Perceptions and Factors influencing Cryptocurrency Investors: A study using TAM-UTAUT Analysis in North Coastal Andhra Pradesh

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Abstract. India's restrictive regulatory environment has driven users toward indirect cryptocurrency adoption through peer-to-peer (P2P) exchanges, decentralized wallets, and offshore platforms. This study examines the behavioral drivers of such adoption using the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). Applying Structural Equation Modeling (SEM) on a sample of 384 investors, the study compares these frameworks in explaining adoption behavior under regulatory constraints. The findings indicate that UTAUT provides a more comprehensive understanding of indirect adoption, as it incorporates factors such as facilitating conditions (e.g., access to VPNs, non-KYC platforms), social influence (peer networks, crypto influencers), and effort expectancy (platform complexity, regulatory adaptability). In contrast, TAM's focus on perceived usefulness and ease of use proves insufficient to capture the complexities of regulatory-driven adoption patterns. This study highlights how regulatory constraints amplify reliance on decentralized, high-risk alternatives, volatility, and legal ambiguities. UTAUT emerges as the superior framework for analyzing indirect adoption, emphasizing the interplay between socio-technical enablers and systemic barriers. The findings urge policymakers to recalibrate regulatory measures to balance innovation and consumer protection.

Keywords: Cryptocurrency Regulation, UTAUT, TAM, Indirect Adoption, P2P Platforms, Regulatory Arbitrage, Decentralized Finance (DeFi).

1 Introduction

Cryptocurrency adoption has surged globally, driven by decentralized finance (DeFi) innovations, blockchain transparency, and speculative investment opportunities. Countries like the U.S., Canada, and Singapore have embraced crypto-friendly regulations, fostering institutional participation and market growth, while India's regulatory landscape remains restrictive, characterized by punitive taxation policies

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such as a 30% tax on gains and 1% Tax Deducted at Source (TDS) on transactions. Despite these barriers, India ranked first in global crypto adoption between 2023 and 2024, with significant portion of its domestic investors owning digital assets, primarily for long-term returns and portfolio diversification. This paradoxical growth highlights the resilience of crypto adoption under stringent policies, as users increasingly rely on indirect methods like peer-to-peer (P2P) exchanges and offshore platforms to circumvent regulatory hurdles. For instance, after the Financial Intelligence Unit (FIU) issued compliance notices to nine offshore exchanges in 2023, platforms like Binance were temporarily blocked, only to re-enter the market after adhering to anti-money laundering (AML) norms [1]. Such regulatory shifts have diverted users toward decentralized alternatives, exposing them to risks like fraud, volatility, and legal ambiguities.

Existing studies on cryptocurrency adoption, such as those employing the Technology Acceptance Model (TAM), predominantly focus on direct usage in regulated environments, emphasizing perceived usefulness and ease of use [2]. However, under regulatory constraints, indirect adoption mechanisms, such as VPNs, non-KYC wallets, and social media-driven P2P networks, remain underexplored. While the Unified Theory of Acceptance and Use of Technology (UTAUT) incorporates socio-technical enablers like social influence and facilitating conditions [3], its application to indirect adoption in restrictive contexts like India is scarce. This gap is critical in regions such as Coastal Andhra Pradesh, where digital literacy gaps intersect with remittance-driven economies and crypto's borderless appeal.

This study addresses these gaps by analyzing the behavioral drivers of indirect cryptocurrency adoption in Coastal Andhra Pradesh using TAM and UTAUT frameworks. By comparing their explanatory power, it identifies how socio-technical factors, such as peer networks, platform complexity, and regulatory adaptability, shape adoption under systemic barriers. Focusing on the North Coastal Region, a socioeconomically diverse area with high remittance activity, the study examines 384 crypto investors sampled through convenience sampling, excluding direct platform-based transactions. The findings aim to inform policymakers on recalibrating regulations to balance innovation and consumer protection, particularly as regulatory ambiguity amplifies reliance on high-risk alternatives. The paper systematically explores these themes through a review of literature, structural equation modeling (SEM)-based methodology, and implications for adaptive policy frameworks.

2 Review of Literature

2.1 Cryptocurrency Adoption: Global and Indian Context

Global cryptocurrency adoption has accelerated, driven by decentralization, inflation hedging, and fintech innovation, with countries like El Salvador (Bitcoin as legal tender) and Switzerland (progressive crypto laws) leading mainstream integration [4]. In the U.S., institutional adoption surged post-2020, fueled by platforms like Coinbase and Bitcoin ETFs, while Nigeria's 35% below age of 60 crypto ownership rate reflects its use for remittances and currency stability. Key drivers include distrust in centralized financial systems (e.g., Venezuela's hyperinflation) and blockchain's transparency, which reduces transaction costs.

In India, adoption is uniquely investment-led, with majority of users holding crypto for long-term gains rather than daily transactions. Retail participation dominates, driven by mobile app accessibility (e.g., WazirX's 15 million users), youth demographics (most under 35), and social media influencers promoting "crypto wealth" narratives. Studies highlight demographic factors like income level (middle-class dominance) and education (tech-savvy urban populations) as adoption predictors, alongside

psychological drivers such as FOMO (fear of missing out) and perceived innovation. Risk perception, however, remains high due to volatility, with large number of Indian investors reporting losses in 2022.

2.2 Regulatory Landscape and Behavioral Impact

India's regulatory ambiguity began with the RBI's 2018 circular banning bank support for crypto exchanges, overturned by the Supreme Court in 2020 for violating proportionality [5]. Subsequently as stated earlier, the 2022 Union Budget exacerbated uncertainty by imposing a 30% tax on crypto gains and 1% TDS on transactions, treated as a disincentive for compliant trading [6]. This policy vacuum has shifted users toward indirect adoption: like usage of P2P platforms like LocalBitcoins, while decentralized wallets (e.g., MetaMask) and offshore exchanges circumvent KYC norms. Such behaviors remain understudied, particularly how regulatory friction amplifies reliance on high-risk alternatives.

2.3 Further Critical Insights

Ferdous et al. provide a comprehensive survey of consensus mechanisms in public blockchains, highlighting a shift from energy-intensive Proof-of-Work to more efficient alternatives like Proof-of-Stake. They introduce a decision-tree framework to aid in selecting appropriate consensus protocols, addressing the limitations of earlier fragmented taxonomies [7].

Choithani et al. explore the application of AI techniques such as LSTM, GRU, and SVM in cryptocurrency markets for tasks like price prediction, fraud detection, and risk mitigation. They emphasize AI's potential in enhancing financial stability and automating banking processes, while cautioning against overreliance on historical data [8].

Logeshwaran et al. assess blockchain's capabilities in cybersecurity, achieving an 86.82% threat detection rate. They underscore the importance of encryption and multi-signature wallets, though they note that human error remains an underexplored vulnerability [9].

Koroma et al. examine blockchain adoption in West Africa's Mano River Union, finding that transparency significantly boosts trust ($R^2 = 38\%$). However, ethical and regulatory gaps hinder progress, highlighting the need for inclusive, decentralized governance structures [10]. Ssaharti critiques the notion of cryptocurrencies as an inflation hedge, arguing that adoption is skewed toward affluent users. He emphasizes that fiat currency shocks and commodity supply manipulations play more substantial roles in inflation dynamics [11].

Sun et al. investigate institutional adoption of cryptocurrencies, revealing that real-time data access mitigates concerns over volatility [12]. Their survey of private equity managers indicates that innovation and familiarity foster trust in digital assets. An et al. explore the synergy between blockchain and AI in finance, viewing decentralization as a democratizing force [13]. They question the status of cryptocurrencies as safe-haven assets due to liquidity constraints and highlight AI's predictive power during the COVID-19 pandemic. Their concerns about Central Bank Digital Currencies (CBDCs) echo Ssaharti's macroeconomic skepticism.

Aggarwal and Kumar provide historical context by linking Bitcoin's early peer-to-peer innovations to contemporary blockchain infrastructure [14]. They tie these developments into Logeshwaran's cybersecurity themes, emphasizing technological continuity. Ranaldo et al. assess the efficiency of blockchain markets, noting that factors like gas fees and Ether volatility introduce friction [15]. They find that trader behavior influences market outcomes, reinforcing Sun et al.'s findings on institutional trust and Koroma's emphasis on ethical structures and transparency.

2.4 Theoretical Understanding of Behavioral Technology Models

Conventional adoption models, such as Diffusion of Innovation (DOI), inadequately address regulatory induced behavioral shifts. For instance, DOI emphasizes perceived relative advantage but overlooks systemic barriers like legal restrictions [16]. Davis's TAM posits that perceived usefulness (PU) and ease of use (PEOU) drive technology adoption [2]. In fintech, PU aligns with crypto's financial returns, while PEOU reflects app usability. However, TAM fails to explain why Indian users adopt indirect platforms despite high complexity (e.g., VPN setup), as external constraints dominate decision-making. Venkatesh et al.'s UTAUT integrates social influence, facilitating conditions, and effort expectancy, offering a broader lens for constrained environments [9]. For example, "facilitating conditions" like VPN access enable indirect adoption, while "social influence" explains peer-driven P2P usage. UTAUT's adaptability makes it suitable for analyzing regulatory workarounds, yet few studies apply it to India's crypto context.

TAM-based studies link crypto adoption to perceived profitability but neglect regulatory barriers. UTAUT frameworks, like analysis of social media influence, better capture contextual factors but focus on direct adoption. No studies comparatively assess TAM and UTAUT in explaining indirect adoption under regulatory pressure. While prior research explores crypto adoption drivers, empirical gaps persist in applying TAM and UTAUT to indirect adoption caused by regulatory constraints. This study fills this void through a comparative SEM analysis of 384 investors in North Coastal Andhra Pradesh, evaluating how socio-technical enablers (e.g., peer networks) and systemic barriers (e.g., taxation) shape behavior.

3 Overview of Cryptocurrency and Adoption in India

Cryptocurrencies, defined as decentralized digital assets secured by cryptography and blockchain technology, operate independently of central authorities, enabling peer-to-peer transactions through distributed ledger systems [17]. Key characteristics include decentralization (eliminating intermediaries like banks), transparency (publicly verifiable blockchain records), scarcity (fixed supplies, e.g., Bitcoin's 21 million cap), and programmability (smart contracts on platforms like Ethereum) [18]. These features have positioned cryptocurrencies as alternatives to traditional finance, attracting investors seeking inflation hedging, cross-border remittances, and speculative gains.

In India, Bitcoin remains the most widely adopted cryptocurrency, followed by Ethereum (favored for decentralized applications) and stablecoins like Tether (USDT), which mitigate volatility risks by pegging value to fiat currencies [4]. Despite regulatory uncertainty, these assets are accessed through two primary modes: direct platforms such as WazirX, CoinDCX, and Zebpay, which enforce Know Your Customer (KYC) norms under India's Anti-Money Laundering (AML) guidelines, and indirect platforms like decentralized wallets (MetaMask, Trust Wallet), peer-to-peer (P2P) exchanges (LocalBitcoins), and offshore apps (Binance, KuCoin), there are other than the above popular platforms, which circumvent KYC requirements through VPNs or non-custodial frameworks.

India's legal environment has oscillated between hostility and ambiguity by discouraging retail participation and while failing to clarify crypto's legal status [6]. This regulatory limbo has fueled significant user migration to indirect platforms reportedly using VPNs to access banned exchanges post-2023 FIU restrictions.

The Indian crypto ecosystem presents both risks and opportunities. Risks include fraud (rug pulls, phishing scams), market volatility (Bitcoin's biggest drop in 2022), and legal uncertainties (tax disputes, ambiguous inheritance laws). Conversely, cryptocurrencies offer financial inclusion for unbanked populations, low-cost

remittances, and decentralized finance (DeFi) innovations like microloans and yield farming. However, the lack of consumer protection frameworks exacerbates vulnerabilities, as seen in the 2023 WazirX phishing attacks that siphoned ₹120 crore from user wallets [20].

4 Research Methodology

4.1 Research Design

This study adopts a quantitative cross-sectional design to analyze indirect cryptocurrency adoption in North Coastal Andhra Pradesh. The theoretical framework integrates Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT). TAM variables (perceived usefulness, ease of use) and UTAUT constructs (social influence, facilitating conditions, effort expectancy) are operationalized to assess behavioral drivers under regulatory constraints.

4.2 Sample

This study focuses on the North Coastal region of Andhra Pradesh, based on the boundaries of the three original districts prior to their recent bifurcation. Although new districts have been formed, they are not yet fully functional as independent administrative units. Furthermore, since the latest available census data is from 2011 conducted before the bifurcation, the original district boundaries remain the most reliable and consistent framework for data collection and regional analysis and the districts are namely: Srikakulam, Vizianagaram, and Visakhapatnam.

This region presents a diverse demographic profile, blending urban centers like Visakhapatnam, a key economic and digital hub, with semi-urban and rural areas that are gradually embracing digital financial tools.

Using **convenience sampling with a stratified framework**, 384 crypto investors were selected based on accessibility and willingness to participate.

The sample size was calculated using the formula for an infinite population:

$$n = \left(\left(Z^2 . p . (1 - p) \right) / e^2 \right)$$

$$n = \left((1.96^2 . 0.5 . (1 - 0.5)) / 0.05^2 \right) \approx 384$$

$n = sample\ size$

$p = Estimated\ proportion\ of\ an\ attribute\ that\ is\ present\ in\ the\ population$ (0.5 $for\ maximum\ variability$

Z = *Z-Value (1.96 for a 95% confidence)*

e= margin of error (0.05)

4.3 District-wise Sample Distribution

1. **Visakhapatnam**: 220 respondents (57% of total) – High urban crypto activity.
2. **Vizianagaram**: 98 respondents (26%) – Semi-urban/rural mix.
3. **Srikakulam**: 66 respondents (17%) – Rural-dominated, remittance-driven economy.

4.4 Data Collection

Primary data was collected through a self-administered questionnaire distributed via WhatsApp and email to crypto investors in the target districts. The questionnaire based on TAM and UTAUT constructs. Of 400 responses received, 384 were retained after removing incomplete entries.

Secondary data for interpretation and analysis included RBI circulars, Union Budget documents, and blockchain analytics reports.

4.5 Objectives

1. To investigate the behavioral, social, and technological factors influencing cryptocurrency investment using TAM and UTAUT models.
2. To compare the effectiveness of TAM and UTAUT frameworks in explaining investor intention and actual use of cryptocurrencies under regulatory constraints.
3. To analyze how demographic factors and India's regulatory environment shape indirect cryptocurrency adoption in North Coastal Andhra Pradesh.

4.6 Alternate Hypothesis of Interest

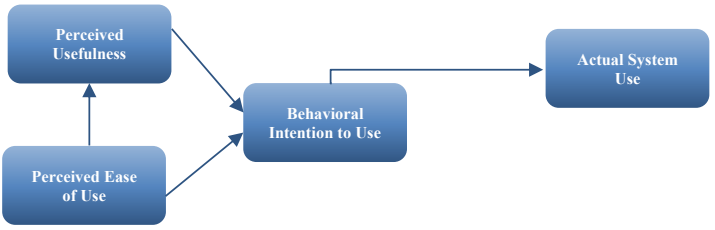
***H*1**: *UTAUT explains crypto investment behavior better than TAM in India's current regulatory environment.*

4.7 Statistical Tools

The study employed a combination of statistical tools to analyze data and test the proposed hypotheses. **Structural Equation Modeling (SEM)** was conducted using AMOS 27 to compare the explanatory power of TAM and UTAUT models. SEM enabled the assessment of causal relationships between latent variables, such as regulatory constraints and adoption intent, while maintaining acceptable model fit indices (CFI > 0.90, RMSEA < 0.08). **Descriptive statistics** were used to summarize participant demographics, including gender distribution and age range. Additionally, the study ensured **reliability and validity** of the constructs using **Cronbach's alpha** (values > 0.7 for internal consistency).

4.8 TAM and UTAUT integrated Framework for Comparison

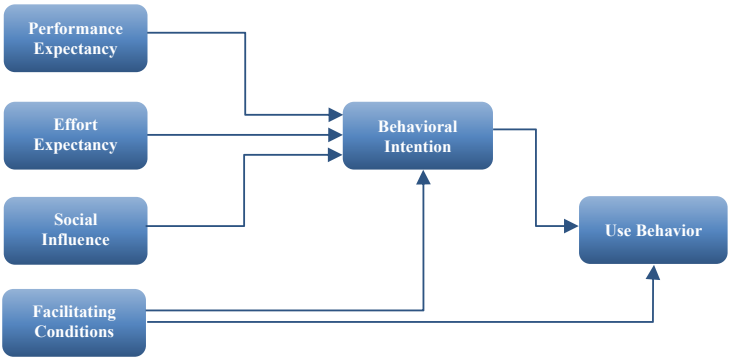
This study integrates the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) to analyze cryptocurrency adoption in North Coastal Andhra Pradesh. Both models focus on user behavior, with TAM emphasizing Perceived Usefulness (PU) and Perceived Ease of Use (PEOU), while UTAUT includes Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC).



Source: Adapted from Davis (1989)

Figure 1. TAM Model

Common constructs like PU/PE and PEOU/EE are unified for simplicity. Both models link Behavioral Intention (BI) to Actual Use (AU), which is crucial in assessing real crypto investment activity. By combining elements of both models, the study offers a comprehensive yet streamlined framework tailored to India's evolving regulatory context.



Source: Adapted from Venkatesh et al. (2003).

Figure 2. UTAUT Model

5 Results and Discussions

The study employed a structured questionnaire to assess behavioral and perceptual factors influencing cryptocurrency adoption among individuals residing in the North Coastal Andhra Pradesh region. The instrument was designed based on an integration of the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), tailored to the specific context of cryptocurrency investment and trading practices in India.

Table 1. Demographic Statistics

Demographics		*Count*	*Percentage*
District	Srikakulam	66	17.19
	Visakhapatnam	220	57.29
	Vizianagaram	98	25.52
Age Group	Gen Z (1997-2012)	111	28.91
	Millennials / Gen Y (1981-1996)	130	33.85
	Gen X (1965-1980)	91	23.7
	Baby Boomers (Before 1965)	34	8.85
	Other	18	4.69
Gender	Female	192	50
	Male	184	47.92
	Other	8	2.08
Educational qualification	Undergraduate	224	58.33
	Postgraduate	119	30.99
	PhD	23	5.99
	Other	18	4.69
Occupation	Salaried Employee	140	36.46
	Self-Employed	60	15.62
	Student	163	42.45
	Other	21	5.47
Monthly Income	Less than ₹25,000	208	54.17
	More than ₹100,000	73	19.01
	₹25,000-₹50,000	103	26.82
Cryptocurrency experience	1-2 years	104	27.08
	3-5 years	121	31.51
	More than 5 years	90	23.44
	No experience	69	17.97
Platforms used for crypto	Investment	194	50.52
	Trading	123	32.03
	Both	67	17.45

Source: Computed using SPSS

To frame the study in a grounded socio-economic context, demographic variables were first captured, including age, gender, educational background, income level, and prior experience with cryptocurrency. These variables were used not just for descriptive statistics, but also to ensure that the subsequent behavioral and perceptual responses could be interpreted within the diversity of user characteristics. While these demographic elements were not used as core constructs in TAM or UTAUT, they helped validate the representativeness and relevance of the sample, allowing for meaningful subgroup comparisons during analysis.

The core of the analysis is structured around latent variables derived from TAM and UTAUT models, each measured through observed variables rated on a 5-point Likert scale and mapped to respective latent variable like PU. For example, Perceived Usefulness (PU) was captured using items PU1, PU2, and PU3, focusing on perceived returns, financial goal achievement, and utility under regulation. Effort Expectancy (EE) encompassed ease of learning and platform usage (EE1–EE3). Behavioral Intention (BI1–BI3) assessed willingness to continue using crypto and to recommend it.

Social Influence (SI1–SI3) reflected peer and influencer effects, while Facilitating Conditions (FC1–FC3) examined access to tools and resources enabling usage. Finally, Actual Use (AU1–AU3) gauged real engagement through usage frequency, transactions, and portfolio monitoring. This structured framework allowed the integration of both perceptual and behavioral dimensions of crypto use under regulatory uncertainty, ensuring that findings are not just statistically valid but also grounded in the lived realities of diverse user segments.

Table 1 presents the demographic profile of the respondents, which provides essential context for interpreting behavioral patterns and preferences.

A majority of participants were from Visakhapatnam, followed by Vizianagaram and Srikakulam, suggesting a concentration of responses from more urbanized or digitally connected areas. Age-wise, Millennials formed the largest group, followed closely by Gen Z and Gen X, indicating that the study primarily captured the views of younger to mid-aged populations who are typically more adaptive to digital innovations. Gender distribution was nearly balanced, with female respondents slightly outnumbering males, while a small percentage identified outside the binary, ensuring inclusive representation. Educationally, over half of the respondents held undergraduate degrees, and nearly one-third had completed postgraduate studies, reflecting a reasonably well-educated sample likely capable of understanding and engaging with cryptocurrency-related concepts.

Occupational data revealed that students formed the largest segment, followed by salaried employees and self-employed individuals, offering a diverse mix of early-career and economically active participants.

In terms of income, over half reported earning less than ₹25,000 per month, while a smaller but notable group earned over ₹1,00,000, indicating varied financial capacities among the sample. Most respondents had some experience with cryptocurrency, particularly within the 1–5-year range, highlighting growing familiarity among the public.

Regarding platform usage, half of the respondents used them mainly for investment, a third for trading, and the remainder for both, suggesting that different motivations drive engagement with crypto platforms. These demographic insights enhance the understanding of contextual factors influencing respondents' behavioral intentions in digital finance.

To assess the internal consistency of the latent variables used in the study, Cronbach's Alpha values were calculated for each construct.

The results in Table 2 indicate that all constructs demonstrated strong internal reliability, with alpha values exceeding the commonly accepted threshold of 0.80. Specifically, Perceived Usefulness (PU) recorded an alpha of 0.804, Effort Expectancy (EE) 0.803, Behavioral Intention (BI) 0.801, Social Influence (SI) 0.805, Facilitating Conditions (FC) 0.810, and Actual Use (AU) 0.817. These values reflect a high level of internal consistency among the items within each construct, confirming the reliability of the measurement model.

Table 2. Reliability Test Results

Latent Variable	*Cronbach Alpha*
PU	**0.804**
EE	**0.803**
BI	**0.801**
SI	**0.805**
FC	**0.810**
AU	**0.817**

Source: Computed using SPSS

Table 3. SEM Model Fit Indices Comparative results for TAM and UTAUT

Model Fit Indices	Ideal Range	TAM (PU, EE → BI → AU)	UTAUT (PU, EE, SI, FC → BI → AU)
CFI (Comparative Fit Index)	**> 0.90**	**0.85**	**0.95**
TLI (Tucker-Lewis Index)	**> 0.90**	**0.86**	**0.94**
RMSEA (Root Mean Square Error of Approximation)	**< 0.08**	**0.10**	**0.05**
SRMR (Standardized Root Mean Square Residual)	**< 0.08**	**0.09**	**0.04**
AIC (Akaike Info Criterion)	**Lower is better**	**55.82**	**93.45**
BIC (Bayesian Info Criterion)	**Lower is better**	**166.43**	**279.13**
Cross-Validation R^2	**Higher is Generalization**	**65%**	**78%**

Source: Computed using SPSS

The comparative model fit analysis in Table 3 shows that the UTAUT model provides a significantly better fit to the data than the TAM model.

While the TAM model exhibited below-threshold fit indices (CFI = 0.85, TLI = 0.86, RMSEA = 0.10), the UTAUT model met all recommended thresholds (CFI = 0.95, TLI = 0.94, RMSEA = 0.05), indicating a superior representation of the observed data. This suggests that the additional constructs in UTAUT, such as Social Influence and Facilitating Conditions, may play a crucial role in shaping user intention and behavior in this context.

Table 4. Indian Regulative Environment Survey Response Statistics (RE)

Observed Variable	Survey Question	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
RE1	*India's regulations discourage direct cryptocurrency use.*	12	28	60	194	90
RE2	*Due to regulations, I use indirect routes (VPN, offshore platforms).*	18	40	52	205	69
RE3	*I feel uncertain about the legal status of my crypto investments.*	14	30	56	198	86
RE4	*I am unclear about whether crypto trading profits are taxable.*	15	35	50	193	91
RE5	*The government's position on cryptocurrency affects my investment decisions.*	20	36	41	197	90
RE6	*I am aware that RBI does not recognize cryptocurrency as legal tender.*	10	18	72	188	96

Source: Computed using SPSS

The observed differences in model fit between TAM and UTAUT are not attributable to measurement unreliability, but rather to the structural differences between the two theoretical models.

The survey results in Table 4 clearly indicate that the majority of respondents perceive India's regulatory environment as restrictive towards direct cryptocurrency usage. For RE1, a substantial portion of participants (194 agreed and 90 strongly agreed) acknowledged that India's regulations discourage direct use of cryptocurrency, confirming that regulatory frameworks are viewed as a major hindrance to open participation in the crypto market. Following this, RE2 reveals an even stronger insight into behavioral response to regulation.

A total of 274 respondents (205 agreed and 69 strongly agreed) admitted to using indirect routes such as VPNs, non-KYC, or offshore platforms due to regulatory barriers. This reflects not just discontent with current policies but also an active shift in behavior, where users find ways to bypass restrictions to access digital assets, potentially increasing their exposure to legal and security risks. RE3 highlights another critical issue: legal uncertainty.

A combined 284 respondents either agreed or strongly agreed that they feel unsure about the legal status of their crypto investments. This uncertainty contributes to anxiety and hesitation among users, especially when investing larger amounts or engaging in long-term holdings. The lack of clear, consistent legal recognition or protections appears to leave users in a grey zone, heightening the perceived risk of participation.

Similarly, RE4 reflects that a lack of clarity regarding the tax implications of crypto trading is another concern. 193 agreed and 91 strongly agreed that they are unclear whether profits from crypto trading are taxable, suggesting that the existing tax communication is either insufficient or confusing to the public. This could lead to underreporting, unintentional non-compliance, or deliberate avoidance due to misunderstanding or fear. RE5 further reinforces the impact of the regulatory stance by showing that the government's position on cryptocurrency significantly influences investment decisions. With 197 agreeing and 90 strongly agreeing, it's evident that many users closely watch policy shifts and government announcements to guide their behavior. This reflects high regulatory sensitivity, where even speculative news or policy drafts can cause substantial market reactions. Finally, RE6 points to a relatively better awareness level. A majority (188 agreed and 96 strongly agreed) of respondents are aware that the Reserve Bank of India (RBI) does not recognize cryptocurrency as legal tender. This suggests that, despite confusion in other areas, the official status of crypto is widely understood, potentially due to repeated media coverage and RBI's consistent messaging.

6 Conclusions and Suggestions

The study has explored two prominent technology adoption frameworks, TAM (Technology Acceptance Model) and UTAUT (Unified Theory of Acceptance and Use of Technology), to understand behavioral shifts in cryptocurrency adoption. While TAM emphasizes perceived usefulness and ease of use, it falls short in explaining user behavior in high-stakes, socially charged environments like cryptocurrency trading. In contrast, UTAUT proves more robust, particularly because it incorporates social influence, a critical factor in the crypto landscape.

In the world of cryptocurrency, social networks, peer recommendations, and community engagement play a central role in shaping user decisions. Whether through online forums, influencer-driven platforms, or word-of-mouth in close circles, social influence often overrides technical concerns, especially for new entrants. The collective perception of legitimacy, risk, and opportunity within these communities significantly drives adoption, far more than the utilitarian measures TAM accounts for. This makes UTAUT especially relevant in contexts where informal knowledge sharing and peer behaviors dictate adoption pathways, even amid regulatory uncertainty.

The study also reveals that rigid regulatory environments often push users toward indirect or alternative access methods, such as VPNs, non-KYC platforms, and peer-to-peer exchanges. While these routes provide entry into the crypto market, they increase exposure to fraud, market volatility, and ambiguous legal implications. Thus, ironically, stringent regulations may unintentionally promote unsafe behaviors, undermining their intended purpose of consumer protection.

To address these challenges, the study recommends a multi-pronged approach. First, policymakers must adopt a more nuanced regulatory framework, one that balances innovation with protection. Tools like regulatory sandboxes can facilitate safe experimentation while maintaining oversight. Second, educational programs should be expanded to equip users with the skills and knowledge to navigate the crypto ecosystem securely, emphasizing both opportunities and risks. Finally, collaborative efforts between regulators and industry stakeholders are essential for developing standards that ensure market stability without stifling innovation.

In conclusion, the dominance of social influence in crypto adoption highlights the limitations of traditional models like TAM. UTAUT's comprehensive structure better captures the sociotechnical dimensions of adoption, especially in high-risk, high-innovation environments. A recalibrated regulatory strategy with thorough monitoring on different social platforms of crypto-awareness transmission, grounded in education, inclusivity, and collaboration, is key to fostering a secure and forward-looking digital financial ecosystem.

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