van Westendorp PSM shows that the acceptable electricity price range is extremely narrow. The estimated optimal price (0.178 KM/kWh) lies close to both the “too cheap” and “too expensive” thresholds, yielding a tolerance band of only 0.038 KM/kWh or 23.75% of the stated price (0.16 KM/kWh). This means even small tariff increases risk being perceived as unfair. By contrast, acceptable price ranges for other services are far wider, e.g. about 15.8 KM (36.8%) for TV/Internet, 10.6 KM (26.3%) for gym fees, and 3.8 KM (61.8%) for cinema tickets. These findings confirm that electricity, as an essential utility, is treated differently from discretionary goods and expected to remain stable.

Likert-scale responses reinforce this sensitivity. Fewer than 13% agreed that state-owned utilities operate efficiently (Q1), while over 55% judged the private sector more efficient (Q2). Roughly three-quarters rejected the claim that past price increases in public services improved quality (Q3) or that higher telecom fees are justified (Q4). Around one-third considered any electricity price increase unjustified (Q5). Yet two-thirds expressed satisfaction with current electricity delivery (Q6) and more than half with cinema services (Q9). This suggests opposition to tariff hikes is not rooted in dissatisfaction with outages or reliability but in distrust of utilities and fear of unfair pricing. People appear content with service levels yet feel that payments have not produced visible improvements. Satisfaction thus coexists with low trust in public revenue management. It is important to note that this relationship differs across sectors. In electricity, satisfaction does not translate into higher WTP, while in cinema, satisfaction aligns more closely with acceptance of current prices. This highlights the unique behavioral dynamics of essential utilities compared to leisure services.

WTP analysis highlights trust, fairness, and demographics. Chi-square tests show education significantly influences willingness to pay for reliability surcharges. Higher-income respondents were more tolerant of rising telecom and fitness fees but not electricity tariffs, suggesting electricity price sensitivity cuts across income groups. Education and age had isolated effects: education shaped acceptance of a 20 KM reliability fee, and older respondents were slightly less willing to pay

6. CONCLUSION

This study has direct implications for tariff and communication policy. Evidence from the Van Westendorp analysis places the optimal household electricity price near 0.178 KM/kWh, with only about 0.038 KM/kWh above the lower acceptable bound, which signals very limited room for increases. Survey results show that perceived fairness and scepticism toward providers shape attitudes, so any price change should be staged and carefully explained, with only small adjustments

higher fitness fees. Overall, distrust is widespread, but communication strategies may require tailoring. For example, one gender group was more open to reliability surcharges, suggesting outreach could target the less willing group.

A “value gap” was also evident between utilities and leisure. Attitudes toward fitness fees (Q8) compared with ease of paying for entertainment over utilities (Q11) showed distinct consumer segments. About 10–20% consistently justified higher recreation spending, while others held mixed or inconsistent views. Some supported high gym fees yet disagreed that entertainment costs are easier, and vice versa. This inconsistency shows that acceptance in one domain does not predict acceptance in another. Communication strategies cannot assume cross-sector analogies will persuade consumers.

These findings also connect directly to energy poverty concerns raised in the literature review. Since many households already spend a significant share of income on electricity and heating, even modest tariff increases may deepen vulnerability. This reinforces that policy design must balance financial sustainability with targeted protection for at-risk groups.

Regarding initial hypotheses, the data provide a mixed verdict. The hypothesis that electricity price tolerance is narrow is confirmed by PSM analysis. The expectation of public skepticism and fairness concerns is supported by widespread distrust of efficiency and reinvestment. The idea that satisfaction would translate into higher WTP is not supported, as even satisfied users resist increases. Demographic hypotheses find partial support: education influenced WTP for electricity reliability, while income mattered mainly for non-electricity services. Finally, the hypothesis that utility and entertainment costs are treated differently is confirmed by the value gap. Overall, findings show that trust and perceived fairness, rather than service quality or income, are the decisive drivers of public acceptance of electricity pricing in BiH.

From a behavioral economics perspective, results illustrate strong price anchoring in electricity (decades of low tariffs), clearer perceived value in telecom upgrades despite dissatisfaction with costs, and fairness-driven skepticism of fitness and cinema fees. Each sector’s acceptable price range thus reflects not only economic constraints but also cognitive biases and trust perceptions.

falling within acceptance. Gender differences appear in WTP for reliability surcharges, which suggests that measures and messages should be tailored by segment. The expectation that higher service satisfaction leads to higher WTP is not supported, since many respondents report satisfactory delivery yet remain unwilling to accept higher bills. Results from other sectors point to a different pattern, with telecommunications and entertainment showing broader acceptable price ranges,

while electricity is treated as a core necessity. Low regulated prices and tight household budgets frame this response, and even gradual market-cost adjustments presented as funding reliability and the energy transition are perceived as risky.

These findings are significant as they underscore a fundamental conflict between essential energy policy and public sentiment. The power sector of BiH necessitates cost-reflective pricing to guarantee financial sustainability and to finance green investments. Nevertheless, the findings indicate that consumers may respond strongly to even slight increases. A significant number of households are currently vulnerable to energy poverty, thus price fluctuations entail substantial social costs. This implies that simplistic tariff reforms may incite protests, non-compliance or political resistance. The comparison with discretionary service providers is enlightening, as utility services lack competitive market indicators and encounter scepticism, resulting in citizens being less tolerant of price fluctuations. In short, public opinion, like fears about utility inefficiency or fairness, makes the "loss aversion" that comes with electricity worse. On the other hand, competitive sectors build more trust by showing value. This explains why raising electricity prices is seen as especially unfair and causes a lot of opposition, even though the tariffs are very low.

The research indicates that technical reforms should be accompanied by social and communication strategies. If customers don't trust the provider or expect problems, just saying "cost recovery" won't be enough. Future research should evaluate interventions designed to modify perceptions, such as framing price increases as investments in grid improvements or renewable energy sources, which may mitigate adverse responses. These results indicate that regulators should implement incremental, data-informed reforms. To grow public acceptance, there needs to be a full plan that includes thorough surveys of public concern, participation from all stakeholders (including NGOs, the media and regulators) and effective educational campaigns. In practice, decision-makers should make changes one step at a time, checking how households respond.

REFERENCES

1. Bettray, J., Suessmai, A., & Dorn, T. (2017). Perceived Price Fairness in Pay-WhatYou-Want: A Multi-Country Study. *American Journal of Industrial and Business Management*.
2. Csereklyei, Z. (2020). Price and income elasticities of residential and industrial electricity demand in the European Union. *Energy Policy*.
3. Energologija. (2025, June 5). The Elektroprivreda of the Republic of Srpska recorded a drastic decline in profit in 2024. Retrieved from Energologija:
4. <https://energologija.com/elektroprivreda-republike-srpske-zabiljezila-drastican-paddobiti-u-2024-godini/>
5. EPBIH. (2025, June). Adopted Report on business operations for the year 2024 and Decision on covering the loss. Retrieved from JP Elektroprivreda BiH: <https://www.epbih.ba/novost/43744/-usvojen-izvjestaj-o-poslovanju-za-2024.godinu-iodluka-opokricu-gubitka>
6. Fredriks, E. R., Stenner, K., & Hobman, E. V. (2015). Household energy use: Applying behavioural economics to understand consumer decision-making and behaviour. *Renewable and Sustainable Energy Reviews*, 41, 1385-1394.

In response to these findings, power utilities and regulators ought to implement the following specific measures to reform pricing and enhance public trust:

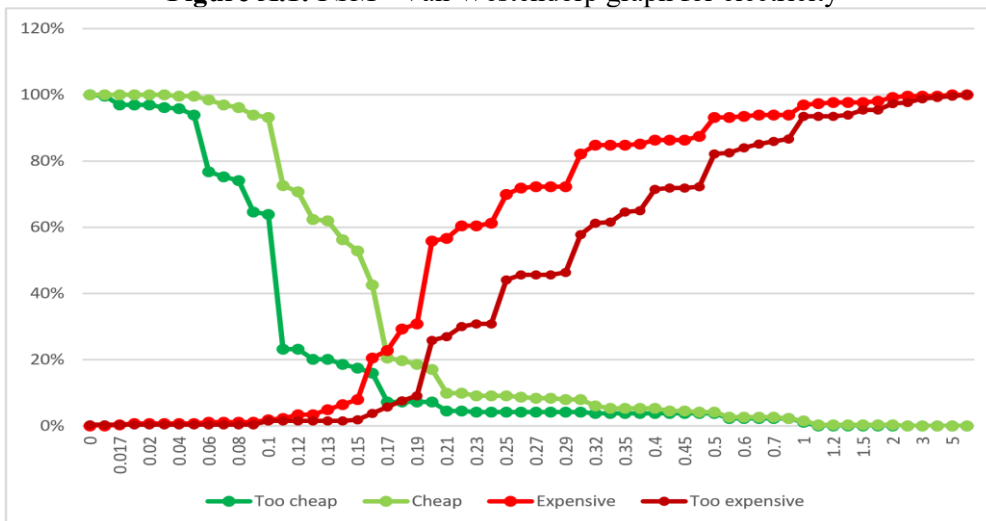
- Incrementally adjust retail rates to achieve complete cost recovery, while safeguarding vulnerable consumers. Implement or enhance lifeline rates, social tariffs, or direct cash transfers for low-income households to ensure that reforms do not disproportionately impact the impoverished. Utilities and regulators need to clearly explain why prices are increasing (e.g. to cover infrastructure costs, financing RES or upgrading the grid). List the benefits and any help programs that go along with them. Regular interactions with the media (TV, radio, social media) and town hall meetings can help people understand tariffs better.
- Promote and streamline the application process for assistance programs (e.g. housing subsidies, utility rebates).
- Regularly disseminate performance and financial metrics to illustrate efficiency. Establish or empower an autonomous energy ombudsman/regulator to address grievances and evaluate tariffs.
- Talk to consumer groups, NGOs, and community leaders about how to set prices. Use surveys or focus groups to get feedback on early reforms. Hold public workshops where officials explain the timeline for the reforms and answer questions. This participatory approach, which is in line with OECD guidance on stakeholder engagement, will build trust and make sure that policy frameworks deal with real consumer problems.

All these steps are based on the research findings, indicating that gradual reforms with clear communication and integrated support are more likely to succeed than sudden increases. By integrating credible pricing reforms with a comprehensive strategy of engagement and transparency, utilities and regulators can alleviate opposition and advance towards a sustainable, publicly endorsed electricity sector. **Acknowledgments:** The authors would like to express their gratitude to company CETEOR for the support, and to Numbeo database for providing access to historical data on fitness and cinema ticket prices used in this research.

7. Gallop, P., Gray, E., Nikolovska, E., Mustață, A., & Petcu, R. (2021). The Political Economy of Energy Transition in Southeast Europe – Barriers and Obstacles. FriedrichEbert-Stiftung.
8. Gielisse, R., & Dutilh, C. E. (2008). Recherche et Applications en Marketing. *Business & Society*, 370-389.
9. Hubana, T., & Ljevo, N. (2020). Willingness to Pay for Reliable Electricity: A Contingent Valuation Study in Bosnia and Herzegovina. In *Advanced Technologies, Systems, and Applications IV -Proceedings of the International Symposium on Innovative and Interdisciplinary Applications of Advanced Technologies* (pp. 107-116).
10. Kagan, J. (2025, March 10). Price Sensitivity: What It Is, How Prices Affect Buying Behavior. Retrieved from Investopedia: <https://www.investopedia.com/terms/p/pricesensitivity.asp#:~:text=Price%20sensitivity%20is%20the%20degree%20to%20which%20demand%20changes%20when,lower%20priced%20option%20is%20available>
11. Kolobara, Z. (2025, April 1). Electricity company HZ HB in numbers: 134 million marks were spent on salaries and income, profits have drastically fallen, and revenues are down. Retrieved from Hercegovina. Info: <https://www.hercegovina.info/vijesti/bih/elektroprivreda-hz-hb-u-brojkama-na-place-iprimanja-otislo-134-milijuna-maraka-dobit-drasticno-pala-i-prihoda-je-manje/236963/>
14. Kratovac, N., Mekic, E., & Duerod, M. (2023). Personal Saving, Spending and Attitudes Towards Money in Bosnia and Herzegovina at the Time of Inflation. *International Journal of Economics, Commerce and Management*, 11(6), 173-186.
15. Lakić, V. (2024, December 16). Minister Lakić: We are not considering an increase in electricity prices, the losses of JP Elektroprivreda BiH occurred in the past nine years.
16. Retrieved from <https://fbihvlada.gov.ba/bs/ministar-lakic-ne-razmatramo-poskupljenjestrjuje-gubici-jp-elektroprivreda-bih-sunastali-u-protekljih-devet-godina>
17. Lightning, J. (n.d.). Why Are Electricity Rates Rising—and Will They Keep Increasing? Retrieved from Energy Professionals: <https://www.energyprofessionals.com/why-areelectricity-rates-risingand-will-they-keep-increasing/>
18. Luo, B., Li, L., & Sun, Y. (2022). Understanding the Influence of Consumers' Perceived Value on Energy-Saving Products Purchase Intention. *Sec. Environmental Psychology*.
19. Manyhert, B. (2022). The uneven effects of rising energy and consumer prices on poverty and social exclusion in the EU. VOWEU.
20. Mencarelli, R., & Arnaud, R. (2012). Towards a Theoretical Clarification of Perceived Value in Marketing. *Recherche et Applications en Marketing*.
21. OECD. (2025). *Energy Prices and Subsidies in the Western Balkans: Reforms for a Fair and Green Future*. Paris: OECD Publishing.
22. Piao, X., & Managi, S. (2023). Household energy-saving behavior, its consumption, and life satisfaction in 37 countries. *Scientific Reports*.
23. Podbregar, I., Filipovic, S., Radovanovic, M., Mirkovic Isaeva, O., & Sprajc, P. (2021). Electricity Prices and Consumer Behavior, Case Study Serbia—Randomized Control Trials Method. *Energies*, 14 (3).
24. Spasojevic, B., & Djukic, A. (2024). Impact of Inflation on Economic Growth in Bosnia and Herzegovina. *Ekonomski signali: poslovni magazin*, 19(2), 1-18. doi:10.5937/ekonsig2402001S
25. Stobierski, T. (2020, October 20). Willingness to pay: What it is & how to calculate.
26. Retrieved from Harvard Business School Online: <https://online.hbs.edu/blog/post/willingness-to-pay>
27. Trotta, G. (2021). Electricity awareness and consumer demand for information. *International Journal of Consumer Studies*, 45(1), 65-79.
29. Tversky, A., & Kahneman, D. (1974). Judgment under Uncertainty: Heuristics and Biases. *Science*, 1124-1131.
30. Vuckovic, V., Mangafic, J., & Pavelic, D. (2025). Assessing the determinants of multilayered dimensions of energy poverty in Bosnia and Herzegovina: challenges and pathways forward. *Southeast European and Black Sea Studies*.
31. Vuckovic, V., Mangafic, J., & Pavelic, D. (2025). Assessing the determinants of multilayered dimensions of energy poverty in Bosnia and Herzegovina: challenges and pathways forward. *Southeast European and Black Sea Studies*.
32. Wang, B., Yuan, Z., Liu, X., Sun, Y., Zhang, B., & Wang, Z. (2021). Electricity price and habits: Which would affect household electricity consumption? *Energy and Buildings*, 240.
33. Wang, Q., Su, M., Li, R., & Ponce, P. (2019). The effects of energy prices, urbanization and economic growth on energy consumption per capita in 186 countries. *Journal of Cleaner Production*, 225, 1017-1032.
34. WorldData. (2025, August). Inflation trends in Bosnia and Herzegovina. Retrieved from WorldData.info: <https://www.worlddata.info/europe/bosnia-and-herzegovina/inflationrates.php>
35. Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence. *J. Mark*, 2-22.

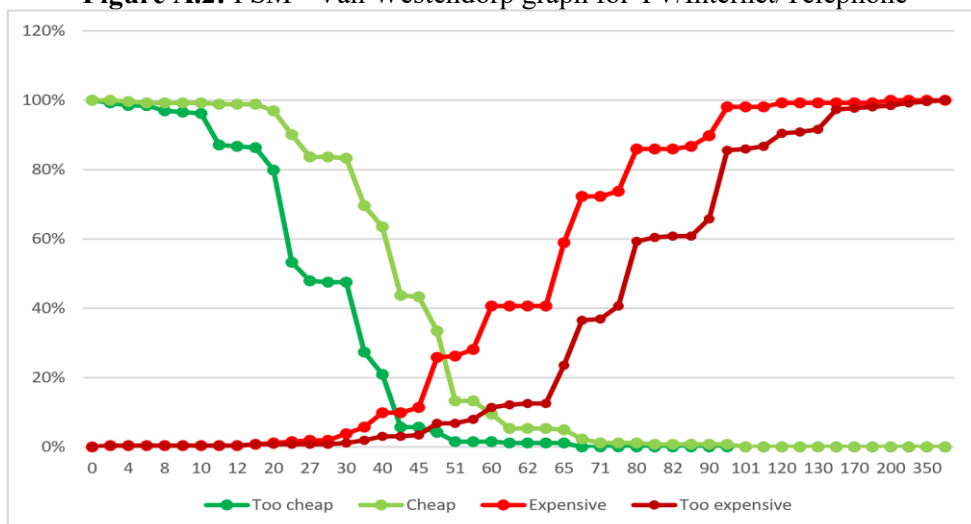
APPENDIX A. PSM - Van Westendorp graph

Figure A.1: PSM - Van Westendorp graph for electricity



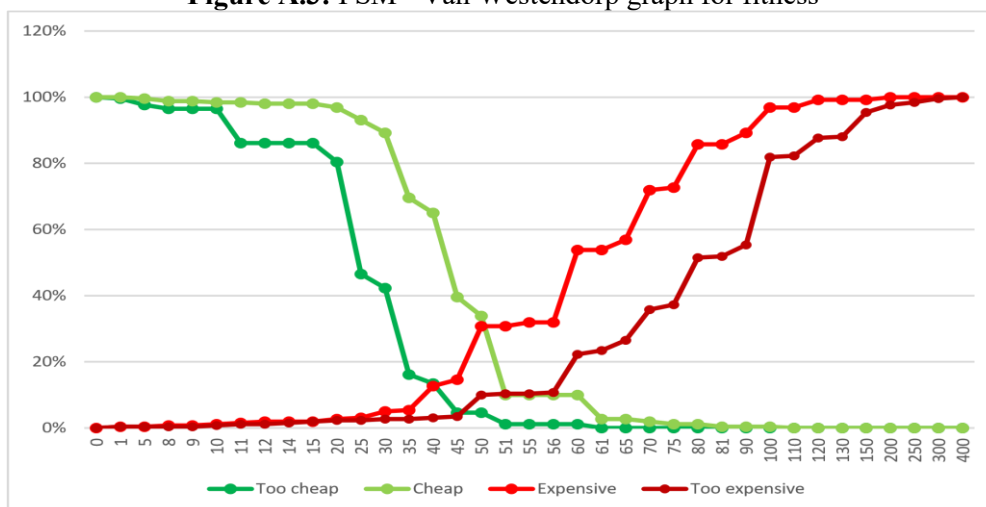
Source: Author's calculation.

Figure A.2: PSM - Van Westendorp graph for TV/Internet/Telephone



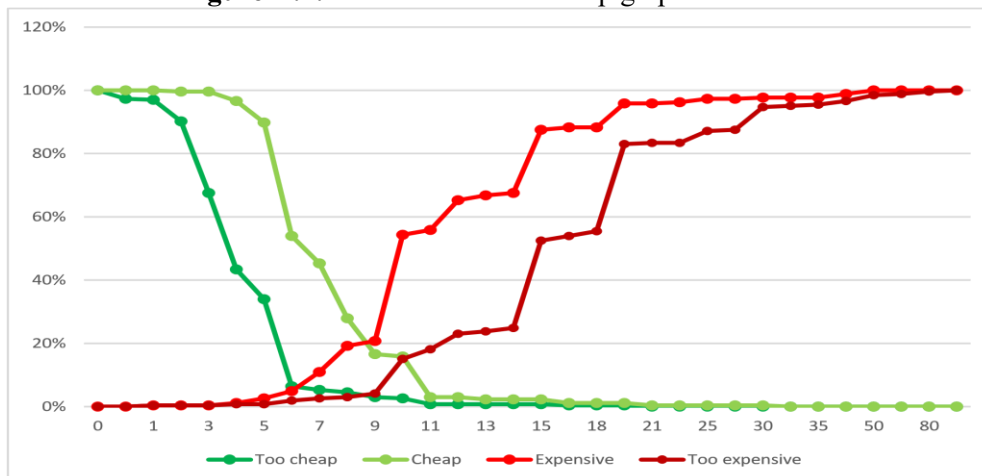
Source: Author's calculation.

Figure A.3: PSM - Van Westendorp graph for fitness



Source: Author's calculation.

Figure A.4: PSM - Van Westendorp graph for cinema



Source: Author's calculation.

APPENDIX B. PSM ANOVA Test

Table B.1: PSM ANOVA TEST

By gender	Too cheap	Cheap	Expensive	Too expensive
Electricity price	0,19175	0,56372	0,96445	0,55326
TV/Internet/Telephone monthly subscription	0,06401	0,57999	0,21950	0,29440
Fitness monthly fee	0,29604	0,92841	0,12064	0,07987
Cinema ticket	0,01577	0,04233	0,73547	0,75987
By education	Too cheap	Cheap	Expensive	Too expensive
Electricity price	0,89804	0,78448	0,48935	0,55520
TV/Internet/Telephone monthly subscription	0,30480	0,22766	0,27556	0,12450
Fitness monthly fee	0,16473	0,17622	0,17824	0,07472
Cinema ticket	0,76470	0,83716	0,12395	0,04401
By income	Too cheap	Cheap	Expensive	Too expensive
Electricity price	0,63761	0,74968	0,35869	0,12420
TV/Internet/Telephone monthly subscription	0,86087	0,81218	0,04849	0,04493
Fitness monthly fee	0,06058	0,00913	0,00120	0,01039
Cinema ticket	0,36754	0,87367	0,34892	0,36009
By age	Too cheap	Cheap	Expensive	Too expensive
Electricity price	0,14625	0,70643	0,51708	0,42770
TV/Internet/Telephone monthly subscription	0,21057	0,96970	0,44125	0,22311
Fitness monthly fee	0,20192	0,36906	0,12558	0,03877
Cinema ticket	0,05077	0,79177	0,29832	0,09712

Source: Author's calculation.

APPENDIX C. LIKERT SCALE – VALUE GAP ANALYSIS**Table C.1: LIKERT SCALE – VALUE GAP ANALYSIS**

A) Telecom value gap (Q7 vs Q4)	
Q7 Agree & Q4 Disagree	18%
Q7 Agree & Q4 Agree	5%
Q7 Disagree & Q4 Agree	1%
Q7 Disagree & Q4 Disagree	27%
B) Cinema value gap (Q9 vs Q10)	
Q9 Agree & Q10 Disagree	7%
Q9 Agree & Q10 Agree	28%
Q9 Disagree & Q10 Agree	1%
Q9 Disagree & Q10 Disagree	13%
C) Belief that electricity price increase is invested (Q3) vs resistance (Q5)	
Q3 Agree & Q5 Resistant	1%
Q3 Agree & Q5 Open	3%
Q3 Disagree & Q5 Resistant	27%
Q3 Disagree & Q5 Open	26%
D) KPIs involving Q6	
Satisfied & Resistant	18%
Dissatisfied & Open	5%
Satisfied & Believe reinvestment	7%
E) Two high-signal segments with delivery satisfaction (Q6)	
Satisfied but resistant (happy with delivery yet oppose increases)	18%
Dissatisfied but open (unhappy yet accept increases)	5%
F) Public vs private efficiency (Q1 vs Q2)	
Public efficient & Private not more efficient	2%
Public efficient & Private more efficient	6%
Public not efficient & Private more efficient	33%
Public not efficient & Private not more efficient	13%
G) Fitness value gap (Q8 vs Q11)	
Q8 Agree & Q11 Disagree	12%
Q8 Agree & Q11 Agree	10%
Q8 Disagree & Q11 Agree	6%
Q8 Disagree & Q11 Disagree	19%

Source: Author's calculation.

APPENDIX D. SURVEY

The price of energy vs. the price of entertainment: How do we value services in Bosnia and Herzegovina?

Dear Sir/Madam,

You are invited to take part in a survey exploring an interesting phenomenon in our society: Why do we so easily accept the constant rise in prices of services such as internet, TV, or entertainment, while even the announcement of price increases for basic energy sources, such as electricity, triggers strong resistance?

This research is being conducted by Vedad Suljić (Master of Environmental Economics) and Nejra Biber (Master of Mechanical Engineering) with the aim of investigating this phenomenon using a scientific approach. We want to move beyond personal observations and precisely measure the actual attitudes and perceptions of citizens.

What do we want to achieve with this research? We want to understand the deeper reasons behind consumer decisions. The main hypothesis is that households are more willing to accept price increases for services where quality improvement is visible and direct (e.g., faster internet) than for essential services, where efficiency of management and the purpose of investments are often questioned.

What are the expected results and why are they important? The survey results will help us answer following questions:

Is our resistance to energy prices purely financial, or is it also linked to (mis)trust in the management of public enterprises?

How much do visible innovations (e.g., 5G networks, better TV picture) influence our willingness to pay more?

How do these attitudes in the long term affect the ability of the energy sector to invest in urgently needed modernization and renewable energy sources, which are crucial for our future?

Understanding these questions is essential for quality public dialogue and creating sustainable economic models for key services in Bosnia and Herzegovina.

The survey is completely anonymous, and your responses will only be used in aggregated form.

It takes about 10 minutes to complete.

Thank you for contributing to this important research!

PART I: BASIC INFORMATION

These questions help us ensure the relevance of the sample.

Gender:

Age:

Your highest completed level of education:

Number of household members (including yourself):

Average total monthly net income of your household:

Place of residence:

Type of settlement where you live:

PART II: PRICES AND VALUE OF SERVICES

In order to be able to compare responses, we kindly ask you to assess the prices for standardized service levels below, regardless of your current consumption or the package you are using.

Price per kilowatt-hour (kWh) of ELECTRICITY

The current average electricity price is about 0.16 BAM per kWh. For you, what price per kWh would be...

TOO CHEAP so that you would not pay any attention to consumption? (please enter the amount in BAM/kWh)

AFFORDABLE and you would only moderately pay attention to consumption? (please enter the amount in BAM/kWh)

EXPENSIVE so that you would start saving significantly? (please enter the amount in BAM/kWh)

TOO EXPENSIVE to the point that it would endanger your household budget? (please enter the amount in BAM/kWh)

Monthly price for a STANDARD TELECOMMUNICATIONS PACKAGE

The average standard package (TV package with 150+ channels, internet speed up to 150 Mbps, fixedline telephony included) costs about 65 BAM/month. NOTE: this amount does not include mobile telephony. For you, what monthly price for such a package would be...

TOO CHEAP so that you would doubt the quality of the service? (please enter the amount in BAM)

AFFORDABLE, i.e. an excellent deal? (please enter the amount in BAM)

EXPENSIVE, but you might still consider purchasing it? (please enter the amount in BAM)

TOO EXPENSIVE and you would not purchase it? (please enter the amount in BAM)

Monthly membership fee for a STANDARD FITNESS CENTER

A standard membership fee for a fitness center with unlimited access to equipment costs about 60

BAM/month. For you, what monthly membership fee would be...

TOO CHEAP so that you would doubt the quality of the equipment and/or hygiene? (please enter the amount in BAM)

AFFORDABLE, i.e. an excellent deal? (please enter the amount in BAM)

EXPENSIVE, but you might still consider paying it? (please enter the amount in BAM)

TOO EXPENSIVE and you would not pay it? (please enter the amount in BAM)

D) Ticket for a STANDARD CINEMA MOVIE SCREENING

Imagine the price of one (1) ticket for a standard 2D screening of a new movie on a Friday evening, which on average costs about 10 BAM/ticket. For you, what ticket price would be...

TOO CHEAP so that you would doubt the quality of the cinema? (please enter the amount in BAM/ticket)

AFFORDABLE, i.e. an excellent deal? (please enter the amount in BAM/ticket)

EXPENSIVE, but you might still consider buying it? (please enter the amount in BAM/ticket)

TOO EXPENSIVE and you would not go to the cinema? (please enter the amount in BAM/ticket)

PART III: WILLINGNESS TO PAY EXTRA

Answer with YES, NO, or MAYBE.

Would you be willing to pay 5 BAM or more per month for guaranteed uninterrupted electricity supply (without failures and outages)?

Would you be willing to pay 10 BAM more per month for electricity coming exclusively from renewable sources (solar, wind, etc.)?

Would you be willing to pay 15 BAM more per month for double the internet speed in your package (e.g., from 150 Mbps to 300 Mbps)?

Would you be willing to pay 15 BAM more per month for an additional package with all premium TV channels?

Would you be willing to pay 15 BAM more per month for a gym membership that includes access to all group classes (e.g., pilates, yoga)?

Would you be willing to pay 20 BAM more per month for access to additional wellness and spa facilities in the gym?

Would you be willing to pay 2 BAM more per ticket to watch a movie in 3D instead of standard 2D?

Would you be willing to pay 3 BAM more per ticket to watch a movie from premium/VIP seats (e.g., leather chairs, more space)?

PART IV: ATTITUDES AND OPINIONS

Please rate your level of agreement with the following statements on a scale from 1 to 5, where 1 =

“Strongly disagree” and 5 = “Strongly agree.”

Public enterprises (e.g., electricity providers) operate efficiently.

Private companies (private telecoms, cinemas) are more efficient than public ones.

Money from price increases of public services (e.g., electricity) is invested into better quality.

Higher telecommunication prices are justified because I receive better service.

Any increase in the electricity price is unjustified.

I am satisfied with the quality of electricity supply.

I am satisfied with the quality of internet and TV services.

Gym membership fees are justified by the quality of the offer.

I am satisfied with cinema services (cleanliness, comfort, offer).

The cinema ticket price is justified by the quality of the experience.

It is easier for me to pay more for entertainment (cinema, travel) than for utilities.