Income Drives Consumption, Not the Brain: Reassessing the Mediating Effect of Neurofinance in Urban Households

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ABSTRACT

Household consumption is a key indicator of economic well-being and is influenced by both income and behavioral financial factors. This study specifically examines the effect of household income on household consumption expenditure patterns in Makassar City, with neurofinance positioned as a mediating variable. A quantitative survey of 150 households was conducted, and data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS). The results show that household income has a strong direct effect on consumption expenditure, while neurofinance has only a weak influence and does not significantly mediate the relationship between income and expenditure. These findings suggest that consumption patterns are predominantly driven by direct economic factors rather than behavioral financial mechanisms. Neurofinance appears to function more as a regulatory factor influencing consumption behavior rather than as an intermediary pathway. This study contributes empirically to the literature on household consumption by highlighting the contextual role of neurofinance and reinforcing the primacy of income in shaping expenditure decisions.

Keywords: *Behavioral Finance, Household Consumption, Household Income, Neurofinance.*

INTRODUCTION

Household income is a primary factor in determining both the capacity and the patterns of consumption within society. In conventional consumption theory, particularly the Keynesian approach, income is regarded as the main determinant of consumption, whereby increases in income are typically followed by increases in consumption expenditure (Keynes, 2018). This relationship reflects the role of household economic capacity as the foundation for fulfilling both basic and additional needs. As income rises, households tend to expand the range and quality of their consumption (Yun et al., 2025; Zhou & Fu, 2025).

The relationship between income and consumption becomes even more pronounced in urban contexts. Urban characteristics such as more complex needs, dynamic lifestyles, and high levels of social interaction encourage households to increase their consumption expenditure. Social pressure, media exposure, and ease of access to a wide variety of goods and services further reinforce consumption tendencies among urban households (Bernheim et al., 2001). Consequently, income growth in urban areas is often directly reflected in higher consumption expenditure (Agrawal & Agrawal, 2023; Li & Zhang, 2025).

Alongside the development of behavioral economics, the neurofinance approach has been introduced to provide deeper insights into financial decision-making processes (Kahneman & Tversky, 2013; Chaudhary et al., 2025). Neurofinance emphasizes that consumption decisions are not always rational, as assumed in classical economic theory, but are instead influenced by cognitive and emotional processes (Loewenstein et al.,

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2008). Factors such as self-control, impulsivity, risk perception, and behavioral biases play important roles in determining how households allocate their income for consumption (Statman, 2014; Carbó-Valverde et al., 2025). Within this framework, neurofinance is often assumed to function as a mechanism that bridges the influence of economic factors and consumption behavior. Income is not only viewed as an economic resource but also as a stimulus that can affect how individuals process financial information and make consumption decisions (Weber & Huettel, 2008; De Bruijn & Antonides, 2022). In the context of this study, integrating the neurofinance approach into household consumption analysis is expected to provide a more comprehensive understanding of consumption behavior dynamics, particularly in urban communities (Awaluddin et al., 2025).

Makassar City, the capital of South Sulawesi Province, serves as a center of economic growth and exhibits dynamic and heterogeneous household consumption characteristics. As a regional metropolitan city, Makassar is characterized by high levels of economic activity, diverse household income sources, and an intensive urban lifestyle shaped by the development of service, trade, and modern consumption sectors. These conditions imply that household consumption expenditure patterns in Makassar City are influenced not only by economic capacity but also by accompanying social and behavioral contexts. Despite the increasing application of behavioral economics and neurofinance in explaining financial decision-making, empirical evidence that specifically examines the role of neurofinance in the relationship between household income and consumption expenditure remains limited, particularly in the context of urban households in Indonesia. Most previous studies emphasize the direct relationship between income and consumption, while the cognitive and emotional mechanisms underlying consumption decisions have rarely been quantitatively tested as mediating pathways (Khoshghadam & Rajabi, 2024; Tariq, 2025).

The novelty of this study lies in its empirical examination of neurofinance as a mediating variable in the relationship between household income and household consumption expenditure within the context of urban households in Indonesia, specifically in Makassar City. Unlike previous studies that primarily emphasize direct income–consumption relationships or position behavioral factors as independent variables, this research explicitly tests behavioral financial mechanisms as an intermediary pathway using a quantitative SEM-PLS approach (Barberis & Thaler, 2003; Benartzi & Thaler, 2007).

Based on this background, the present study aims to empirically examine whether neurofinance functions as a mediating variable in the relationship between household income and household consumption expenditure in Makassar City. The analysis employs Structural Equation Modeling–Partial Least Squares (SEM-PLS), which allows for the simultaneous examination of both direct and indirect relationships among variables. Accordingly, this study is expected to provide empirical contributions by clarifying the role of neurofinance in explaining household consumption behavior dynamics, particularly in urban contexts.

Furthermore, this study contributes empirically by demonstrating that neurofinance does not always function as a significant mediating mechanism but instead plays a greater role as a behavioral control factor in consumption behavior. These findings enrich the behavioral economics literature by emphasizing that the role of neurofinance is contextual and dependent on the socio-economic characteristics of the study area. Thus, this research not only confirms existing theoretical perspectives but also provides empirical clarification regarding the limitations of applying the neurofinance approach in explaining urban household consumption behavior.

LITERATURE REVIEW & HYPOTHESIS DEVELOPMENT

The Effect of Household Income on Household Consumption Expenditure

Household income has long been regarded as a primary determinant of consumption expenditure in economic literature. The Keynesian consumption theory emphasizes that household consumption is primarily driven by income, where an increase in income

generally leads to an increase in consumption (Keynes, 2018; Drakopoulos, 2021). This perspective highlights the role of economic capacity as the foundation for meeting both basic and discretionary needs. Empirical studies support this view, showing that higher income is typically followed by greater consumption, particularly in urban societies with complex consumption patterns (Deaton, 1992). Furthermore, life-cycle and permanent-income hypotheses suggest that households adjust consumption not only according to current income but also based on expected future income, indicating that the income–consumption relationship is dynamic and context-dependent (Shefrin & Thaler, 1988).

In urban contexts, the income–consumption relationship is further reinforced by social and environmental factors. Urban life, characterized by complex needs, dynamic lifestyles, and high social interaction, encourages higher consumption expenditure (Lyons et al., 2018). Exposure to media, social pressures, and easy access to diverse goods and services significantly influence household consumption decisions (Shah & Asghar, 2023; Primayanti & Kausar, 2025). Therefore, income not only provides economic capacity but also interacts with external factors that shape spending patterns. Previous research in major Asian cities, including Indonesia, demonstrates a positive correlation between household income growth and increased expenditure on discretionary goods and modern services, confirming that this relationship remains relevant in contemporary urban economies (Zukin, 1998).

H1: Household income has a positive effect on household consumption expenditure.

The Effect of Household Income on Neurofinance

Neurofinance, as a behavioral economics approach, integrates cognitive and emotional processes in financial decision-making (Shefrin, 2002; Vartei, 2023; Ramana, 2024). Within this framework, household income is not only considered an economic resource but also a stimulus that can affect the processing of financial information and consumption decisions (Lo & Repin, 2002; Kumar et al., 2025). Some studies indicate that increases in income may influence risk-taking behavior, self-control, and impulsivity in household financial management, although these effects are often moderate and mediated by individual psychological characteristics (Fenton-O'Creevy & Furnham, 2022). In other words, neurofinance views income as a factor that triggers cognitive and emotional responses, but it does not act as a deterministic force in financial behavior (Srivastava et al., 2019).

Empirical evidence regarding the relationship between household income and neurofinance remains limited, especially in urban household contexts. Several studies suggest that cognitive factors, such as self-control and behavioral biases, are generally more stable than short-term economic fluctuations (Cobb-Clark et al., 2023). For example, individuals with high self-control are likely to make rational consumption decisions regardless of income changes, whereas more impulsive individuals may exhibit more volatile financial behavior (Yani, 2025). This body of literature emphasizes that the relationship between income and neurofinance is non-linear, and the impact of income on cognitive and emotional mechanisms in household consumption depends on psychological and social factors.

H2: Household income has a negative effect on neurofinance.

The Effect of Neurofinance on Household Consumption Expenditure

Neurofinance highlights that consumption behavior is not always rational, as assumed by classical economic theory, but is shaped by cognitive and emotional factors (Thaler & Ganser, 2015). Elements such as self-control, impulsivity, risk perception, and behavioral biases play crucial roles in household consumption decisions. Studies suggest that higher self-control tends to suppress impulsive consumption, whereas poor emotional regulation can lead to excessive spending (de Ridder et al., 2012). Thus, neurofinance functions as a

regulatory mechanism that allows households to balance needs and desires according to economic capacity and individual preferences.

Furthermore, previous research emphasizes that neurofinance offers additional insight into household consumption behavior that cannot be fully explained by economic factors alone. For instance, studies by Lo et al. (2005) show that financial behavior, including consumption, is influenced by emotional reactions to risk and reward, rather than solely by income or wealth. This framework explains variations in consumption among households with similar incomes, where differences in self-control, impulsivity, or risk perception produce distinct spending patterns. Consequently, neurofinance provides an integrative perspective, illustrating how cognitive and emotional factors interact with economic capacity to determine household consumption expenditure.

H3: Neurofinance has a negative effect on household consumption expenditure.

The Effect of Neurofinance as a Mediating

In behavioral economics literature, neurofinance is often assumed to serve as a mediating variable between economic factors, such as household income, and consumption behavior (Lo & Repin, 2002). This concept posits that income not only directly affects consumption but also indirectly through its influence on cognitive and emotional processes. Previous studies indicate that this mediating mechanism can either amplify or attenuate the impact of economic capacity on household expenditure, depending on psychological and social characteristics (de Ridder et al., 2012). Accordingly, neurofinance is conceptualized as a bridge linking financial resources and complex consumption decisions.

However, the literature also notes that the mediating role of neurofinance is not always consistent and is context-dependent. Cognitive and emotional factors tend to remain stable, so the indirect effect of income on consumption through neurofinance is often moderate (Kumar et al., 2025). In this regard, neurofinance may function more as a behavioral control mechanism than a significant mediating pathway. These insights highlight the importance of considering urban context, education level, and financial behavior stability when investigating neurofinance as a mediator. Thus, while neurofinance remains relevant in household consumption studies, its role should be interpreted in light of behavioral heterogeneity and socio-economic characteristics of households.

H4: Neurofinance mediates the relationship between household income and household consumption expenditure.

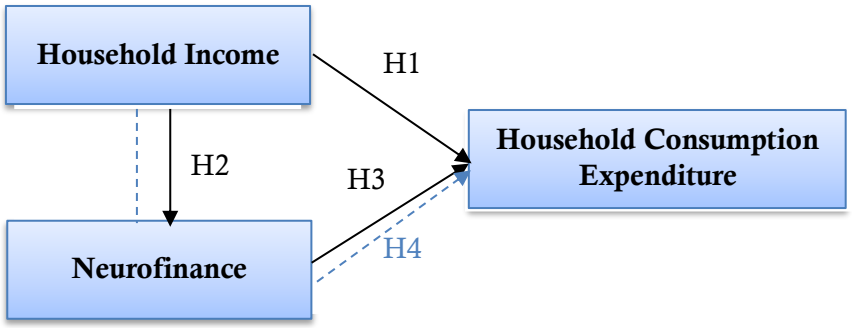

Figure 1. Conceptual Framework

Figure 1 illustrates the structural research model analyzed using the SEM-PLS approach. The model consists of three main constructs: Household income (X) as the exogenous variable, neurofinance (Z) as the mediating variable, and household consumption expenditure (Y) as the endogenous variable. The hypothesis is that

household income affects consumption expenditures directly (H1) and indirectly (H2) through neurofinance factors. It is hypothesized that neurofinance, which includes both emotional and cognitive financial actions, influences consumption spending (H3). Furthermore, H4 illustrates how neurofinance mediates the link between income and consumption. This paradigm shows how household spending is influenced by income and behavioral-financial characteristics in both direct and mediated ways.

RESEARCH METHODS

In line with Hossan et al. (2023), this study employed a quantitative method involving 150 household respondents in Makassar City who participated in a survey to share their insights and experiences. Respondents were selected using purposive sampling to support an in-depth understanding of the research topic. Household income was measured based on monthly earnings and classified into predefined income categories. The sampling strategy ensured that households with diverse income levels were included, capturing variations in financial behavior. This approach enhances the study's ability to explore how income interacts with neurofinance traits in shaping consumption patterns.

Neurofinance was operationalized using a five-point Likert-scale instrument consisting of 15 items representing five dimensions: cognitive regulation, emotional response, impulsivity, long-term financial orientation, and social consumption bias. Household consumption expenditure was measured as total monthly spending, encompassing both food and non-food items. The multidimensional neurofinance measure allows for nuanced analysis of how cognitive and emotional factors influence financial decisions, while the detailed consumption data provide a comprehensive view of household spending behavior. These measurements facilitate the examination of both direct and mediated effects of income on expenditure.

Data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS), selected for its ability to simultaneously test causal relationships and its flexibility regarding data distribution and moderate sample sizes. SEM-PLS is particularly suitable when research objectives emphasize prediction and structural relationship testing rather than overall model fit. The method also allows for testing complex mediating mechanisms, such as the role of neurofinance in linking income to consumption. This analytical flexibility is critical given the reflective nature of the neurofinance construct and the potential indirect effects on household expenditure.

Neurofinance was treated as a reflective latent construct measured through multiple indicators representing cognitive and emotional dimensions of financial decision-making. Measurement model evaluation included assessments of convergent validity and internal consistency reliability. Household income and household consumption expenditure were treated as single-indicator constructs, consistent with the nature of the data. This distinction ensures accurate modeling of latent psychological traits while capturing tangible financial measures with minimal measurement error. The reflective specification also supports the robustness of SEM-PLS results in testing hypothesized relationships.

Structural relationships were estimated using a variance-based approach, allowing examination of both direct and indirect effects. The mediating role of neurofinance was tested using bootstrapping with 2,000 resamples to obtain empirical estimates of indirect effects and robust confidence intervals without assuming normal data distribution. Mediation significance was determined based on confidence intervals, where indirect effects were considered significant if the interval did not include zero. This bootstrapping procedure enhances the reliability of mediation analysis and allows for a more precise understanding of how neurofinance partially or fully mediates the effect of household income on consumption expenditure. Additionally, the approach accommodates potential non-normality in survey responses, strengthening the validity of the conclusions.

RESULTS

This study employed a quantitative method to explore the relationships between household income, neurofinance, and household consumption expenditure among 150

households in Makassar City. The primary goal of this analysis is to understand how variations in income levels and financial behavior influence spending patterns. To achieve this, the measurement model was first assessed to ensure that the constructs used in the study are reliable and valid, providing a strong foundation for further structural analysis.

Table 1. Validity & Reliability Test

Variable	Item Outer Loading Range	Cronbach's Alpha	Composite Reliability	AVE
Household Income (HI)	0.78 – 0.85	0.82	0.88	0.65
Neurofinance (NF)	0.76 – 0.84	0.80	0.87	0.63
Household Consumption Expenditure (HCE)	0.77 – 0.86	0.83	0.89	0.66

Table 1 presents the results of the SEM-PLS measurement model for three key constructs: Household income (HI), neurofinance (NF), and household consumption expenditure (HCE). The findings indicate that all constructs exhibit satisfactory reliability and validity, confirming the robustness of the measurement model. The outer loadings for all items range from 0.76 to 0.86, surpassing the commonly accepted threshold of 0.70. This demonstrates that the observed indicators reliably reflect their underlying latent constructs. In other words, each survey item is a meaningful representation of what it intends to measure, whether it is a household's income, financial behavior, or consumption patterns. This gives confidence that the data collected captures respondents' real experiences and perceptions.

Examining internal consistency reliability, the Cronbach's Alpha values range from 0.80 (NF) to 0.83 (HCE), indicating that the items within each construct consistently measure the same underlying concept. Complementary to this, the Composite Reliability (CR) values, ranging from 0.87 to 0.89, further confirm the stability and coherence of the constructs. High CR values suggest that the latent variables are well-represented by their indicators, providing additional assurance of measurement quality. For convergent validity, the Average Variance Extracted (AVE) values range from 0.63 to 0.66, which is above the recommended threshold of 0.50. This indicates that a substantial portion of the variance in the observed items is explained by their respective latent constructs. In practical terms, it means that the survey items are not only consistent but also truly representative of the concepts they are intended to measure.

Taken together, Table 1 highlights that the measurement model is both reliable and valid. These results lay a strong foundation for structural analysis, allowing meaningful examination of the relationships between household income, neurofinance, and household consumption expenditure. The data suggest that respondents' financial behaviors and spending patterns are accurately captured, providing confidence that subsequent analysis can generate insightful and trustworthy findings about the dynamics of household financial decision-making.

Table 2. Direct Path Coefficients

Structural Relationship	(β)	Interpretation
Household Income → Household Consumption Expenditure	0.786	Very strong positive effect
Household Income → Neurofinance	-0.013	Very weak effect
Neurofinance → Household Consumption Expenditure	-0.132	Weak negative effect

The results presented in Table 2 provide important insights into the relationships among household income, neurofinance, and household consumption expenditure in Makassar City. First, the effect of household income on household consumption expenditure is very strong and positive, as indicated by the path coefficient ($\beta = 0.786$). This finding empirically confirms that household income serves as the primary and direct determinant of household consumption patterns. In other words, households with higher income levels tend to allocate more resources to consumption, allowing them not only to

meet their basic needs but also to expand spending on additional goods and services. This result aligns with classical consumption theory, which emphasizes that income capacity underpins both the quantity and quality of consumption in urban households.

Second, the effect of household income on neurofinance is very weak and substantively insignificant, with a path coefficient of $\beta = -0.013$. This indicates that variations in household income do not automatically translate into differences in cognitive processing, emotional regulation, or behavioral biases related to financial decision-making. In practical terms, even households with higher income do not necessarily exhibit better self-control, risk assessment, or mitigation of impulsive consumption behavior. This finding suggests that neurofinance operates somewhat independently of economic resources, highlighting the role of psychological, cognitive, and emotional factors as separate influences on household behavior rather than as a simple consequence of income levels.

The effect of neurofinance on household consumption expenditure is weak and negative, with a path coefficient of $\beta = -0.132$. This suggests that households with higher levels of cognitive control and emotional regulation may tend to moderate their consumption, restraining spending to align with planned or rational financial behavior. In other words, stronger neurofinancial skills, such as self-discipline and risk awareness, appear to have a small inhibitory effect on household expenditure. Although the effect is not strong, it emphasizes that behavioral and cognitive factors can influence consumption patterns independently of income. Households with better emotional and cognitive management may prioritize savings or deliberate spending, thereby limiting excessive or impulsive consumption despite having sufficient income.

These findings indicate that while household income remains the dominant factor driving consumption expenditure in Makassar City, the role of neurofinance is more nuanced. Neurofinance does not automatically increase with income, nor does it strongly drive consumption. Instead, it acts as a subtle moderating factor that can restrain household consumption behavior, highlighting the complex interplay between economic capacity and cognitive-emotional regulation in shaping consumption patterns. These insights provide a foundation for considering both economic and behavioral interventions in policy or financial literacy programs aimed at urban households.

Table 3. Mediation Test Results

Test	**Results**
Mediation Path	Household Income → Neurofinance → Household Consumption Expenditure
(β)	0.786
Indirect Effect	0.0051
CI 2,5%	-0.0017
CI 97,5%	0.0274
Decision	Not Significant

The results presented in Table 3 provide insight into the mediating role of neurofinance in the relationship between household income and household consumption expenditure. The analysis of the indirect effect reveals that the pathway from household income through neurofinance to household consumption expenditure yields a coefficient of 0.005, with a 95% confidence interval ranging from -0.0017 to 0.0274. Importantly, because the confidence interval includes zero, this finding indicates that the mediating effect of neurofinance is statistically insignificant. In other words, neurofinance does not play a meaningful role in transmitting the influence of household income on consumption expenditure.

This result implies that the relationship between household income and consumption expenditure in Makassar City is best described as a direct-only model. Household income exerts its influence on consumption behavior directly, without being significantly filtered or altered by cognitive or emotional processes associated with neurofinance. The lack of a significant mediating effect suggests that even households with varying levels of cognitive control, emotional regulation, or behavioral biases do not experience a notable modification in their consumption patterns based on these neurofinancial characteristics.

From a practical perspective, these findings highlight that economic capacity remains the dominant driver of household consumption. While neurofinance may influence financial decision-making in certain contexts, in this study, it does not serve as a pathway through which income affects spending. Consequently, interventions or policies aimed at improving household consumption outcomes may benefit more from focusing on income-related factors, such as increasing household earnings or providing income-support programs, rather than relying solely on strategies designed to enhance cognitive or emotional financial skills. These results underscore the importance of recognizing the direct and primary role of household income in shaping consumption behavior, while also acknowledging that neurofinance, despite its theoretical relevance in behavioral economics, does not function as a significant mediator in the income-consumption relationship within this urban context.

DISCUSSION

The research findings demonstrate that household income plays the most decisive role in shaping household consumption expenditure patterns in Makassar City. This result indicates that real economic conditions remain the primary foundation underlying consumption decision-making processes among urban households. From the perspective of conventional consumption theory, particularly the Keynesian approach, income is regarded as the main determinant of consumption, whereby increases in income are generally followed by increases in expenditure. The consistency of these findings with the theoretical framework suggests that the income–consumption relationship remains robust and relevant, even within the dynamics of modern urban societies (Manou & Papapetrou, 2025).

The results of this study indicate that household income is the most significant determinant of household consumption expenditure in Makassar City. This finding is consistent with Modigliani (1954) and Keynes (2018), who emphasized that income is the central driver of consumption decisions. In urban contexts, households with higher income levels tend to increase their spending not only to meet basic needs but also to expand consumption on additional goods and services. This result aligns with recent research by Yun et al. (2025) and Zhou and Fu (2025), showing that income growth in urban areas is closely associated with higher and more diversified consumption patterns.

In contrast, the influence of household income on neurofinance is minimal, suggesting that increases in income do not automatically affect cognitive control, emotional regulation, or behavioral biases related to financial decision-making. This finding is consistent with De Ridder et al. (2012) and Cobb-Clark et al. (2023), who observed that traits such as self-control and impulsivity tend to be relatively stable and less sensitive to short-term income fluctuations. Similarly, the weak negative relationship between neurofinance and household consumption expenditure supports the behavioral economics perspective, in which cognitive and emotional regulation restrain rather than stimulate spending (Camerer et al., 2005; Thaler & Ganser, 2015).

The mediation analysis further clarifies the role of neurofinance, indicating that it does not significantly mediate the relationship between household income and consumption expenditure. This result is consistent with Banks and Oldfield (2007) and Kumar et al. (2025), who suggested that while cognitive and emotional financial mechanisms may influence decision-making, their mediating role is context-dependent and may be negligible in populations with stable financial behaviors. In practical terms, this suggests that household income drives consumption directly, whereas neurofinance functions primarily as a regulatory factor that moderates spending behavior without altering the fundamental income–consumption link.

These findings carry several implications. First, interventions aiming to influence household consumption in urban settings should prioritize economic measures, such as increasing household income or implementing income-support programs. This approach aligns with Akerlof and Shiller (2009), who emphasized the primacy of economic capacity in shaping consumption. Second, behavioral interventions, including financial literacy

programs targeting self-control, risk awareness, or cognitive regulation, may complement economic measures but cannot substitute for the direct effect of income on spending. Third, the results underscore the importance of contextualizing neurofinance approaches in household consumption studies, as their regulatory effect may vary depending on socio-economic conditions and the stability of behavioral traits. This study highlights that while household income is the dominant factor shaping consumption expenditure, neurofinance serves a limited regulatory function and does not operate as a significant mediator. The findings provide a nuanced understanding of the interplay between economic and behavioral factors, offering valuable guidance for both scholars and policymakers seeking to design strategies for sustainable and informed household consumption in urban communities.

CONCLUSION

This study concludes that household income has a strong and dominant direct effect on household consumption expenditure patterns in Makassar City. These findings indicate that actual economic capacity remains the primary factor shaping consumption behavior among urban households. Increases in household income are directly translated into higher consumption expenditure without requiring mediation through complex behavioral mechanisms. Therefore, the relationship between income and consumption in the urban household context continues to reflect the pattern described by conventional consumption theory.

The study does not find empirical evidence supporting the mediating role of neurofinance in the relationship between household income and household consumption expenditure. The weak effect of income on neurofinance demonstrates that changes in income levels do not automatically influence households' cognitive and emotional aspects of financial decision-making. Moreover, the weak effect of neurofinance on consumption expenditure suggests that mechanisms such as cognitive control, impulsivity, and emotional regulation do not function as primary channels linking income to consumption.

The dominance of the direct income–consumption effect and the insignificance of the mediating pathway confirm that the relationship model identified in this study is a direct-only model. This implies that household consumption in Makassar City is determined more by economic capacity than by cognitive and emotional financial behavior mechanisms. These findings underscore the contextual nature of neurofinance, indicating that it does not always operate as an intermediary mechanism in the income–consumption relationship, particularly in urban communities with relatively stable economic characteristics. This study is limited to urban households in Makassar City and uses cross-sectional, self-reported data, which may affect generalizability and causal inference. Future research should include more diverse samples, longitudinal designs, and behavioral measures of neurofinance to better examine its role in household consumption.

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