CRYPTOCURRENCIES IN COMMERCE

Consumer Adoption Report | 2023

"Global market research on perception, preference, and experience of cryptocurrency shoppers."







Cryptorefills

Cryptocurrencies in Commerce
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EXECUTIVE SUMMARY

This report presents the outcomes of the third edition of the first and largest ongoing research project regarding the consumer use of Bitcoin and other cryptocurrencies for retail shopping and associated payments. The research reveals the demographics of crypto-consumers, their user experiences, their perception of crypto-shopping, and the market-wise adoption of crypto-payments. The report presents quantitative and qualitative insights into who these consumers are and why they use cryptocurrencies as a means of paying for goods and services; as well as how satisfied they are with their experiences so far. By combining the information gathered from our survey (conducted with 516 unique participants) and our business/transaction data, we observed that paying for goods and services with cryptocurrency is in demand and considered useful by users even with the current technical and business challenges. New solutions, although still fragmented, are being offered to crypto shoppers to overcome the current challenges and improve the overall shopping experience. While we feel quite confident in saying that shopping with cryptocurrencies is still in its infancy, it is growing and evolving at an incredible pace and is likely here to stay.

KEY FINDINGS

After careful analysis of the collected data, there were a number of important findings:

1. Crypto-consumers are scattered all over the globe. Although they have varying demographic features and socioeconomic backgrounds, there are some patterns observed: being a male younger than 35, being from a lower-middle-income country, earning less than $20,000 annually, and being self-employed are all widespread features, if not stereotypical. As many as half of the crypto-consumers live in lower-middle-income countries, a fifth live in the most struggling economies, and one-sixth are migrants living in developed economies with potentially tight budgets. For many of these crypto-consumers, participating in the global digital economy is only possible through the use of cryptocurrencies.

2. Crypto-consumer population can be grouped under 7 distinct segments according to their age, annual income, employment type, enthusiasm for crypto, crypto-shopping habits, spending patterns, exposure to blockchain, and other socioeconomic features. All segments have their reasons and expectations regarding crypto-shopping. Limiting the customer profiles to highincome employees who do crypto-shopping discretionarily and individuals trying to escape poverty through minor freelance tasks that earn them crypto would be an underestimation of such a large community.

3. Bitcoin's popularity among shoppers is slowly declining. Higher fees and longer processing times associated with Bitcoin transactions undermine its usability in shopping. Adoption of Lightning Network may slow the decline, though. Still, almost 60% of crypto-consumers keep Bitcoin in their wallets. Ether is no longer the second most popular currency, but Tether (USDT) is, as it is owned by more than half of crypto-consumers. Stablecoins' popularity is rising very fast. Other currencies (e.g., Litecoin, Tron, Dash) may be favored by fewer people today, but thanks to their high speeds and low transaction costs, they are popular for shopping. The cryptocurrencies that crypto-consumers use for shopping today are not necessarily the ones that they would prefer to shop with. This may drive adoption for faster blockchains and scalability solutions for the most favored currencies, or, as shopping with cryptocurrencies increases, users may start changing their preferences towards currencies that deliver the best shopping experience.

4. Scalability methods and alternative networks are viable solutions to many issues faced during crypto-shopping (e.g., speed, cost, etc.), yet their current recognition and adoption are limited. The Lightning Network is the first scalability network available for shopping, and it serves the most favored coin by shoppers (i.e., Bitcoin). Moreover, crypto-consumers using the Lightning Network or other layer-2 solutions engage in daily crypto-shopping 8x more than non-users.

5. Most crypto-consumers believe that crypto-shopping has outstanding potential and will be more common in the future. Also, 64.9% of crypto-consumers claim that they will buy something with cryptocurrency in the next 6 months. Furthermore, 51% claim that they will do crypto-shopping within the next month, showing that crypto-consumers are making a habit out of crypto-shopping.

6. Store or product unavailability is a top concern among crypto-consumers (33.9%). More than half of the crypto-consumers prefer or fall back on indirect shopping via gift cards, vouchers, or coupons; a neat solution to access stores or products that are currently unavailable for direct crypto-shopping (e.g., due to marketing strategies or company policies). The unavailability of a crypto-payments option for most renowned brands and stores likely explains why crypto-consumers consolidate their crypto-shopping activities at one-stop shops (such as Cryptorefills) that can satisfy a variety of customers' needs via gift cards. Moreover, one-third of crypto-consumers use crypto-backed credit cards to overcome the issue.

7. Apart from the availability issues, crypto-consumers believe that high transaction fees (35.5%), complexity of current payment systems (16.9), price volatility (16.2%), long processing delays (16%), and frauds/scams (14.8%) are the current barriers preventing the mass adoption of crypto-shopping.

8. Crypto-shopping is not just another fancy payment method; rather, it is a decent solution for many social, economic, and technical issues. This includes, but is not limited to, the financial inclusion of un-or-underbanked people who survive by completing minor online tasks or owning a small business, avoiding excessive or rigid regulations, mitigating privacy concerns, preventing losses from buy/sell spreads for people already earning crypto-money, and enabling cheaper and faster alternatives to current remittance methods.

WHAT CHANGED IN 1 YEAR?

1. Transaction fees once again become the biggest concern in crypto-shopping, slightly surpassing the scarcity of stores accepting crypto and the unavailability of desired products.

2. The dominance of Bitcoin (and Ether) among cryptocurrencies used in shopping continued to weaken significantly due to the increasing popularity of stablecoins, especially USDT.

3. Stablecoins are becoming more common among crypto-consumers as 53.2% have USDT, and 9.7% have USDC in their wallets. The increased availability and adoption of alternative networks and layer-2 protocols increased stablecoin usage.

4. South Asia market experienced large growth in their number of crypto-consumers and placed in the first spot.

5. Share of crypto-consumers who utilized the Lightning Network for transactions increased by 20%

6. Use of gift cards for shopping with cryptocurrencies increased by 10%.

Cite this research as;

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ABOUT THIS REPORT

The first and largest research project considering the consumer use of Bitcoin and other cryptocurrencies for shopping and payments. Quantitative and qualitative insights into who these consumers are and why they use Bitcoin and other cryptocurrencies as a means to pay for goods and services.

Our research is limited to cases where the end-user (i.e., consumer) pays for goods and services using only blockchain technology. In other words, we are not covering hybrid payment technologies such as debit cards funded by cryptocurrencies or credit cards backed by crypto assets. This does not mean that we do not see these as promising services which could possibly compete with pure blockchain payments. In fact, such hybrid services do overcome some of the complexities of the user experience we will see in our research. However, hybrid payment systems (e.g., Swipe, Nexo, and Binance cards, etc.) must also rely on traditional infrastructure (MasterCard, Visa, etc.); therefore, we will consider them out of the scope of our research for the moment. We may consider including them in future studies.

We believe this research to be insightful and useful for professionals operating within the crypto and blockchain industry, as well as for professionals of the general financial industry, regulators, and retailers. Ultimately, only by understanding what users really need can we deliver the optimal technical and business solutions.

Support Our Research

We joined the blockchain industry in 2018, later than many other players. We quickly learned that this industry is all about (its) community: “join for greed, stay for the revolution”. In 2020, while reviewing our data and the surveys we used to improve our product, we realized that there was so much value in this information, we could not keep it only for ourselves. Regardless of being hesitant at first, we still decided to publicly share our knowledge as we believe it can be beneficial to our industry. Despite this report being distributed free of charge, a lot of hard work was put into it, so please consider purchasing one (or more) digital license or donating to us!



FOREWORDS

Welcome to the third edition of the Cryptorefills Report, a pioneering and comprehensive analysis that stands as the first and largest global investigation into consumer adoption of cryptocurrencies as a means of payment in commerce.

This year, we've expanded the report even further by adding a new section on the news channels and social media preferences of crypto shoppers. And building further on last year's introduction of the Cluster Analysis, which is now entirely reworked using the most up-to-date data and k-prototypes approach. We now describe these clusters with more detail to understand who the shoppers are in each segment, and what technical, economic, social, and psychological factors drive them to use cryptocurrency for buying goods. We also provide data on the news and social media channel preferences for each cluster in order to provide marketers with actionable data to reach these segments.

The 2023 data brings to light both expected and surprising elements. Transaction fees and the limited availability of stores/products accepting cryptocurrency remain the top concerns for crypto-shoppers, with 35.5% citing transaction fees and 33.9% pointing to availability issues. While the concern about transaction fees remains consistent with 2022 (35.3%), there's a noticeable decrease in worries regarding the availability of crypto-accepting stores/products (down from 40.5% in 2022). This suggests a gradual increase in the availability of crypto payment options in the market. Interestingly, the fear of frauds and scams, a major concern in 2022, has dropped significantly in this year's rankings, indicating a healthier marketplace and possibly increased trust in crypto payments among established brands and retailers.

Overall, the evolving crypto market is showing signs of maturation. The integration of stablecoins and layer 2 solutions alleviates issues related to transaction fees. Moreover, the growing adoption of crypto-shopping by customer segments with basic or no knowledge of blockchain suggests that this payment method is becoming more practical and fulfilling real needs for various segments of the global population.

Since 2019, Cryptorefills has been at the forefront of applying blockchain payments and technologies. Our Labs unit not only drives our innovation but also symbolizes our commitment to educating and guiding the sector. We extend our gratitude to our partners for their support in this research. Our special thanks go to the crypto-shoppers who generously contributed their time and insights in answering our extensive survey, enabling us to construct a robust and informative dataset.

Massimiliano Silenzi
CEO of Cryptorefills



CRYPTO-GLOSSARY

Blockchain and crypto-currency technologies are fairly new and still under comprehensive development. Hence, it is not uncommon for users and developers throughout the world to use various terms for different concepts. For the sake of consistency, we will now present the terminology used in the report:

Crypto-consumers (or crypto-shoppers) are customers who purchase digital items (except for cryptoassets), physical goods, or services of any kind by means of crypto-shopping.

Crypto-shopping is a form of online shopping where the price of the purchased goods or services are paid in terms of crypto-assets, instead of fiat money or other commodities.

Crypto-shops (or crypto-stores) are (mostly, but not necessarily) online stores that accept payments from customers using crypto-assets.

Crypto-assets are a digital and decentralized means of storing value. They are created via cryptographic methods and may assume the form of currencies, coins, tickets, non-fungible tokens (NFT), securities, bonds, etc. Note that not all crypto-assets can be used as digital money.

Cryptocurrencies constitute a large subset of crypto-assets that can be exchanged between users and used for trading or commerce purposes. Cryptocurrencies are sometimes referred to as “crypto-money” or shortly, “crypto”.

Crypto-exchanges (or cryptocurrency exchanges) are web platforms (usually with mobile apps) that allow people to buy, sell, store, exchange, and invest in various cryptocurrencies.

Crypto-commerce is an umbrella term for commercial activities (including crypto-shopping) that are achieved through sending and receiving crypto-assets.

Decentralized Autonomous Organization (DAO) is an organization represented by rules encoded as a transparent computer program, administered by the organization members, and not influenced by a central government. A DAO’s financial transaction record and program rules are maintained on a blockchain.

Decentralized Finance (DeFi) refers to a set of blockchain-based financial applications and protocols that aim to recreate traditional financial systems (e.g., lending, borrowing, and trading) without intermediaries, using smart contracts.

Distributed Application (Dapp) is a piece of software that is designed to run, at least partly, on a blockchain network in a distributed fashion.

Lightning Network is a special “layer-2” payment protocol that operates on the Bitcoin blockchain. It aims to accelerate the transactions among participating nodes and present itself as a solution to the scalability problem. It features a peer-to-peer mechanism for making payments on a network of bidirectional payment channels without delegating the custody of funds.

Non-fungible Token (NFT) is a type of crypto-asset with distinctive identification numbers/codes making each individual token a unique asset.

Stablecoin is a unique cryptocurrency type, characterized by their exchange value being pegged to the exact value of another (non-crypto) asset, like a fiat currency (e.g., USD) or a precious metal (e.g., gold).



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1. INTRODUCTION

1.1 Introducing blockchain payments

Blockchain payments are what make crypto-shopping possible. For the readers less knowledgeable about blockchain technology and the associated payments, we will now provide a short framework to use as a reference for understanding the scope of this research.

Figure 1 illustrates a sample of the step-by-step user experience of a blockchain-based purchase (a.k.a., crypto-shopping).

1. The user is shown the product that they want to purchase with a price in the selected cryptocurrency. The price of goods and services in a cryptocurrency is usually calculated on the fly by converting the related fiat price to the selected cryptocurrency price.
2. Once the order is complete, the user is shown a payment page with the payment instructions. This will include the recipient wallet address of the merchant and the amount to be transferred. Usually, the user is given a short time frame (e.g., 15 minutes) to initiate the payment due to the volatility of the cryptocurrency rates and the risk of exchange loss for the merchant.
3. The user then opens his/her crypto wallet and inserts the required amount and address of the merchant. Later, he/she authorizes the transfer of the cryptocurrency.
4. As soon as the merchant detects that the payment has been initiated by the user, they will often inform the user that the payment is being processed.
5. When the merchant deems that sufficient confirmations have taken place on the blockchain, they will confirm the completion of the transaction and authorize the delivery of the product or service to the user.

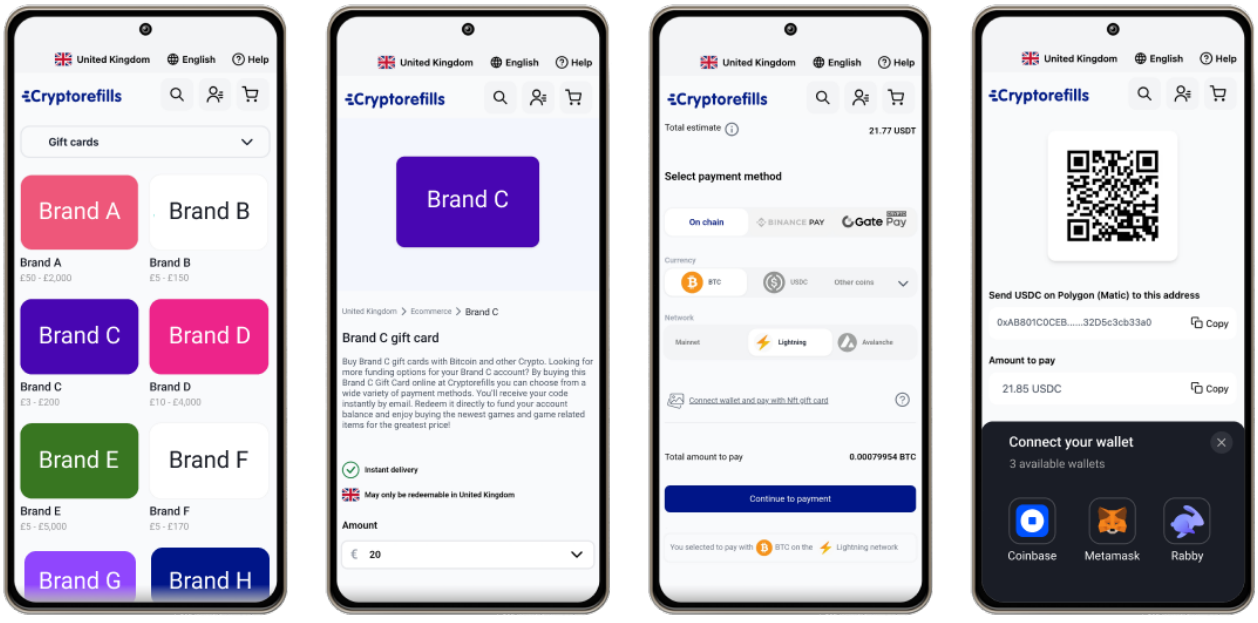


Figure 1: An example indirect (i.e., via gift card) crypto-shopping procedure, shown step-by-step.

1.2 Centralized vs. decentralized payments

The consumer experience within a blockchain payment system is very different from traditional digital payments, as illustrated in the example provided in Figure 1 above. It is beyond the scope of this report to provide a detailed and exhaustive explanation of how blockchain payments work and why they are different from the current "centralized" digital payments. So, we present here only a brief overview of the functionality of blockchain payments, as well as what makes them so special and different.

In a centralized payment system, the user gives a "confirmation" to an organization (i.e., a central authority) that will authorize the payment or transfer of a certain amount on behalf of the user; the amount authorized will then be transferred to the recipient's account through another central authority (e.g., a bank or credit institution). The user generally gives such confirmation by typing credit card details or logging in with a PIN code and/or submitting two-factor authentication (2FA) codes. When the processor is sure that the user wants to proceed with the transaction, they will inform other "centralized authorities" (e.g., banks, acquiring banks, e-money providers, credit institutions, etc.) to proceed and charge the user with the amount of the transaction by deducting it from the balance of the bank account or charging it to the credit card balance.

Blockchain-based payments (in their most common form) are written on a decentralized ledger. This means that every single transfer of value occurring between two different accounts (i.e., public addresses or wallets) is recorded on a single ledger, which works by broadcasting each transaction to the rest of the network and waiting for the blockchain network to confirm the validity of the transaction. There are a few noteworthy technological and business-related aspects of such uses of decentralization within the most common blockchain networks for payment purposes:

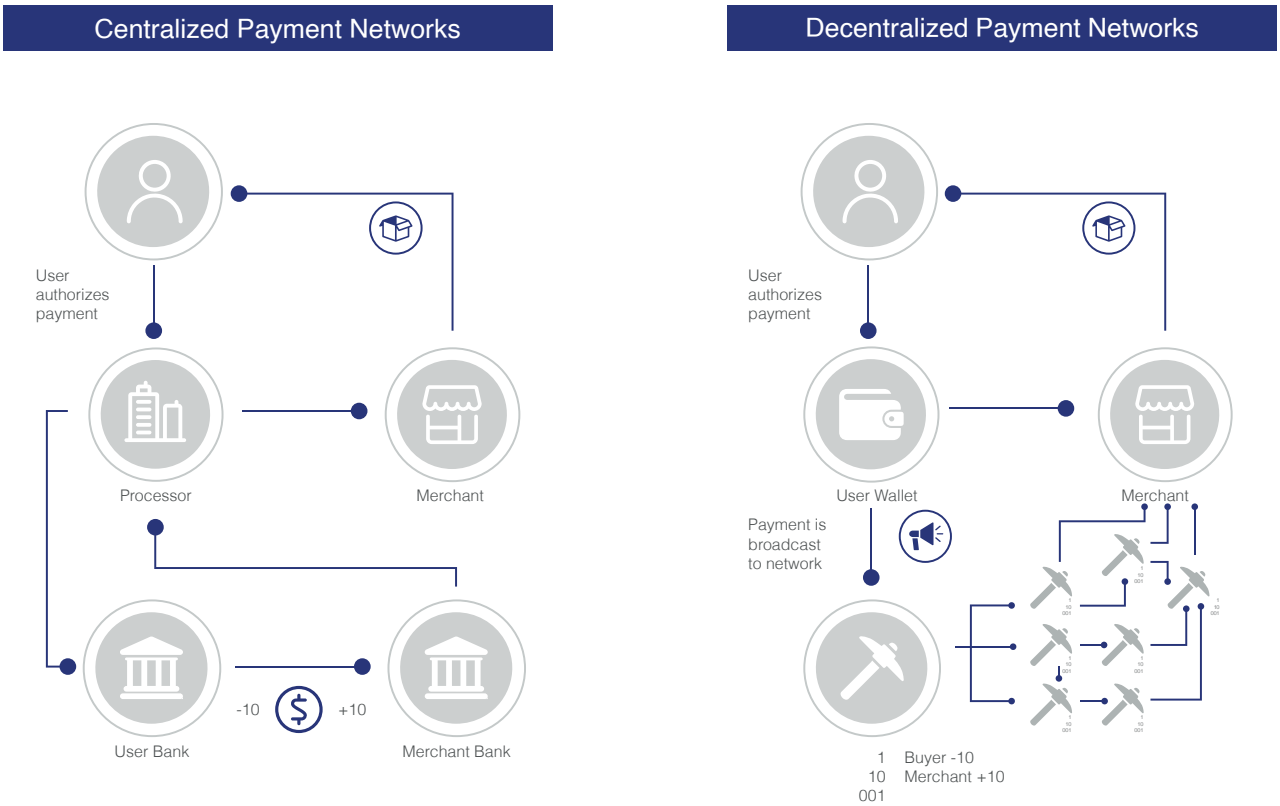


Figure 2: The difference between the procedures of centralized and decentralized payments.

Authorization: : The user (i.e., the consumer) is responsible for the payment authorization. That makes it the consumer's responsibility to:

- Set the correct amount of currency for the payment to be made,
- Provide the correct address of the recipient of the payment or transfer,
- Authorize the payment by creating a payment transaction and broadcasting it to the network (unless a centralized authority is holding the funds for the consumer, such as a custodian or an exchange).

Confirmation: In order for the payment to be correctly processed on the network, the consumer must (generally):

- Pay a certain amount of network fees to reward the nodes which confirm the validity of the transaction,
- Wait a varying amount of time in order for a certain amount of nodes to confirm the validity of the transaction.

Exchange: Currently, the most widely adopted cryptocurrencies for making purchases (Bitcoin, Litecoin, Ether, etc.) are "volatile" in terms of their fiat values, and their prices (i.e., exchange rates) fluctuate with respect to the USD, EUR, or other fiat currencies. This may bring a wide array of implications both on the consumer's and the merchant's sides, ranging across pricing transparency, exchange rate losses/gains, accounting, and taxation.



1.3 Decoupling currencies from protocols

It may be confusing at first, but blockchain protocols and cryptocurrencies are two very different things, even when they have the same name. For example, the words "Bitcoin", "Litecoin", or "Dash" may refer to the cryptocurrency, as well as the underlying protocol that operates how the currency functions. A Bitcoin could be moved between two wallets by using the Bitcoin protocol. Some blockchains have adopted a different name for their native currency, for example, Ether (ETH) for the Ethereum network or Avax for the Avalanche network. When referring to the currency, the abbreviation is often used (BTC, LTC, XRP, FTM, etc.) rather than the protocol name.

Some networks support not only their native currencies but also other tokens or cryptocurrencies. For example, the Ethereum network supports most stablecoins, such as the widely adopted USDT, USDC, and DAI. Other blockchain networks such as Avalanche and Fantom (and layer-2s such as Arbitrum, as we will see further on) support different tokens as well, including stablecoins.

To make a similarity with traditional payments, the blockchain protocol (e.g., Bitcoin, Ethereum) is like the payment network (e.g., SWIFT, Maestro), while the tokens (Bitcoin, ETH, USDC, USDT) are the currency (US Dollar, Japanese Yen, etc.). To a certain extent, it is possible to transfer cryptocurrencies across different networks and protocols, just like we wire money between two accounts and then withdraw it into cash or use it on PayPal.

We highlight this conceptual difference between protocols and currencies as it is important for the less blockchain-savvy reader to understand some of the implications in terms of user preferences. Specifically, the way a certain crypto-currency is used may vary depending on the underlying protocol being used. I makes little sense to buy 5 USD worth of product using the Bitcoin main protocol (running on the main network, called mainnet), sustaining up to double or more the amount in processing fees and waiting minutes, if not hours, for the confirmation. However, it could make sense to make this small purchase in Bitcoin using the Lightning network (close to zero fees, immediate transaction). In the end, either network may be preferred based on a user's use case or potential savings. A similar example could be made for the use of stablecoins, which have substantial fees across the Ethereum network (v1) but can be transferred with close-to-zero fees and immediate confirmation across other blockchains; this means that Ethereum (v1) could be less preferable for small purchases made with stablecoins.

1.4 Understanding scalability

Mass adoption of blockchain-based payments requires the system to be scalable and cheap for both merchants and customers. For example, Visa claims it can handle 65,000 transactions per second[2]. In contrast, it is estimated that the Bitcoin network can handle between 3.3 to 7 transactions per second[3]. This is due to the fact that the (on-chain) transaction processing capacity of the Bitcoin network is by the block size limit of 1 megabyte and the average block creation time of 10 minutes. The original Ethereum mainnet (v1), which is not only used for its native ETH token but also for other ERC-20 tokens (including all major stablecoins), supports about 15 transactions per second.

Furthermore, as explained earlier, it is not only about the capacity, but the costs that must be reasonable too. Most blockchain networks apply fees that are not in any way related to the size of the transaction being processed. In 2022 (up to July 31st), the daily average transaction fees on the Bitcoin network varied between $0.93 and $4.99. These figures are also not the highest recorded on the Bitcoin Network. In 2021, we saw the highest daily average fees reach $62.78 in a moment of strong congestion of the network. This year (up to July 31, 2022), the on-chain Ethereum (v.1) Network's daily average fees varied between $1.65 and $196.68 for ETH transactions. The cost of Ethereum was much higher when transferring stablecoins due to the gas required for using the smart contract of the ERC-20 tokens.

Overall, scalability, capacity, speed, and costs, are well-known issues. And through the years, different approaches and related solutions have emerged. Each solution has its characteristics or possible downsides. Some solutions are considered less secure, while some are less or not at all decentralized, and others not secure, practical, or easy to use. It is out of the scope of this research and introduction to explain the detailed mechanisms of such technical matters, or even take a position as to the benefits vs. the downsides of proof-of-stake versus proof-of-work, the actual security, or decentralization of specific protocols. There is a huge variety of opinions and no unanimous consensus on such topics (even though we may have our views). However, it is important that the reader understands that the scalability and price issue is definitely a topic that will also influence decisions on the consumer side. Therefore, we list below some of the approaches taken to improve the scalability of blockchain payments.



1.5 Layer-2 and alternative blockchains

Very broadly speaking, there are two main ways to achieve blockchain scalability. The first way sees some technical modification of the original protocol (for example, increasing the block size or changing some aspect of the proofing mechanism), or it can mean developing an entirely new protocol. This may result in the evolution of a blockchain, such as the current evolution into proof-of-stake by Ethereum, it can mean one blockchain branching into separate blockchains (see the numerous forks that generated Ethereum Classic, Bitcoin Cash, etc.), or in the development of entirely new blockchain projects.

The second approach to scalability is commonly referred to as "layer-2" or "sidechain" solutions. Again, in very simplistic terms, the way this works is to "lock funds" on the original blockchain, then perform the transactions on a different, more scalable network before settling and unlocking the updated balances on the original blockchain (either periodically or upon request by one or more parties). For example, Lightning Network is Bitcoin's "layer-2", while Optimism or Arbitrum One could be considered Ethereum layer-2 solutions. The first approach (blockchain evolutions) and this second approach may also be combined, for example, sidechains that also function on the new Ethereum 2.0.

Again, with the risk of a non-consistent categorization, surely a non-exhaustive list, and without any judgment on the technological or financial model, let alone security, decentralization, and regulation implications, the following are some scalability solutions and technologies available that we discuss in our research:



Lightning Network It is a Bitcoin Layer-2 protocol featuring a peer-to-peer payment system via bidirectional channels. To use the Lightning Network, a channel is opened by committing funds into the underlying bitcoin network, then, any amount of transfers can be made via the network channels updating the balances across each channel (and without updating the funds on the original network). Closing the channel will result in broadcasting the settlement transaction that will distribute the channel funds to the underlying Bitcoin ledger. The use of the Lightning Network requires a Lightning-enabled wallet and the opening of a channel towards the merchant/recipient or a channel that can indirectly reach the merchant/recipient (well connected) via the peer-to-peer channels.

Alternative Blockchains/Native Tokens These primarily evolve from the Bitcoin protocol and include protocols such as Litecoin and Dash, which are used for the transfer of their native tokens only (LTC and DASH). The average transaction costs for both LTC and DASH were less than $0.01 throughout 2022 (up to July 31). Transactions are processed within seconds on both networks.

Alternative or Fast Finality Blockchains Supporting Multiple Tokens These are blockchains, often conceived for use in DeFi or other purposes that support tokens besides their native token, including stablecoins, that are quite scalable and cheap to use. Examples of such blockchains are: Avalanche (confirmations less than 1 second, the average cost per transaction in 2022 is less than $1), Fantom, Tron, Solana, and many others.

Ethereum Layer-2 An Ethereum layer-2 blockchain regularly communicates with Ethereum by submitting bundles of transactions to layer-1. It takes the transactional burden away from layer-1 by posting finalized proofs back to layer-1. This is achieved, depending on the layer-2 protocol, via different technologies such as Zero Knowledge roll-ups. Some popular layer-2s include Optimism and Arbitrum.

2 DEMOGRAPHICS

Crypto-shopping has solidified its presence as a global phenomenon, with its adoption seeping into various corners of the world. Nevertheless, the inclination to use cryptocurrencies for purchasing goods and services continues to demonstrate diverse trends across regions, age demographics, and various socioeconomic backgrounds. Identifying recurring habits and distinct shopping/spending patterns has become more crucial than ever. Gaining insights into who actively engages in crypto-shopping and their depth of participation is indispensable for stakeholders looking to harness the evolving opportunities within the crypto markets. It's essential to underscore that crypto-consumers aren't a monolithic entity. They represent a mosaic of customer segments, each defined by unique traits such as country of residence, age, educational background, income bracket, occupation, etc. This section delves deeper into the evolving demographic landscape of crypto-consumers, offering a broader view of who they are.

2.1 Geography

Cryptocurrencies have permeated every corner of the world, from bustling metropolises to secluded microstates. However, the distribution of crypto-consumers across these diverse regions is far from uniform, with socio-economic factors playing a pivotal role in influencing adoption rates. A particularly noteworthy factor shaping this landscape is immigration. Recent geopolitical events, like the conflict in Ukraine, as well as prolonged crises in Syria, Sudan, and Afghanistan, have triggered significant migrations. Many of those displaced by these situations, in their pursuit of stability and new opportunities, have turned to cryptocurrencies either out of necessity or as a choice for facilitating cross-border transactions and preserving wealth. Consequently, the status of being an immigrant—residing in a country distinct from one's origin—has become even more pronounced among crypto-consumers in light of these global shifts.

2.1.1 Immigration

Our latest research for 2023 indicates that 15.5% of crypto-consumers identify as migrants – of various types, such as legal immigrants, expats, digital nomads, asylum-seekers, and so on – as illustrated in Figure 3, while 84.5% live in the countries where they were born. This is a small decline from the previous year's 17.2%.[4] We attribute this decline to the rapid expansion of the crypto-shopping market with its new young crypto-shoppers, considering that the global immigration crisis is not yet improving. However, we cannot compare that with the most recent global immigrant ratio, as the United Nations' newest data is still from 2020. Yet that report shows that the global ratio of migrants was 3.6%[5], which hinted at a slight increase from 3.5% in 2019[6]. The disproportionate interest of migrants in using cryptocurrencies for online shopping, as compared to their representation in the global population, remains evident. This trend can be largely attributed to the advantages cryptocurrencies offer, particularly in facilitating affordable and super-fast international remittances. This is invaluable for immigrant communities who often need to send money back home or move their savings internationally. Delving deeper into our data, we observe a diverse economic background within the migrant crypto-consumer base, from affluent expats in tech industries, including blockchain, to digital nomads primarily working in content creation. These individuals often exhibit a trend of initiating and managing international businesses, leveraging contacts in multiple countries. It is clear that for many migrants, cryptocurrencies present a more valuable proposition than traditional financial systems.

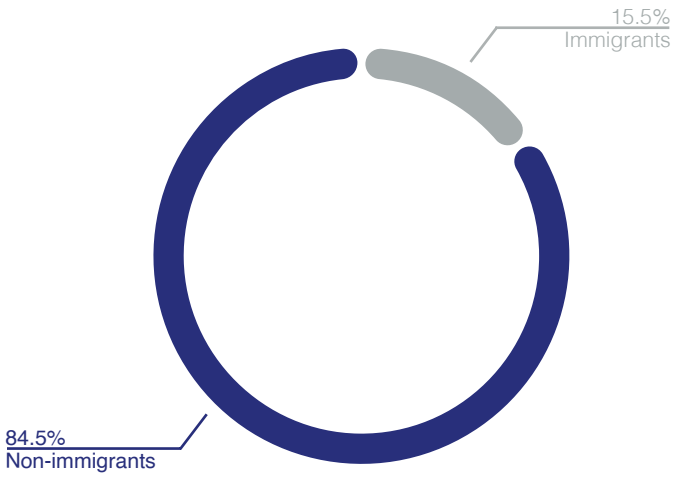


Figure 3: Share of migrants among the crypto-consumers.

2.1.2 Regional Presence

It is safe to say that crypto-consumers do currently exist in more than 100 countries in all continents (except Antarctica). Where the majority resides, however, keeps changing in time. The regional breakdown of the country of residence of cryptoconsumers is given in Figure 4 (using the World Bank's definitions). Per the latest data presented in the chart, South Asia regained the number one spot and is home to more than a quarter of crypto-consumers, while Sub-Saharan Africa shares second place with Europe and Central Asia (with 16.3%). We observe a significant increase rise in the South Asia region (i.e., India and surrounding countries), yet this is pretty consistent with the region's share of the World population. Europe and Centrals became the largest last year but could not keep the lead[4]. The ever-increasing immigrant population in continental Europe is still evident, though. The increasing share of Sub-Saharan Africa is remarkable as well, showing the reliance on crypto-shopping and crypto-payment systems in the region. Even though there may be serious limitations and biases to this (discussed later), the top 5 countries with the most crypto-consumers are found as Nigeria, India, Bangladesh, the United States, and Indonesia.



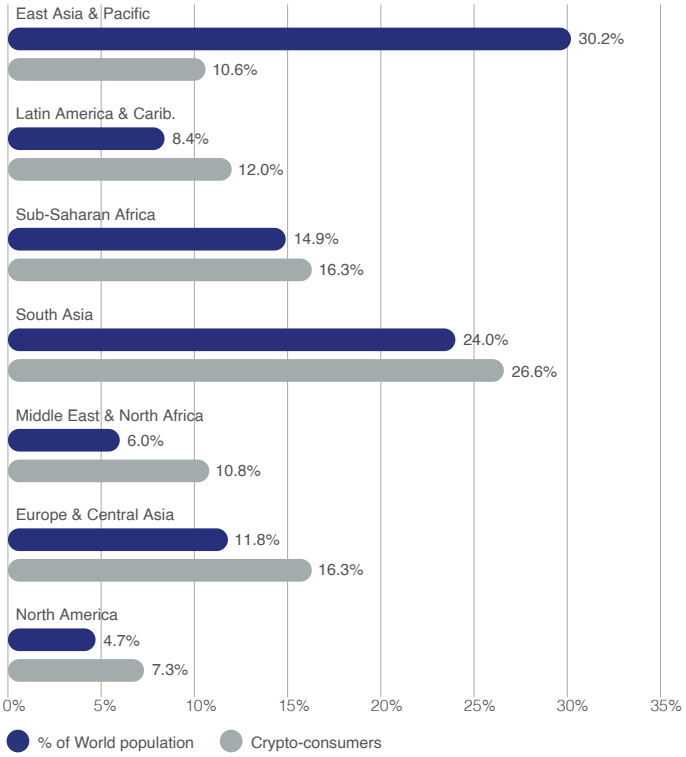


Figure 4: Breakdown of crypto-consumers per world regions.

A side-to-side comparison of those crypto-consumer ratios with the share of the given regions' population to the World's total population reveals that Europe and Central Asia region and the Middle East and North Africa region are highly overrepresented. Those regions have higher crypto-consumer ratios than their share of the World's population. On the other hand, East Asia and Pacific (where 30.2% of the World lives) is the most underrepresented region, possibly due to effective regulations, political embargoes, and access restrictions on many web services provided by the "West" in China, North Korea, etc. Language barriers might also be a limitation of our research for certain regions as the survey was carried out in English (see the research methodology section for more information). The share of crypto consumers residing in the Americas is also worth noting since the rates in these regions (7.3% in the North and 12% in the South) are higher than their populations' share. This indicates significant interest in crypto-shopping in these regions. This year, we also observe the restoration of the unexplained sharp decline in the share of Sub-Saharan Africa found in last year's study.

Figure 5 shows the breakdown of the country of residence of crypto-consumers according to the countries' wealth classes (as defined by the World Bank in[8]). The ratio of cryptoconsumers living in high-income countries has fallen to 26.3% from 32.8% in 2022 and 30.1% in 2021[7]. This decrease, however, is proportional and does not imply a decline in the actual number of shoppers. Yet, the high-income countries class is in second place among all four classes, the third year in a row. Upper-middle-income countries account for 14.9% (was 17.5% in 2022), while lower-middle-income countries account for 53.8, increased from 44.8% in 2022, making it the most common country class; nevertheless, the low-income countries account for 5.5% (was 4.9% in 2022). Proportionally speaking, the share of crypto-consumers from high and upper-middle-income countries has declined, whereas the interest from lower-middle-income and low-income countries increased remarkably. So, slightly more than half of the crypto-consumers live in lower-middle-income countries, which definitely shows that the technology addresses certain problems there. In fact, the main motivations in different parts of the world are most likely different as well.

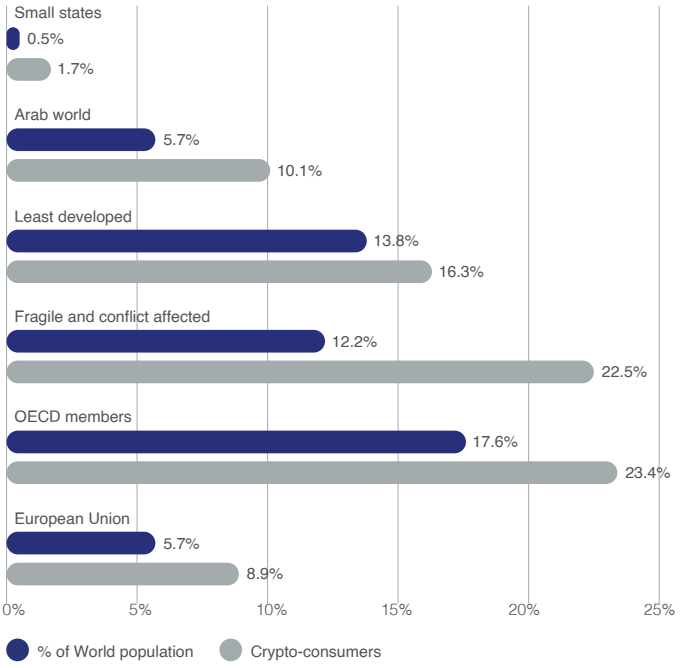


Figure 5: Breakdown of crypto-consumers per various country groupings.

Figure 6 provides an insight into other country classifications; the OECD member states account for 23.4% (was 30.1% in 2022) of all crypto-consumers, indicating a nearly ten percent decrease since last year and a convergence to 2021 numbers. The European Union accounts for 8.9% (was 15.3% in 2022) of cryptoshoppers. In last year's report, we claimed that the restrictive measures against the COVID-19 pandemic, the increasing popularity of online services, and remote working might have boosted the adoption in the developed world. This year, however, the removal of COVID-19 measures, back-to-office calls, and the accelerating economy may have eased the interest coming from the developed world.

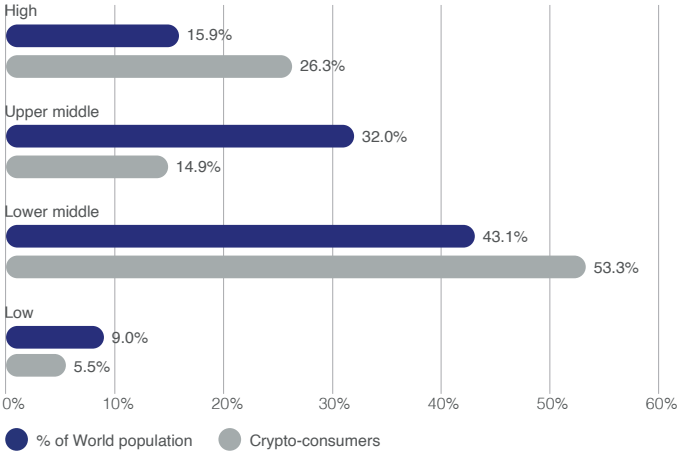


Figure 6: Breakdown of crypto-consumers per country income level.

Unlike the previous year, the interest from underdeveloped countries is more evident this year. In 2023, 16.3% of shoppers are living in one of the least developed countries, as defined by World Bank[8], raised from 12.6% in 2022. Possibly in the process of recovering to the 2021 values, which was high as 20.1%. Likewise, 22.5% are from the fragile and conflict-affected economies (was 15.8% in 2022 and 17.9% in 2021). Furthermore, the Arab World has 10.1% of the shoppers, and 1.7% are from what is classified as small states (i.e., mostly island states in the ocean and some continental ones) with insignificant changes from the previous year. As an outcome, there is strong interest in using cryptocurrencies as a means for shopping both in developed economies and in less developed economies, although the rates fluctuate with the global socio-economic situations.

2.2 Personal

The diversity among crypto-consumers can also be observed in their personal features. Crypto-consumers' personal features are analyzed by their age, gender, education, and socioeconomic parameters. Yet, the median crypto-consumer appears to be a 25 to 34 years old, male, who has at least a high school education and is employed full-time at a workplace where he is not an owner or a self-employed person, serving in computer-related or educational sectors, with an annual income between $5,000 to $10,000 ($10,000 to $20,000 for age 24+). 2023 data is mostly consistent with the previous year, with an increase in the likelihood of being self-employed, which is more aligned with 2021 data.



"67.7% of crypto-consumers are younger than the age of 35, while 29.4% is younger than 25."

2.2.1 Age

Age is consistently an important factor defining consumer behaviors and perceptions, as well as preferences, including product selections and purchasing frequencies. The average age of crypto-consumers is found to be 32 (winsorized with 0.2% upper-limit to eliminate outliers), same as 2022, whereas the global median age in 2021 was estimated to be 31 by the UN[9]. The result looks on par with the world's population average. However, please note that crypto-consumers ages start from 15. Children younger than 15 are not shopping with crypto (due to various reasons, including that it may be illegal in some jurisdictions). Yet, about 26.6% of the world's population is reported to be under the age of 15[10]. Hence, excluding children below 15, the world's mean age becomes roughly around 39.5 (estimated between 37.1 and 41.7). Therefore, it can be said that crypto-consumers are considerably younger, on average.

Figure 7 shows the distribution of the age groups of crypto-consumers. Generation Z (roughly ages 15 to 24) constitute 29.4% of crypto-consumers, slightly more than last year, while young adults of Generation Y (roughly ages 25 to 34), also called millennials, are still the largest group with a share of 38.3 though it is four percent lower than it was in last year. Generation X (ages 35 to 44) has a share of 20.8% with no change since last year. 7.8% are 45 to 54 years old, and only 3.3% are older than 55. Young people's interest in crypto-shopping is consistently highly prominent, which is kind of anticipated. Moreover, research shows that their interest in crypto-shopping (as a share of all age groups) appears to be even higher than their interest in non-crypto online shopping, as another research suggests[14].

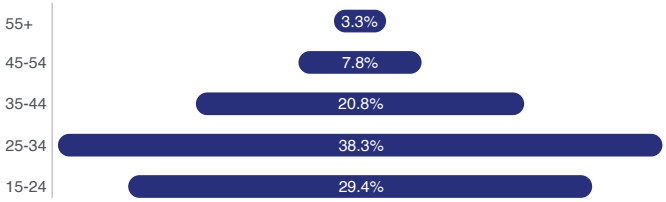


Figure 7: Breakdown of crypto-consumers per age groups.

"Young adults of Gen-Y and Gen-Z find it easier to buy products and services using cryptocurrencies. However, older people find crypto-shopping more difficult as age increases."

2.2.2 Gender

It is most unfortunate that there is no gender equality among crypto-shoppers, a reality that has remained unchanged for 3 years. A whopping 91.4% of crypto-consumers are male, whereas only 8.4% (was 6.8% in 2022) are female, as shown in Figure 8. Shoppers who reported a non-binary gender are negligibly small (< 0.01%), which makes them another underrepresented group as world averages are around 3%[1]. A slight increase is noted in the share of women within one year, yet the gender gap between men and women is still huge. A continuing increase in female crypto-shoppers has the potential to change the market dynamics more than other demographic factors. Nevertheless, females' interest in crypto-currency trading and exchanging is also known to be lower than that of males[21], but the situation is even more unbalanced when it comes to shopping with cryptocurrencies. Such a vast difference needs further research to be justified. One theory is that cryptocurrency investments and trading involve high risks, but women tend to take and tolerate less risk in their investments when compared to men[11]. Other potential reasons may include women's lower rate of literacy, less economic freedom, lower participation in STEM education[23], and limited access to online infrastructure and online businesses, especially in underdeveloped regions (e.g., low-income countries, conflict-affected territories, etc.).

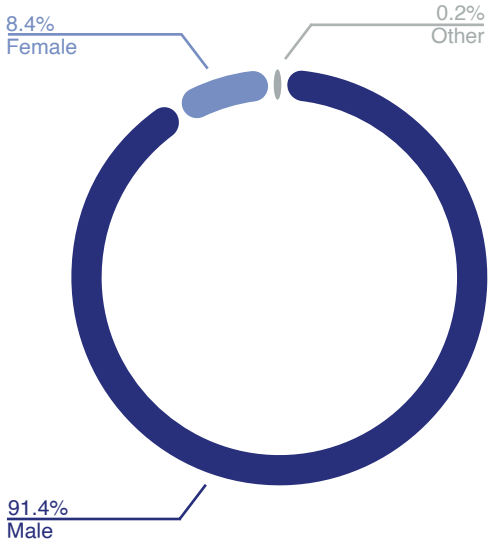


Figure 8: Gender distribution among crypto-consumers.

"Females' interest in using crypto-currencies as a means of making shopping payments is as low as 8.4% and is not significantly improving."



2.3 Socioeconomic indicators

Socioeconomic indicators of crypto-consumers uncover particular social and economic features, such as income or education. Despite the diverse backgrounds of crypto-consumers, it is possible to find meaningful patterns that describe the majority or certain groupings. A more detailed analysis is given in the cluster analysis sections.

2.3.1 Education

The median education level of crypto-consumers is a high school degree, which remained unchanged for three years. As of 2010, the world population aged 15 and over had an average schooling period of 7.8 years, which roughly corresponds to a secondary (middle) school degree. Thus, crypto-consumers are generally more educated than the world average, which implies that the tendency to shop with crypto increases as the education level increases. Potential drivers may include higher internet literacy, better knowledge of the English language, and more diverse shopping needs of highly educated people.

While 9.7% of the world's entire population above the age of 15 have no schooling at all[20], among cryptoconsumers, this is only 2.5%, even lower than last year's 3.1%. While 12.4% have completed primary or secondary school, 33.9% have completed high school, 26.4% have obtained a bachelor's degree, and 9.3% have a post-grad degree. The detailed breakdown is given in Figure 9. Overall, the education levels seem to be slightly improved, except for a sharp decline in the share of grad school graduates. On the other hand, filtering out shoppers who are younger than 24 years old may uncover more insights. Among adults who are 24 or older, the average level of education increases even more. With that filter applied, the share of consumers with no schooling reduces to 2.1% and the share with a degree higher than a high school degree increases as well. When talking about crypto-consumers older than 24, the share of bachelor's degree holder become 30% (was 26.9% in 2022), master's degree holders constitute 9%, and Ph.D. holders account for 1.5%; meaning that one in every ten holds a post-grad degree (provided that they are old enough).

"The median education level among cryptoconsumers is equivalent to a high school degree, whereas more than a quarter hold a bachelor's degree and one-tenth hold a post-grad degree."

Outcomes of our research suggest that the higher the education levels are, the higher the possibility of participating in crypto-shopping, although the correlation is not simply linear. First, using cryptocurrencies requires people to be familiar with some basic (arguably even more than basic) computer and internet skills and a foreign language (which is English for many). Second, people with higher education are more likely to be exposed to blockchain-related projects in their work and studies, which may eventually be motivating for wider adoption in daily life. Last but not least, higher education levels are globally associated with lower unemployment rates.

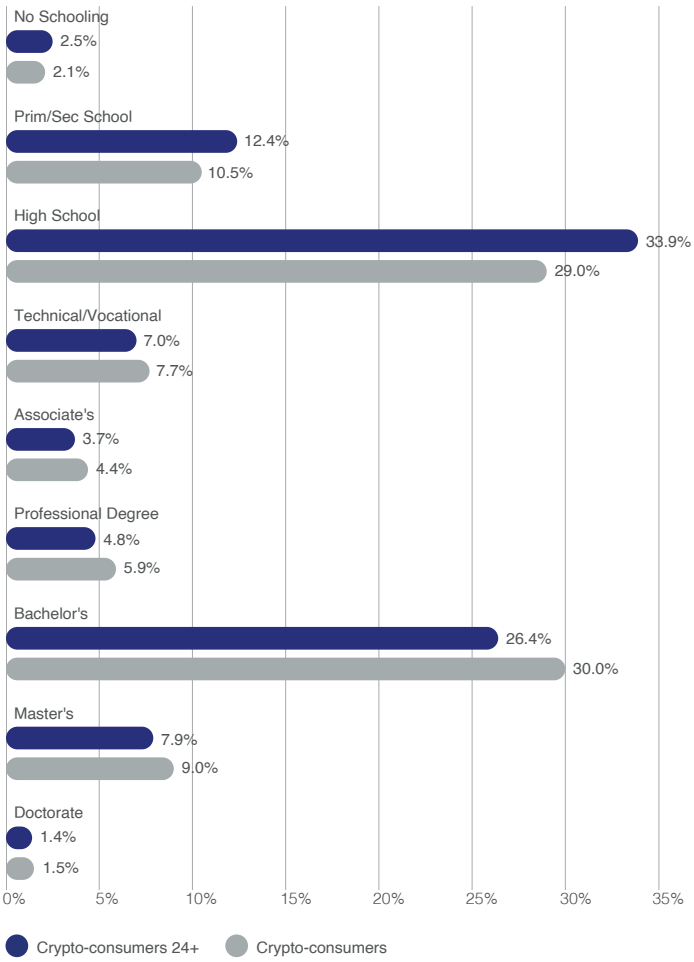


Figure 9: Share of the education level of crypto-consumers, as of latest completed degree.

2.3.2 Occupation

In the 2021 report, independent workers, or the self-employed, represented a significant portion of crypto-consumers based on employment type. Last year, we observed a trend where those with formal employment, whether in SMEs, larger corporations, institutions, or governmental bodies, emerged as the predominant group with a combined part-time (PT) and full-time (FT) employment rate of 44.3%. Figure 10 hints that this trend continues, albeit slightly differently, as this year the combined rate for those employed stands at 39%, with 28.3% being full time workers and 10.7% part-time. The self-employed demographic, not counting entrepreneurs and investors, makes up just under 28% of crypto-consumers, marking a relatively steady rate from the previous year. Students who often don't engage in formal work now constitute 17.2% of this group, indicating a slight increase. Interestingly, the rate of entrepreneurs and investors saw a minor upward shift to 6.8%, reversing the sharp decline from last year. This, coupled with the static nature of the self-employed figures, may point to a stabilization in the crypto-shopping demographic. In other insights, 7.4% of crypto-consumers are currently unemployed, and retirees remain a small fraction at 1.7%.

While 39% are employed either FT or PT, 34.7% of cryptoshoppers write their own paychecks (27.9% self-employed + 6.8% entrepreneurs/investors), with a modest increase since last year, but inferior to 2021 ratios. Those self-employed and entrepreneurs/investors are super important to the crypto economy as they are doing business with crypto, either directly earning their revenues in one of the cryptocurrencies or providing services using blockchain technologies. Throughout the world, the average rate of self-employed individuals (not known if it includes entrepreneurs) is 47.9%. While it is only 12.4% in high-income economies, the rate of self-employed individuals is as high as 81.9% in low-income countries[16]. Per our 2023 data, 28.7% of crypto-consumers from high-income countries reported to be self-employed, entrepreneurs or investors; this ratio is as high as 42% in low-income countries, 36.5% in lower-middle-income countries, and 35.5% in upper-middle-income countries. The data provided above justifies our findings and is also consistent with our income and region-based breakdowns given in Figures 12 and 5.

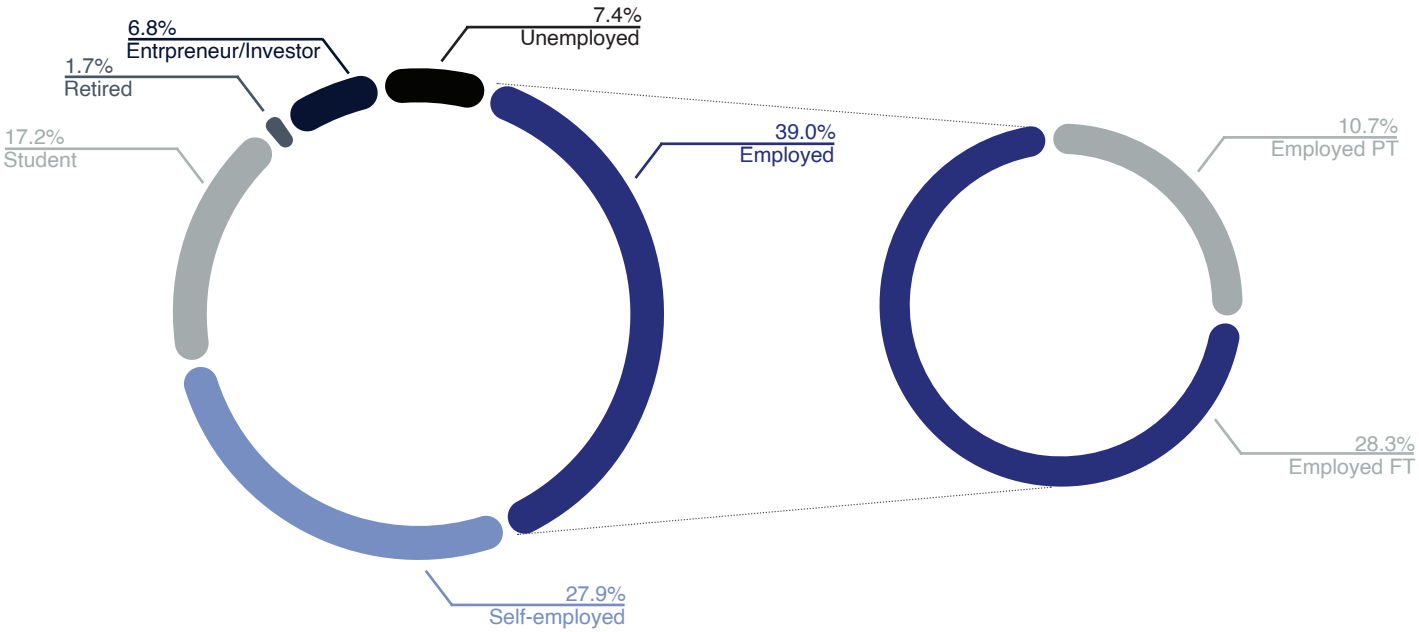


Figure 10: Employment types of crypto-consumers.

Excluding students, the retired, and the unemployed, the top five sectors among crypto-consumers now are education (11.8%), computer and electronics manufacturing (9.5%), banking, trading, finance, and insurance (8.4%), software (8.2%), and retail (7.6%). Following them are information services and data processing (6.8%), agriculture, forestry, fishing, and hunting (5.5%), and construction (3.9%). The tech industry remains dominant, but the finance sector has solidified its position in third place. A notable observation is the increased representation of the education sector, possibly influenced by both academics and those involved in the field, like grad students, signaling that professionals in this sector might be inclined to adopt and study new technologies. The prominence of retail, a sector that traditionally involves many independent workers and side jobs, hints at the potential use or acceptance of cryptocurrencies in this industry. The arts, entertainment, and recreation sector, which could be influenced by the rise (and fall) of NFTs, is now at 3.4% (was 6.4% in 2022). The distribution of crypto-consumers across a vast range of sectors suggests that cryptocurrency usage and acceptance are widespread, extending beyond just personal interest. This diversified representation also aligns with the significant number of self-employed individuals and those engaging in side gigs. A comprehensive visual of the sectors from which crypto-consumers hail can be found in Figure 11.



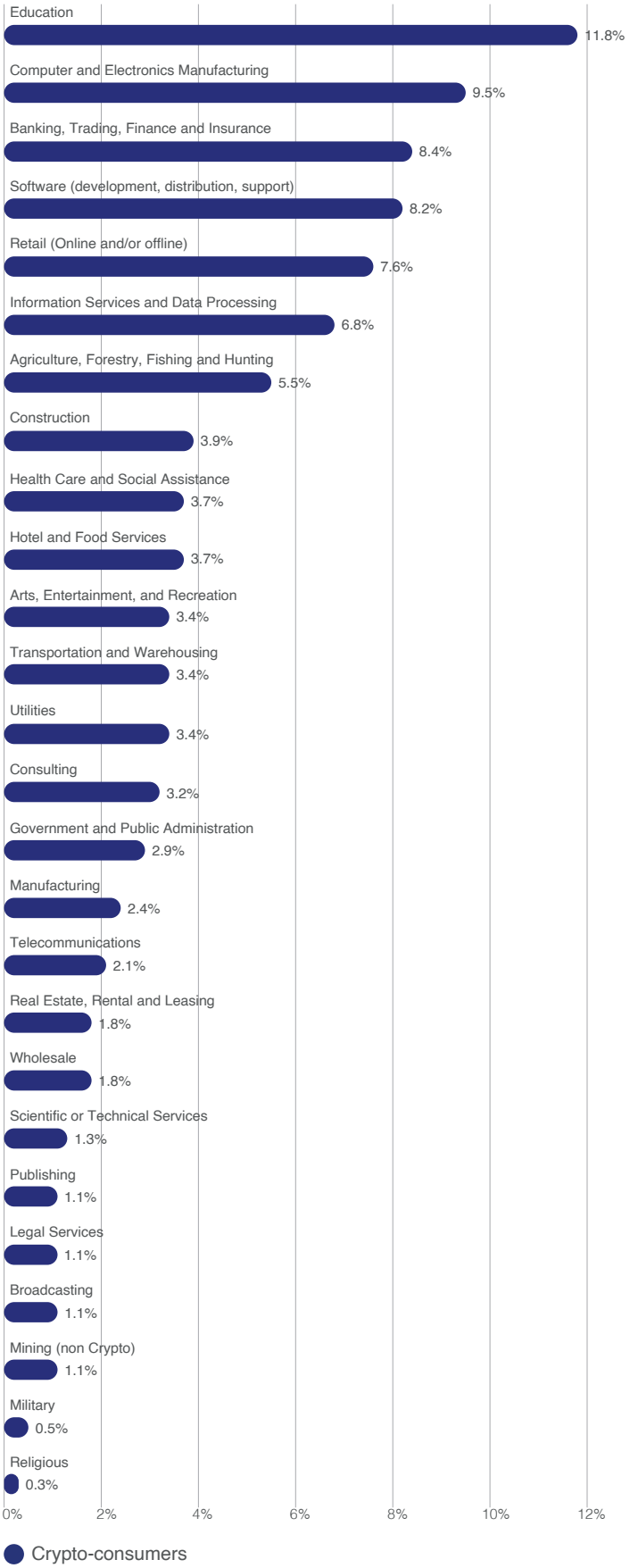


Figure 11: Breakdown of crypto-consumers per the sectors they are working in.

2.3.3 Income

Income levels provide a useful gauge for consumer interest and potential spending behavior in retail markets. The diversity in the income of crypto-consumers is pronounced, spanning from no income at all to hefty seven-figure sums. While crypto-consumers are spread across all income brackets, their distribution is notably skewed. As highlighted in Figure 12, 43.9% of crypto-consumers report an annual income of less than $5,000, while another 13.4% earn between $5,000 and $9,999 a year. When combined, these figures suggest that a significant majority, specifically 57.3% of the crypto-consumer community, falls into the lower income bracket (this 'lower-income' designation is contextual and doesn't align with a standardized definition). Comparatively, this combined percentage is an increase from last year's figure of 52.7% (and a vast increase from 2021's 46.1%). Yet, for perspective, research[12] indicates that as of 2019, 53.6% of the entire global adult population earned less than $10,000 annually. Thus, the current percentage of lower-income crypto-consumers has surpassed the global rate by a large margin, showing a rising interest in crypto-shopping from people with modest incomes.

For crypto-consumers who are 24 years old and above, however, the data suggests a more financially stable demographic. Specifically, 37.7% have an annual income of less than $5,000, which is notably less than the overall cryptoconsumer percentage. Likewise, 11.1% of 24+ earn between $5,000 and $9,999 as opposed to 13.4% in the general pool. This reduction in the older population can be attributed to the fact that they are less likely to be students or underemployed.

As discussed in earlier sections, the share of cryptoconsumers from high and upper-middle-income countries has declined, whereas the interest from lower-middle-income and low-income countries increased remarkably, with more than half of crypto-consumers now living in lowermiddle- income countries. Yet we see that the share of poorer individuals has increased as well, even in the higher-income countries, which is an interesting socioeconomic phenomenon. Economic struggles caused by conflicts and immigration, the COVID-19 pandemic – although phasing out – and inflation in the developed economies may have promoted earning or investing in cryptocurrencies, which might have eventually boosted crypto-shopping. On the other hand, in underdeveloped economies, people living in extreme poverty still struggle to get access to enabling technologies, such as modern computers, broadband internet services, mobile devices, etc.

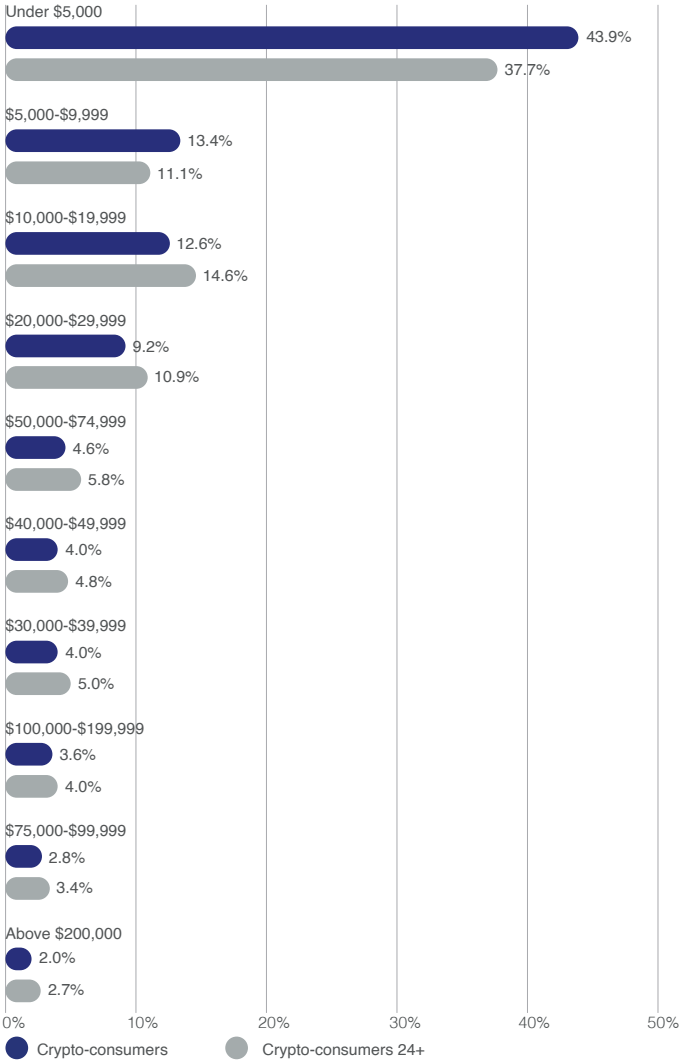


Figure 12: Breakdown of crypto-consumers per their annual income levels.



The combined data suggests that obtaining cryptocurrencies through modest freelance jobs or minor online tasks remains most common among low-income crypto-consumers, as nearly half of them practice that. They also have more interest in affiliation and loyalty programs. Those factors indicate that cryptoshopping still has an important role in low-income people's everyday lives (provided that they have sufficient infrastructure) since it may be a matter of survival for some. More details on this topic will be discussed in later sections.

Based on the most recent data, 43.9% of crypto-consumers make less than $5,000 a year, making it the most populous income bracket. 13.4% make an income between $5,000 and $9,999, which is where the median figure is located. 12.6% of crypto-consumers have an annual income ranging between $10,000 and $19,999, making it the third largest income bracket. A combined 24.6% earn between $20,000 and $99,999. For perspective, a prior study ?? indicated that 34% of the worldwide adult population earns within this range. So, crypto-consumers may have been making less money than the World's averages. At the higher end, only 3.6% earn between $100,000 and $199,999 annually, and just 2% exceed $200,000. Notably, fewer than 0.5% of crypto-consumers are estimated to be earning a 7-figure income, suggesting that the majority are low and middle-income earners with a notable interest in cryptocurrency.

3 PERCEPTION & ATTITUDE

In order for the crypto industry to provide more value to customers and, of course, to get the most out of the market, it is essential to comprehend crypto-consumers' thoughts about the usage of cryptocurrency for shopping. Consumers' perspectives are largely based on their personal requirements and experiences, but there are additional considerations, including society's viewpoint and the legality of utilizing cryptocurrency.

3.1 Ease of use

Usability – or ease of use – is an important feature that helps any invention or technological advancement to be accepted by the wider public. Reflecting this, current data indicate that the majority of crypto-consumers find it easy to use cryptocurrencies for purchases, as shown in Figure 13. Nearly two-thirds of crypto-consumers expressed ease in buying products and services through cryptocurrencies. Although some users find it challenging, this is quite a minority (22%). About half are confident in finding reliable stores that accept crypto-payments, and over half know where to find such stores. Additionally, a solid two-thirds understand how to make purchases with cryptocurrencies. The use of advanced technologies like the Lightning Network shows a balanced perspective, with around 46.3% finding it straightforward. Alternative blockchain networks are also seen as user-friendly by exactly half of crypto-consumers. Possible reasons for such a decent rate of adaptation may include the high proportion of younger users, innovators, and open-minded individuals among crypto-consumers. This indicator seems to be unchanged since last year, if not slightly improved.

With no change from the previous year, two-thirds of crypto-consumers feel confident about purchasing what they need with cryptocurrencies. Crypto-consumers may be unable to satisfy the variety of their purchase needs via crypto-shopping, require assistance during the process, or have difficulties in using tools, wallets, and websites. "I know where/how to find stores that accept cryptocurrency", say slightly more than half of the crypto-consumers, pointing to a substantial opportunity for businesses. This gap signals that there is a considerable number of crypto-shoppers ready to engage but lack the knowledge of where to spend their crypto coins. For retailers, this is a call to action to not only start accepting cryptocurrencies but also actively promote this payment option to tap into the eager market.

Nevertheless, concerns about security remain at the forefront; almost half of crypto-consumers are not confident in the reliability and safety of crypto-accepting stores. This wariness suggests a potential risk of scams and fraud, highlighting the need for merchants to establish trustworthiness. Small businesses and online brands can leverage this by providing exemplary crypto-payment experiences and fostering trust through positive reviews, community engagement, and partnerships with recognized entities in the cryptocurrency ecosystem.

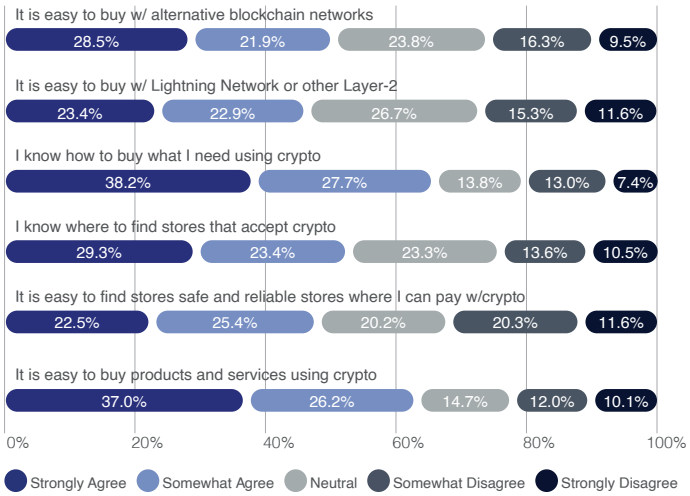


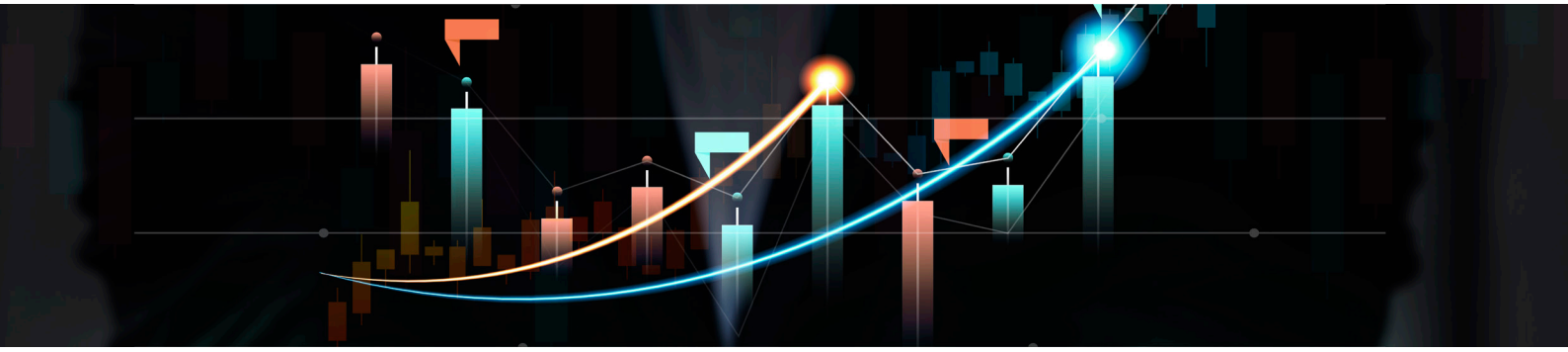
Figure 13: Crypto-consumers' agreement with the statements related to ease of use.

The landscape of cryptocurrency payments is considerably user-friendly but possibly not improving at a remarkable pace. 63.2% of crypto-consumers reported ease in making payments with cryptocurrencies, reflecting a similar figure to the previous year's data. On the flip side, 22.1% still face significant challenges, indicating the need for even more intuitive transaction processes as the diversity of cryptocurrencies and blockchain

"Two-thirds of crypto-consumers find it easy to buy goods and servi-ces by paying in cryptocurrencies."

technologies expands. Precisely half of crypto-consumers report a smooth experience with alternative blockchains, with a substantial improvement from the previous year's 41.9%. Yet, the simplicity of transactions over the Lightning Network is clear to 46.3% of users, again with a large improvement from the previous year's 37.2%. So, it is safe to claim that alternative chains and networks are becoming more mainstream, at least in the crypto-consumer communities.

Other findings in this report indicate that most crypto-shoppers make repeating purchases using cryptocurrency. It is likely that the prevalence of "young" and "innovative" segments, along with the improvements made in user experiences so far, combined with the repeating purchase habits that make the consumers get used to the newer systems, explain why more than 60% of consumers find a payment system that is quite more complex than a simple credit card transaction easy to use. Nevertheless, we still see an opportunity regarding developing easy-to-use payment applications or interfaces to address the needs of the circa 40% that are having a hard time with crypto-payments, as emerging alternatives bring their own learning curves into the field as a downside. More on the customer segmentation can be found in the cluster analysis section later.



3.2 Usefulness

Crypto-shopping cannot be a prevalent form of shopping unless it is really useful to the consumers. Nonetheless, Figure 14 shows that crypto-consumers generally see value in doing crypto-shopping, to a large extent. Current insights are in line with last year's data, as 64% find it useful to be able to pay for the stuff they buy with their crypto. Those are potentially the ones who get irreplaceable benefits from using crypto in their purchases. Likewise, 60.7% of crypto-shoppers recognize cryptocurrencies as a viable payment method for goods and services, a small dip from the previous year, potentially due to the volatility in cryptocurrency values or some largescale crypto projects that failed recently. Despite these price fluctuations, a significant majority still acknowledge the convenience and utility of crypto-payments, indicating a steadfast consumer appreciation for this payment mode. The remaining 40% may see crypto-payments as an occasional method or a backup case when other means for paying are not available or more costly. This is quite remarkable for different reasons.

First, this shows that the majority of cryptoshoppers have transitioned to admit paying with cryptocurrencies as a new method for making payments and purchases. Many in the crypto community (as we will also discuss later)

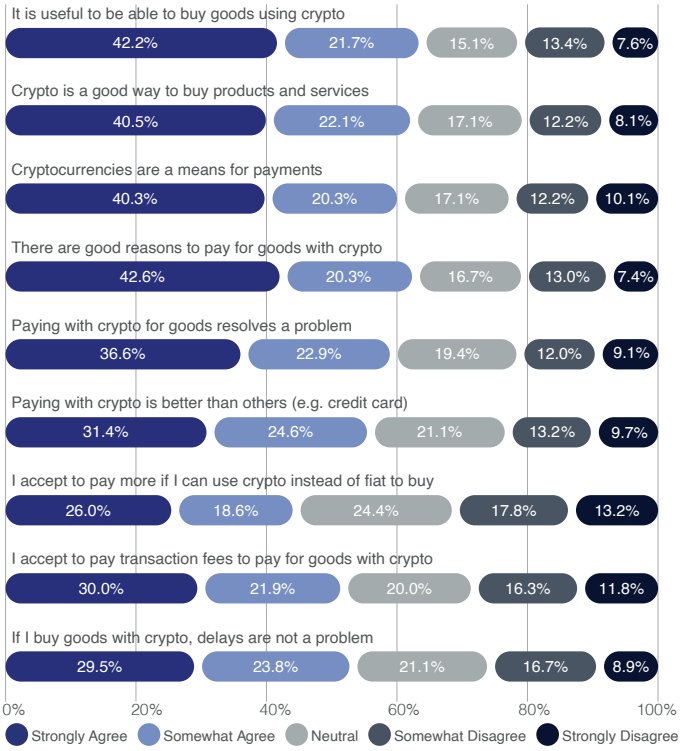


Figure 14: Crypto-consumers' agreement with the statements related to usefulness.

recognize the "store of value" properties of Bitcoin, the most popular cryptocurrency, but they also point out the strong limitations of Bitcoin's "means of exchange" properties. Yet, despite such limitations, it is apparent that crypto-shoppers also associate a "means of exchange" property to many cryptocurrencies, including but not limited to Bitcoin, especially through layer-2 networks like the Lightning Network. This is also why alternative currencies and networks have gained popularity among shoppers.

"The majority of crypto-consumers see cryptocurrencies as a new payment standard."

Utilizing the latest data, almost two-thirds of crypto-consumers believe there are compelling reasons to use cryptocurrencies for purchases, a slight decrease from the previous two-thirds mark, possibly reflecting recent market volatility. Yet, 59.5% acknowledge that crypto payments solve specific issues other methods cannot address or cannot be used for, which is pretty remarkable. This is a key factor in letting us think positively about the future of crypto-payments. A combined 62.6% view buying with crypto positively, indicating a consistent trust in its value as a transaction medium. While 20.3% disagrees with that, possibly highlighting the minority having issues with usage of cryptocurrencies, a notable 56% consider crypto transactions superior to traditional methods such as credit cards, transfers, checks, mail orders, etc., underscoring the growing confidence in digital currencies despite the slight dip from last year's sentiment. This confidence persists even though cryptocurrencies have undergone significant price fluctuations, suggesting a solidifying of their position in the transactional ecosystem. Overall, crypto-consumers' perception of the usefulness of crypto-shopping remains pretty much unchanged since the last year.



"For 59.5% of crypto-consumers, shopping with cryptocurrencies resolves at least one certain problem, while 56% find it better than all other payment options."

Many cryptocurrency users accept paying transaction fees and commissions to the merchants and wait for processing delays because they believe that using cryptocurrencies to purchase products and services offers them incomparable advantages. According to the latest figures presented in Figure 14, a majority of 53.3% are content to wait for blockchain processing, valuing the benefits of using cryptocurrencies for their transactions. Notably, 51.9% are willing to incur transaction fees, an uptick from last year's 44.8%, suggesting that the advantages of using cryptocurrencies outweigh the cost for many users. This may also be linked to the emergence of cheaper methods to perform crypto-payments, including layer-2 networks and cheap-to-transact coins. Additionally, 44.6% of consumers acknowledge the extra effort (and expenses) stores must make to accept cryptocurrencies and are willing to pay more (besides the transaction fees) for this convenience. This shift is a strong signal to the crypto-commerce industry of the growing consumer recognition of the value that cryptocurrencies bring to their shopping experience, beyond just being an alternative form of money. The willingness to embrace these transactional costs demonstrates a maturing market where users are ready to support the integration of cryptocurrencies into everyday commerce.

Furthermore, the combined data suggests something even more interesting. The crypto-consumers that find it useful to pay for goods and services with cryptocurrencies are willing to pay more to do this, and they are willing to be patient about the issues and complexities. So, it can be concluded that we are still in an early phase of adoption. We have observed that innovative users, in order to satisfy their needs, are willing to overcome hurdles, costs, and complexities. A trend unchanged since last year.

"More than half of crypto-consumers are willing to pay fees and wait for delays as long as they can shop with cryptocurrencies."



3.3 Social norm

Community influence plays a pivotal role in shaping individual behaviors, and societal perceptions of crypto-shopping are as impactful as personal views. Particularly, marginalized people who are excluded from, or unable to access, traditional financial services (i.e., unbanked or underbanked) may be forced to turn to cryptocurrencies. Those people may be individuals experiencing extreme hardships although being part of a generally wealthy society or could be constituting large chunks of the society where such exclusion – often comes with the risk of poverty – is pretty standard.

2023 data, depicted in Figure 15, suggests that the societal outlook on crypto-shopping is shifting towards normalization. Currently, 39.3% of cryptocurrency users feel that those who pay with cryptocurrencies are well or somewhat respected in society, a 3-point increase from last year. This reflects a nuanced social stance, as 32.9% of respondents are neutral, which is the largest segment in the 5-point Likert scale, indicating a growing societal acceptance of crypto payments. Meanwhile, the share of those who disagree stands at 27.7%. It appears the concept of using cryptocurrencies for everyday transactions is gaining ground as a regular practice within communities, hinting at a broader acceptance and potential integration of crypto-shopping into societal norms. The societal perception of cryptocurrencies can also be influenced by the negative portrayal by influential figures in government and finance, often highlighting their use for illicit activities. This perception may create a stigma for some users. Nevertheless, as mainstream businesses and prominent brands increasingly accept cryptocurrencies, societal acceptance is likely to grow, enhancing the prospects for widespread adoption. The trend is indeed positive, with countries like El Salvador and the Central African Republic adopting Bitcoin as legal tender[13] – although the latter appealed that decision in a very early stage – a move that underscores a growing legal and social acknowledgment of cryptocurrencies. Likewise, Venezuela is trying to adopt a unique – and less decentralized – cryptocurrency to cope with hyperinflation. This broader acceptance bodes well for the future integration of crypto transactions in everyday commerce.

With a great increase from last year's one-third, now 40% of crypto-shoppers claim that they know other people who are also crypto-shoppers to some extent, indicating a wider adoption, However, a notable 35.5% do not know others or only know a few who transact with cryptocurrencies to buy goods and services. Slightly less than half of the crypto-consumers think that it is pretty normal to buy goods and services by paying with

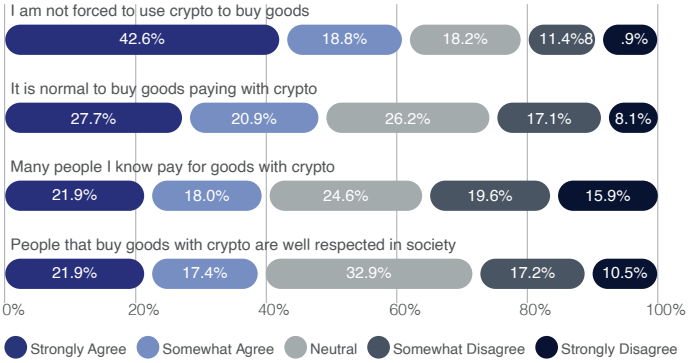


Figure 15: Crypto-consumers' agreement with the statements related to social norms.

cryptocurrencies, while 25.2% (reduced from last year's 28.6) view it as out of the ordinary, maybe as an alternative for exceptional or special circumstances. From Figure 15, a significant majority, 61.4%, assert they are not obliged to use cryptocurrencies for their shopping transactions, a small decline from 2022's 66.6% is notable here. Still, a combined one-fifth feel compelled to use crypto to purchase something in certain situations, possibly due to a lack of alternative payment options or banking services. Another 18.2% indicated a neutral stance, which is a noteworthy ratio as they may also be forced to do crypto-shopping on some occasions or for particular products or services.

The findings are highly instructive. To draw judgments about a number of issues, though, is still premature. For example, using cryptocurrencies can be seen as very normal in an open society (such as one in a developed country), but there may not be many advantages to doing so. In contrast, cryptocurrencies may have more advantages in a more conservative society where they are viewed as a social stigma or at least inappropriate to some extent. It is evident that some individuals must, nevertheless, rely on cryptocurrencies in order to maintain their everyday lives and also businesses.



3.4 Confidence

The confidence of crypto-consumers in the security and privacy of their transactions is critical for the sustained use and growth of cryptocurrency in commerce since it is another indicator of how likely they will continue buying goods and services using cryptocurrencies in the future (even if they have other options). Likewise, if people who are forced to resort to crypto-shopping feel confident and get sufficient benefits from it, they may continue doing it even if they gain access to other options. Current data depicted in Figure 16 indicates that 57% of consumers feel safe and secure when purchasing goods and services with their chosen cryptocurrencies, suggesting that concerns over potential fraud are not predominant. However, remarkably higher than the previous year, almost a quarter express some level of concern about their safety and security, potentially due to unresolved issues like scams, difficulties in dispute resolution, or the finality/irrecoverability of transactions. Since trust is a crucial component of e-commerce, these issues need to be resolved for the market to expand healthily.

Privacy is also a key factor, with 59.3% feeling their privacy is adequately protected when making crypto transactions for their purchases, likely valuing the anonymity offered by cryptocurrency wallets and ledgers. Moreover, a significant 62% of consumers report feeling in control of the purchasing process with cryptocurrencies, emphasizing the autonomy that these digital payment methods provide. While 22.1%, circa 5 points higher than last year, suspect that their privacy may be at some sort of risk, a mere 7% are sure about the existence of severe risks (but still continue doing crypto-shopping to get its benefits or because it is the only available option).

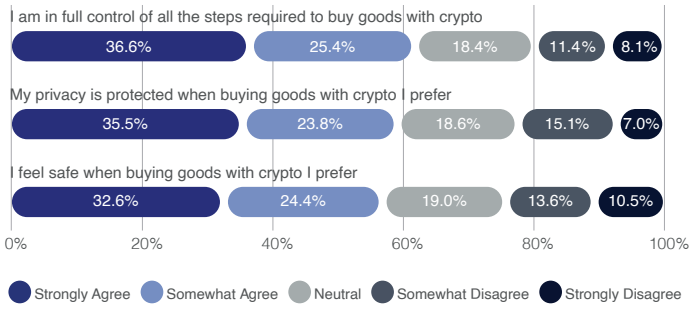


Figure 16: Crypto-consumers' agreement with the statements related to confidence.

Moreover, a significant 62% (was 59.3% in 2022) of consumers report feeling in control of the purchasing process with cryptocurrencies, emphasizing the autonomy that these cryptopayment methods provide. 18.4% are undecided in this matter, and another 19.6% think that they are not in control of parts of the crypto transactions or other processes. Therefore, we can conclude that a significant majority of crypto-consumers feel confident about doing crypto-shopping, although actions must be taken in order to persuade others. Lastly, when compared to 2022 data, we see a slight increase in the share of consumers who feel safe and a relatively larger increase in the shares of the ones who do not feel safe, whereas the undecided population shrank. The continued sense of privacy and control indicates strong foundational features of cryptocurrencies that appeal to consumers. However, the lingering concerns around safety highlight areas where the industry could improve to enhance consumer trust and facilitate wider adoption.



"57% crypto-consumers feel safe when shopping with cryptocurrencies."

4. EXPOSURE & ADOPTION

The success of shopping with crypto is not just about what shoppers think. It also depends on how many shops accept it and the variety of things one can buy. The more stores start taking crypto and the more kinds of stuff one can find, the more people will use it to purchase goods and services.

4.1 Personal adoption

To find out how long consumers have been engaged with cryptocurrencies, we look at when they bought their first-ever cryptocurrency. While it is possible to be aware of crypto without buying it, owning it often indicates a deeper level of engagement, and it paves the way to becoming a crypto-shopper.

The up-to-date data, given in Figure 17, illustrate a continuous rise in cryptocurrencies' appeal. In recent years, say, after 2019, the number of newcomers skyrocketed, especially in years 2020 and 2021. While 2022 was also high, a small dip exists. 2023 data, however, only represents the first six months. According to the stats, over a third of today's cryptoshoppers entered the market in the last three years, around two-thirds in the last five years, with 2020 and 2021 together accounting for a third of all current cryptoshoppers. This is a notable peak since the inception of Bitcoin in 2009. The drop observed around 2018 in last year's report is not observable as of today. Yet the slight decline existing in 2022 might reflect the dramatic price falls during the year.

The current landscape of crypto-consumers reveals that prior to 2017, only about one-fifth of them owned cryptocurrency, much lower than last year's a third for the same timeframe, indicating an influx of new adopters. Yet, those who bought their first crypto in 2015 or earlier still constitute one-sixth. The share of very early adopters who bought their first crypto in or before 2010 is even less than 2% of all cryptoshoppers. So, it is safe to say that the majority of crypto-shoppers are quite new to the market. The fact that more than a third of of consumers purchased their first cryptocurrency

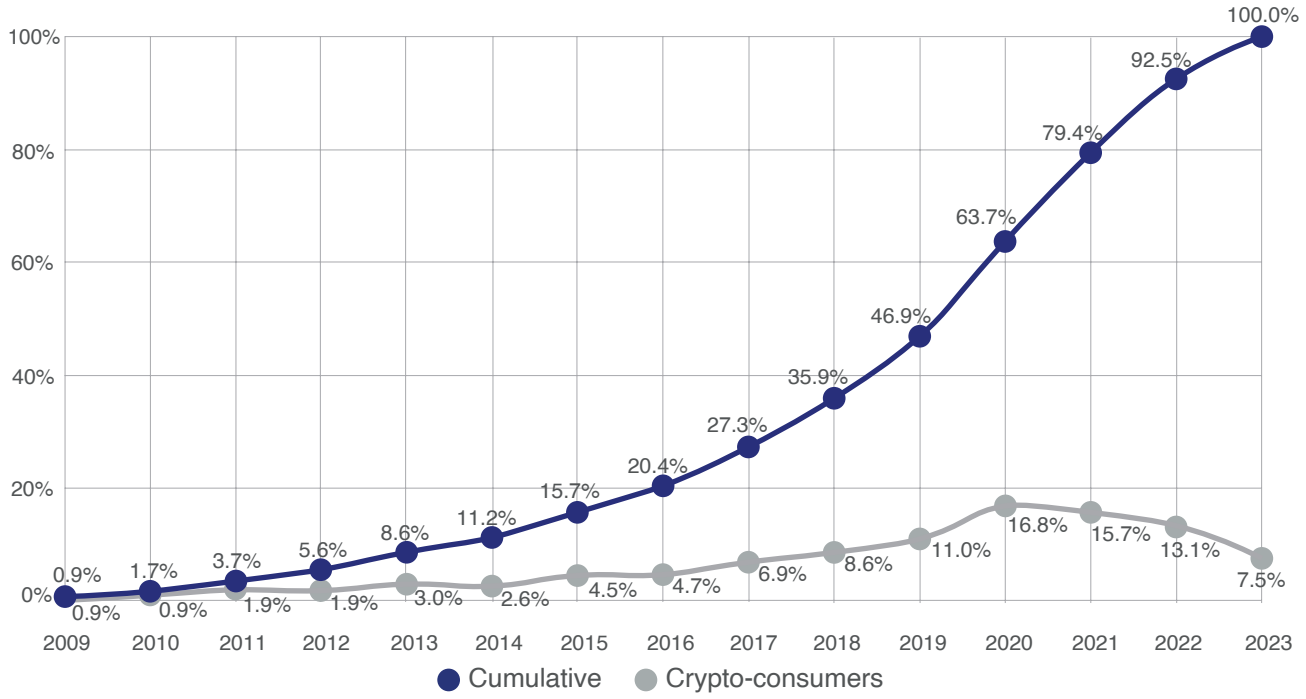


Figure 17: The year of first ever purchase of crypto among crypto-consumers.

in the last three years, and quickly moved to use it for transactions, highlights that extensive experience in the crypto space is not a prerequisite for crypto-shopping. 0.9% of crypto-consumers claim that they already had cryptocurrency (in this case, Bitcoin) since its initial launch. This share was over 2% in 2021 and 1% in 2022, indicating a steady decline, which concludes that the inclusion of less experienced shoppers is increasing.

That claim is also on par with our data showing confidence levels in crypto-shopping.

In general, the trends in Figure 17 are well aligned with the market capitalization of Bitcoin by years[19]. As of the publication of this report, all indications show that this growth trend will continue despite the huge price volatility all the cryptocurrencies experience.



"A third of crypto-consumers obtained their first coins within the past two years."

4.2 Business adoption

Exposure to cryptocurrencies often extends beyond personal interest, encompassing professional and commercial activities. The latest data presented in Figure 18 indicate that 56.2% of crypto-consumers encounter blockchain technologies, including cryptocurrencies, in their work environment. This marks a slight increase from the past year's 54.8%, forming an increasing streak since 2021, and suggests a strong link between professional exposure to blockchain and the likelihood of engaging in crypto-shopping. This correlation underlines that a substantial segment of crypto-consumers are not just enthusiasts, but also professionals, innovators, and business owners for whom utilizing cryptocurrencies is a natural progression of their professional activities. Combining this information with other data from our analysis underlines that a substantial segment of crypto-consumers are not just enthusiasts but also professionals, innovators, and business owners for whom utilizing cryptocurrencies is a natural progression of their professional activities.



Figure 18: Share of crypto-consumers that are exposed to blockchain as a part of their work.

Note that the data provided in Figure 18 also includes the self-employed who represent a large percentage of cryptoconsumers. If the company or institution crypto-consumers work for (excluding their own businesses) is to some extent involved with cryptocurrencies (e.g., research, investment, payments, etc.), then this provides some mandatory exposure and may also inspire individuals to buy crypto on their own behalf outside of the work purposes. As shown in Figure 19, 34.3% of crypto-consumers report that their organizations are engaged in blockchain-related projects/activities other than trading (not necessarily crypto-shopping or payments), with a 5-point increase in one year. Meanwhile, with no change since last year, crypto trading is common in the workplace for circa a quarter of crypto-shoppers, showcasing how cryptocurrencies become integrated into business operations. Furthermore, the emerging market of NFTs is making its mark, with 10.1% of respondents indicating their companies' involvement in either minting or trading NFTs (was 14.5% in 2022). Despite these advancements, there remains a notable 31.2% of crypto-consumers without any workplace exposure to these technologies, underscoring the diverse backgrounds from which individuals come to cryptoshopping. Blockchain technologies and cryptocurrencies are not uncommon to encounter at work for nearly two-thirds of crypto-consumers. Compared to last year, exposure to blockchain at work seems to increased significantly among crypto-shoppers.

As Figure 20 depicts, currently, 43.3% of crypto-consumers report that their businesses or institutions (incl. both the ones they own and they work for) accept at least one cryptocurrency as a form of payments, indicating a substantial increase from last year's 34.2%, comparable to 2021's 44.8%. Among those whose companies do not

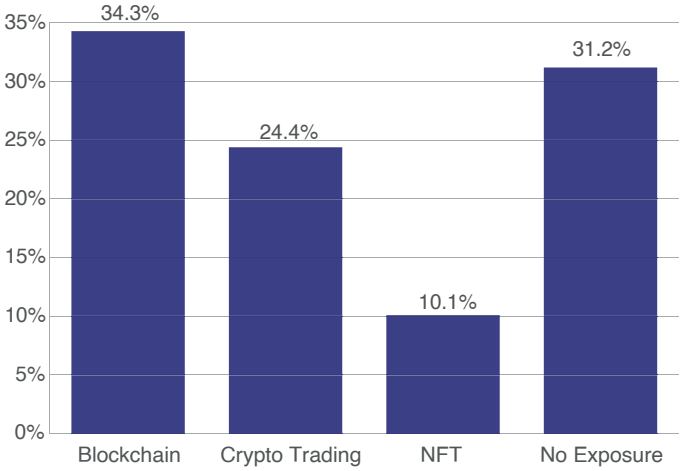


Figure 19: Share of crypto-consumers' companies that are involved in blockchain or crypto-currency.

currently accept crypto, a significant 33.8% are open to the possibility in the future. A smaller segment, 7.3% (was 4.4% in 2022), have previously accepted crypto payments but have since ceased; the reasons for this reversal remain unclear and warrant further exploration. Meanwhile, 15.6% of respondents are certain that their organizations will never engage in cryptocurrency transactions. This ratio was decreased largely from last year's 24.4%, which is particularly optimistic.

The data points to a dynamic landscape where the adoption of cryptocurrency payments is gradually becoming more commonplace in the business sector. Overall, these statistics reinforce the trend that for many crypto-consumers, the professional environment acts as a catalyst for personal cryptocurrency adoption and utilization.

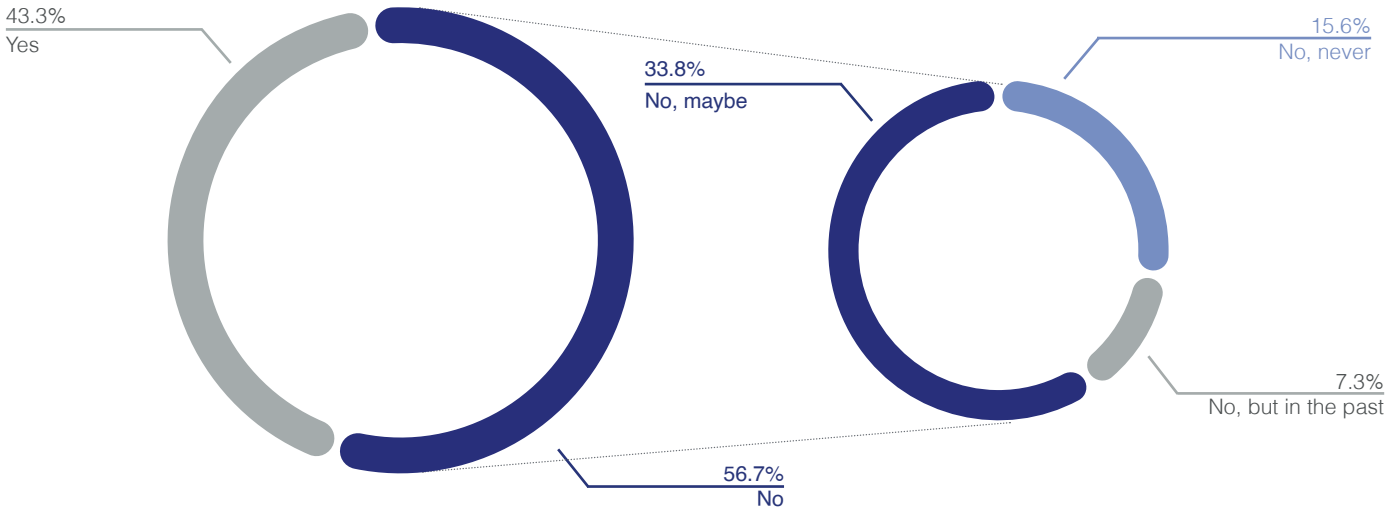


Figure 20: Share of crypto-consumers' companies that accept payments in cryptocurrencies.

5. PREFERENCES & BEHAVIORS

Getting to know crypto-consumers requires a thorough analysis of their preferences and considerations regarding their crypto-portfolio, currency selections, favorite wallets, go-to exchanges, and alike.

5.1 Portfolio

Understanding the current composition of crypto-consumers' crypto portfolios can shed light on their predominant preferences, revealing the effectiveness of their approach to integrating crypto-shopping with other objectives, such as ease of transaction and investment strategies.

5.1.1 Cryptocurrencies

The total number of cryptocurrencies circulating in the public markets unsurpassed 23,000 as of September 2023[15]. That number was 10,400 in February 2022 and was around 4,500 in February 2021.[17,18]. Nevertheless, the top 10 currencies (by their market capitalization) dominated 82.1% of the entire market, and the top 20 dominated 88.3% in 2022; although newer data on that is not yet published, one may expect something comparable.

In reviewing cryptocurrency holdings of crypto-consumers presented in Figure 21, it is evident that Bitcoin's once-unrivaled position is diversifying. Its current ownership rate has fallen to 59.3% from 2022's 65% and 2021's 79%. This suggests a gradual shift as consumers grapple with Bitcoin's pronounced volatility and the complexities associated with its transactional use, including higher fees. Bitcoin requires the use of the Lightning Network to avoid high fees and to transact immediately, which usually sees adoption in the more tech-savvy segments. Conversely, there is a noticeable leaning towards stablecoins, particularly USDT, now held by 53.2% of cryptocurrency users, underscoring a preference for more stable value in cryptocurrency holdings. It is highly likely to see USDT becoming the leading choice of consumers in the near future. Furthermore, the increased adoption of alternative cryptocurrencies such as BNB and ETH indicates an expansion of consumer interest beyond Bitcoin. This evolution is in line with our prior projections, which posited that Bitcoin's preeminence in crypto transactions might diminish in favor of other, more user-friendly cryptocurrencies. Likewise, the share of crypto-consumers who solely own Bitcoin and nothing else declined to 7.2%, which was 8.1% in 2022 and 16% in 2021. Bitcoin is still dominant, widespread, and the most common means for crypto-payments by a good margin. In the 2021 report, we have shared a prediction that Bitcoin's usage rate in crypto-shopping will decline in time due to cheaper and faster alternatives; this is even more convincing looking at the current trends.

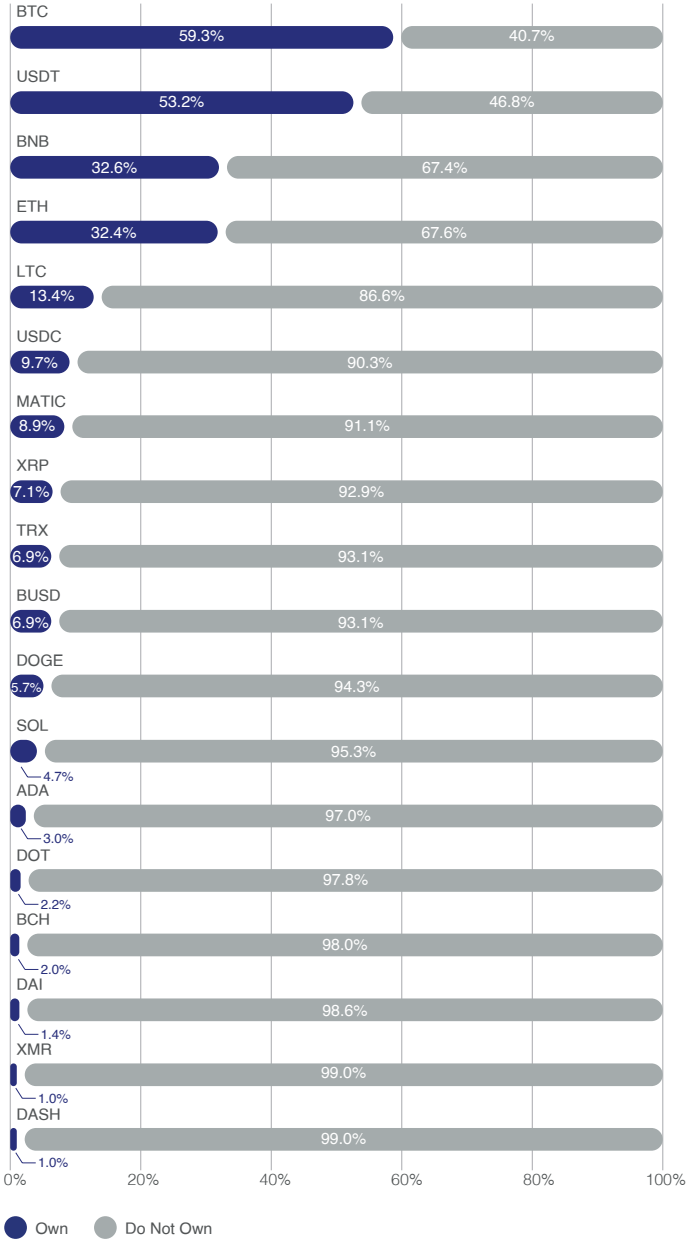


Figure 21: Most popular cryptocurrencies among crypto-shoppers.

Ether (ETH), the second most popular cryptocurrency in terms of market capitalization, is no longer the second most held cryptocurrency among crypto-shoppers. In fact, it is now the fourth! This year, it has seen a slight decline to 32.4%, from 2022's 34.5%, which was as high as 54.5% in 2021. This continuing decrease in ownership might be linked to high transaction costs, although the Ethereum network upgraded to a proof-of-stake system. Ethereum's capabilities, such as facilitating smart contracts and its integral role in the DeFi space, are notable, but they have not necessarily made it a go-to for everyday transactions. Contrastingly, Tether (USDT) has seen a remarkable surge in ownership and now reached 53.2%, overtaking the second place. While it was owned by 34.5% last year, the combined ownership of USDT, USDC, and BUSD did not even reach 15% in 2021. The stability offered by USDT and other stablecoins, which is explored further in the subsequent section, is likely a driving factor behind their rising popularity.

Binance Coin (BNB) continues to be a significant choice among crypto-shoppers, now in the wallets of 32.6% of crypto-consumers. This marks a large increase from last year's one-fifth, suggesting it holds a strong position thanks to its efficient transaction system via the Binance Smart Chain and the prominence of Binance as a leading crypto-exchange. Litecoin (LTC), previously the third-most popular, has seen a decline to 13.4%, positioning it now as the fifth-most held currency among crypto-consumers. This is particularly notable given that LTC ranks 16th in market capitalization (was 21st in 2022), indicating a unique preference among shoppers. BUSD has also seen a decline from last year's 13.4% to 6.9% and from sixth place to the tenth. Other currencies in the top ten include USDC, MATIC, XRP, and TRX, as shown in Figure 21.

The up-to-date data mostly read positively as the diversity of cryptocurrency options is broadening, and the markets are becoming more inclusive for people with different needs. At the same time, we observe an arguable tendency towards centralized bodies in this essentially decentralized world of crypto as fiatpegged stablecoins, centralized crypto exchanges, and their quasi-centralized coins gain more recognition. That must be due to some needs that the crypto users abstain from satisfying via other means and definitely require further attention from the developers and investors.



"Bitcoin is still the most popular crypto-currency among crypto-consumers, but it loses ground pretty rapidly.

5.1.2 Stablecoins and fiat currencies

Stablecoins continue to solidify their position in the cryptocurrency market, with their immunity to extreme price volatility making them a preferred choice for value storage, especially after the turbulent first half of 2022. From Figure 22, an overwhelming 81.4% (precisely unchanged since last year) of crypto-shoppers have engaged in transactions involving stablecoins, highlighting their significance in the digital economy. As shown in Figure 23, Tether (USDT) remains the dominant stablecoin, with a staggering 76.5% of stablecoin users holding it, an increase from the previous year's two-thirds. Binance USD (BUSD) holds the second spot at 35.4%, indicating a substantial preference, likely due to its efficient transaction capabilities on the Binance Smart Chain and the utility provided by Binance Pay for off-chain payments. The popularity of stablecoins such as BUSD can often be attributed to the credibility and success of the exchanges issuing them. However, Paxos, the company that used to mint and regulate BUSD, was recently ordered to cease minting BUSD by government authorities. As a result, Binance withdrew its support and is removing its listing. Therefore, it is most likely we will not see BUSD in our charts in the upcoming editions. FDUSD, the alternative token that Binance is promoting now instead of BUSD, had very little use when our data was collected, yet this will certainly change. USDC also shows a strong presence with a 22.3% holding ratio among shoppers, suggesting a diverse stablecoin ecosystem that extends beyond the leading options.

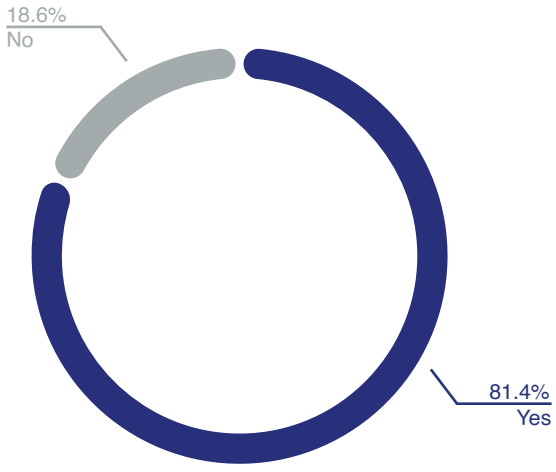


Figure 22: Share of crypto-consumers who have transacted with stablecoins at least once.

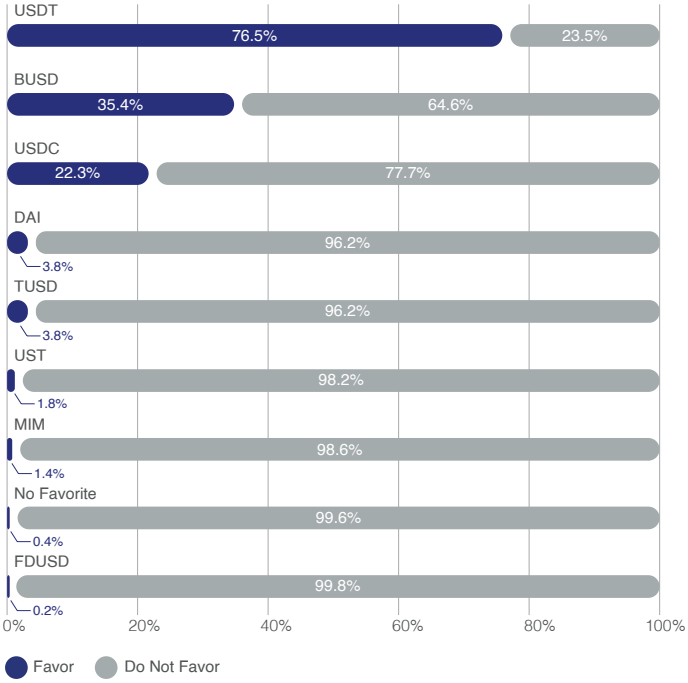


Figure 23: Stablecoin ownership rates among crypto-consumers.

With a slight decrease, more than one-fifth of crypto-shoppers who use stablecoins have USDC in their pockets. USDC was always more popular than BUSD among crypto owners; however, it could never become more popular than BUSD among crypto-shoppers (which should be subject to change soon), likely due to the off-chain payment options enabled by Binance (which no longer offer BUSD). As faster blockchains and layer-2 networks see stronger adoption and as Circle, the issuer of USDC, increases its partnerships (e.g., Circle partnered with Apple Pay), we will likely see an increase in USDC shopping as well. The rest of the stablecoins have much lower ownership ratios, at least for now. Among those, DAI and TUSD may have a potential with rates at 3.8%. As discussed later in Section 6.6, only 55.2% of the stablecoin-using crypto-consumers have used any of the layer-2 networks to make their stablecoin transactions. However, should we see layer-2 or faster, more scalable blockchains increasingly adopted, and depending on a variety of factors like macroeconomic conditions or regulations, we may see the adoption of other forms of stablecoins, such as locally pegged currencies (e.g., the Euro Coin launched in June 2022 by Circle) or gold-pegged cryptocurrencies (e.g, PAXG, XAUt), which are not among the top choices by the end of H1 2023.

Stablecoins, designed to offer protection against the volatility common in cryptocurrency markets, faced a significant challenge with the collapse of Terra USD (UST) in 2022. Previously pegged to the US Dollar and used by 6.3% of cryptoconsumers at the start of Q2 2022, UST's value plummeted and lost its peg, leading to a rebranding as TerraClassic USD (USTC). This event underscored the potential risks associated with stablecoins. But still, 1.8% of crypto-consumers who own stablecoins have it in their portfolio.

When it comes to fiat currency usage in the cryptomarkets, the US Dollar (USD) remains the predominant choice, with 76.9% of crypto-consumers utilizing it for transactions (i.e., buying/selling cryptocurrency, evaluation pricing of items bought/sold), comparable to the previous year's threequarters. Despite the growing diversification of the market and the emergence of non-USD stablecoins, the USD's dominance appears steadfast. As shown in Figure 24, the Euro (EUR) retains the second position despite a small decrease, now at 8.3% (was 11.6% in 2022). Indian Rupee (INR) is the third, although it has also seen a decrease to 2.8%. Swiss Franc is the fourth with 0.8%. The British Pound (GBP) is among several currencies tied for a lesser preference at 0.6%. The collective use of other fiat currencies not individually listed in the chart remains at 7.5%. The detailed distribution of fiat currency usage among crypto-consumers reflects the USD's continued influence and the varied adoption of other currencies in the global crypto economy. Yet, there is no sign on the horizon indicating a change in the current situation unless BRICS countries issue their own currency.

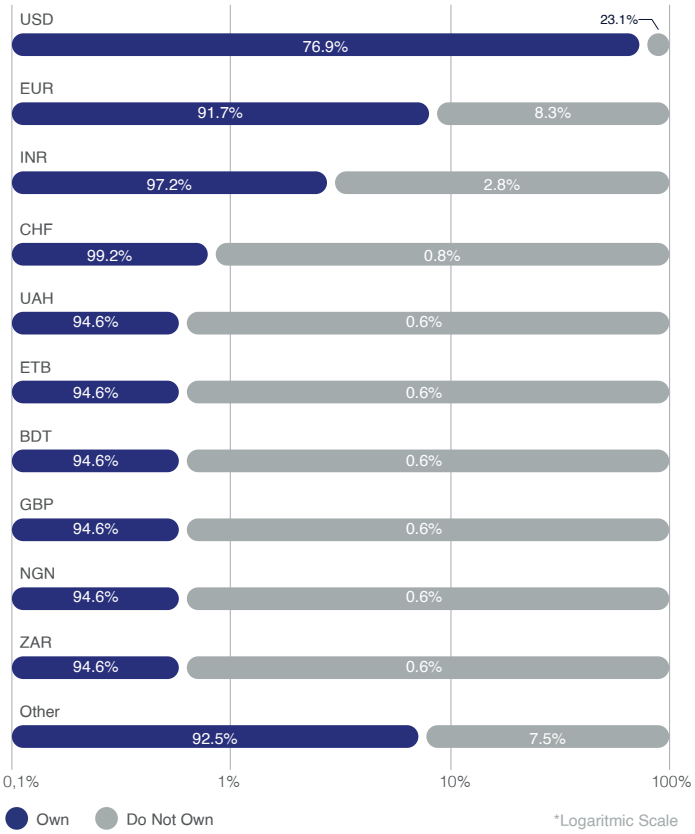


Figure 24: Crypto-consumers' main fiat currency preference for buying/selling crypto.

5.1.3 Size of crypto holdings

The total monetary value of cryptocurrencies (including the cash-equivalent value of non-currency crypto assets) that crypto-consumers hold, as well as the share of those crypto-assets to their total net worth, are key metrics for quantifying the growth of a crypto-driven economy. While crypto-assets still represent a modest share of overall wealth for many, there is a noticeable shift in this dynamic. According to the latest figures charted in Figure 25, a very small – but still notable – segment of crypto consumers, about 3%, have more than $100,000 in cryptocurrencies. Another 5% have between $20,001 and $100,000. A more substantial 14.8% have crypto-assets valued between $1,001 and $5,000. 26.3% has smaller holdings ranging from $101 to $1,000, and the majority, 37.4% (increased from a third in 2022), own less than $100 in cryptocurrencies, setting the median holding in the $101 to $1,000 range. Many crypto-consumers have minimal cryptocurrency holdings due to risk aversion, regulatory uncertainties, and the market's inherent volatility, which may discourage substantial investments. Newcomers often invest small amounts as a trial, and some maintain modest stakes for diversification. Limited disposable income, security concerns, technological complexities, and the behavior of gig workers – who may earn and spend small crypto amounts quickly – also contribute to the prevalence of low crypto holdings among consumers.

In order to better understand the situation, that information must be complemented with the crypto-worth to total net-worth ratios of crypto-consumers, provided in Figure 26. Crypto-assets, while still a modest share of total holdings for many, show a promising integration into personal wealth, with recent data indicating that 10.9% of crypto-consumers have over half their net worth in cryptocurrencies, despite the median nominal worth of crypto-assets was very low. Additionally, 9.3% hold between 20% to 50% of their net worth in crypto, and 13.4% have allocated 10% to 20% to such assets. In contrast, a majority still maintains a conservative stance, with 27.1% having 1% to 5% and the largest segment, 21.7%, holding less than 1% of their net worth in crypto. The median lies between 5% to 10%, suggesting a cautious yet growing commitment to the crypto economy as current numbers are comparable to but slightly larger than last year's.

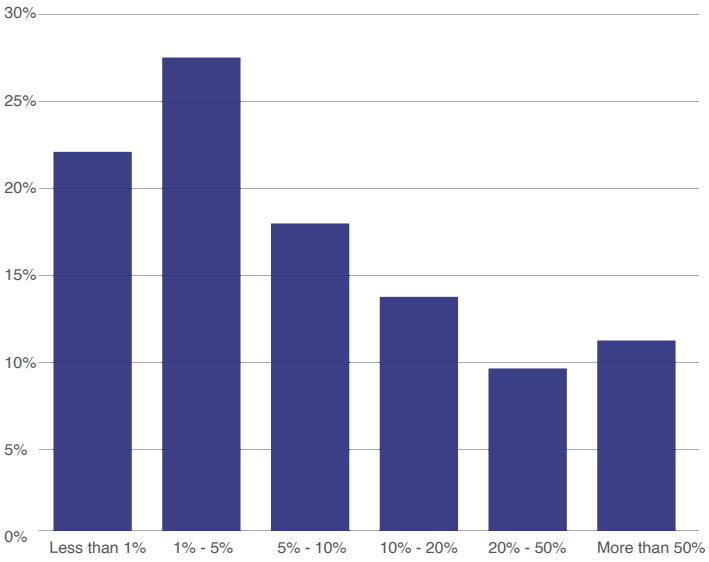


Figure 26: Ratio of crypto-consumers' crypto-holdings to their total net worth.

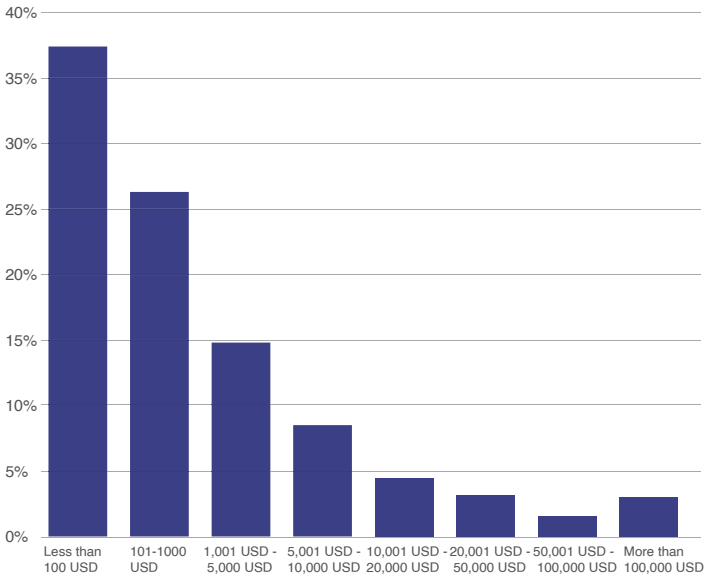


Figure 25: Total cash-equivalent value of crypto-consumers' crypto-holdings.



5.2 Money & Payments Management

Revealing how crypto-consumers manage their crypto-assets and perform necessary actions like transfers and payments shall help us understand the market dynamics better.

5.2.1 Wallet and exchanges

Figure 27 lists wallet type preferences of crypto-shoppers. There, we see a clear preference for certain types and brands of wallets, with a strong tendency towards online custodial wallets, as indicated by 45.6% of users. The convenience of mobile app wallets isn't far behind, favored by 35.3% of consumers. Although less popular, browser wallets and desktop software wallets are used by 7.9% and 6.7%, respectively, while hardware wallets are the choice for only 4.5%, reflecting a cautious approach to security among a smaller, possibly tech-savvy demographic.

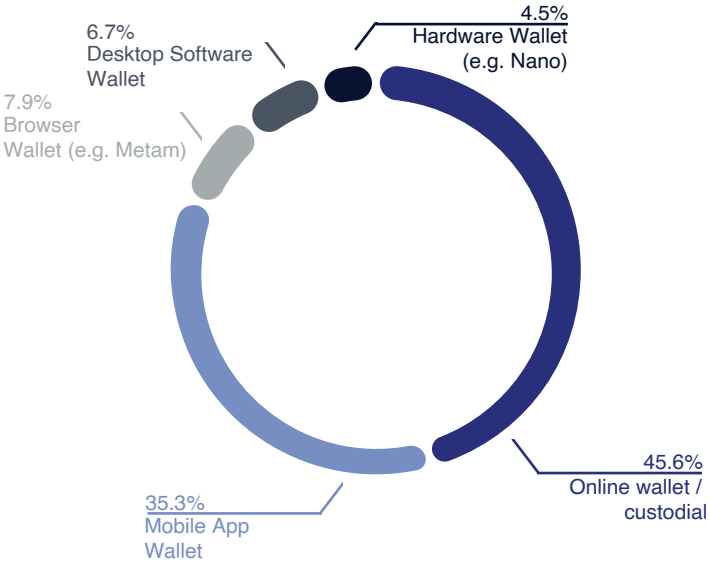


Figure 27: Crypto-consumers' wallet type preferences.



When it comes to specific wallet brands, presented in Figure 28, Binance leads overwhelmingly, with 75.7% of cryptoconsumers using it, underscoring the trust and widespread adoption of their wallet services. Metamask stands as the second favorite, as 34.4% of crypto-shoppers likely appreciate its integration with decentralized applications. Coinbase wallet is also significant in the market, with nearly a quarter of users at 24.9%. Other exchange wallets and non custodial wallets represent smaller fractions of the user base, indicating a diverse market with varied preferences.

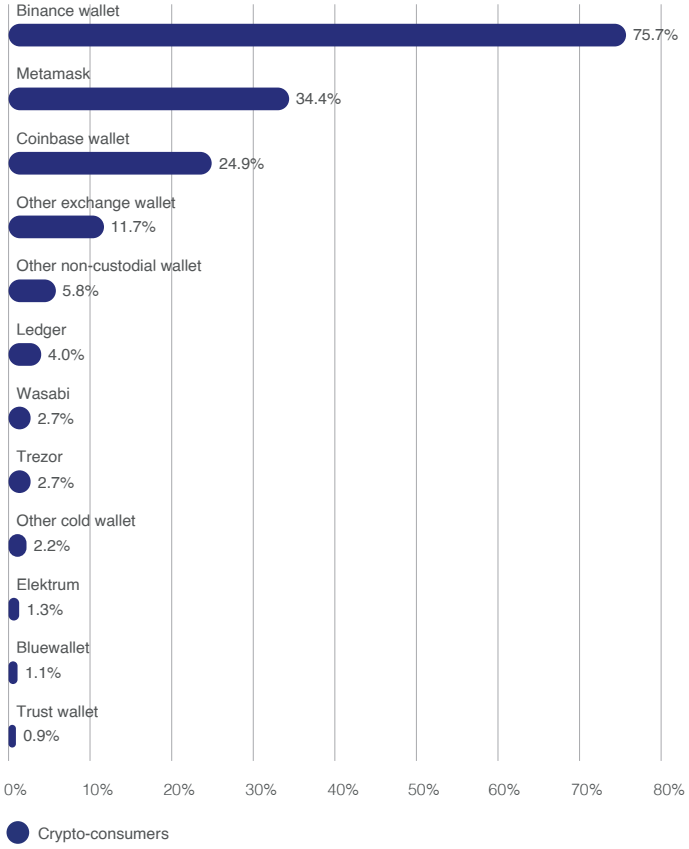


Figure 28: Crypto-consumers' wallet brand preferences.

As presented in Figure 29, among crypto exchanges, Binance dominates, with a whopping 81.4% of crypto-consumers engaging with their platform, likely due to its extensive range of services and high liquidity. Coinbase is used by nearly a quarter of consumers, reflecting its status as a go-to platform, particularly in regions with stringent regulations. KuCoin and decentralized exchanges are chosen by 20.4% and 14.6% of users, respectively. Smaller percentages for exchanges like Bybit, OKX, and MEXC suggest a competitive but fragmented market beyond the big players, with users spreading their activity across multiple platforms to suit their trading needs.

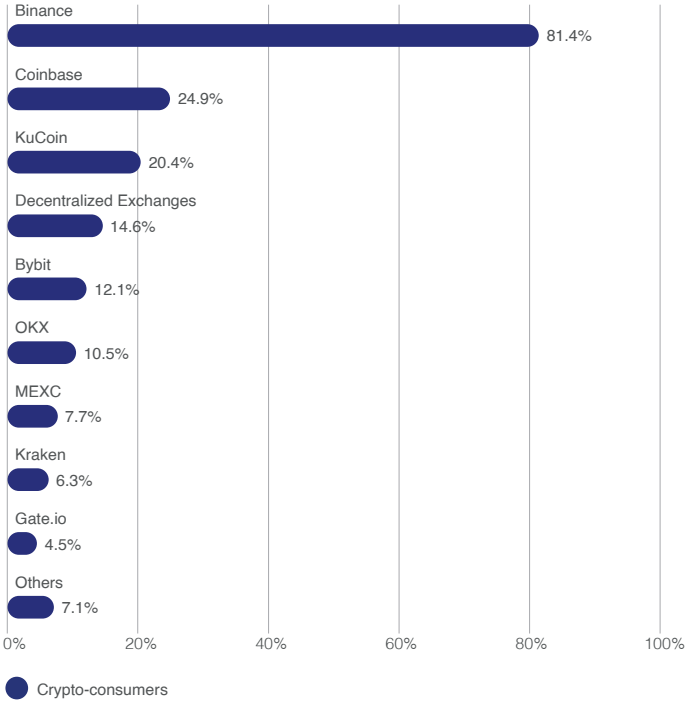


Figure 29: Crypto-consumers' crypto exchange preferences.



5.2.2 Crypto-backed credit cards

A new trend in the crypto payments industry is regular-looking credit cards affiliated with major networks, that are indeed backed by cryptocurrencies under the hood, or issued by crypto-exchanges and somehow tied to the crypto wallets/accounts of their users. Those credit cards help consumers use their cryptocurrencies to pay for goods and services they buy from both online and brick-and-mortar shops that otherwise do not accept crypto payments. In this sense, they are similar to gift cards; however, they still require sufficient inclusion in the traditional banking and credit system (e.g., credit history), hence less helpful for un-or-underbanked people.

This bridge between traditional finance and the crypto world appears to be received positively by the crypto-consumer community. As of today, one-third of them report using such credit cards, as shown in Figure 30. The reasons behind the adoption are primarily driven by convenience and incentives. Figure 31 shows that nearly half appreciate the ease of use these cards offer, while a close 43.9% are attracted by cryptobased rewards programs. A third of users value the wide acceptance of these cards, yet immediate transactions and low fees are less commonly cited advantages, noted by 20.2% and 16% of users, respectively.



Figure 30: Share of crypto-consumers who use crypto-backed or exchange-issued credit cards.

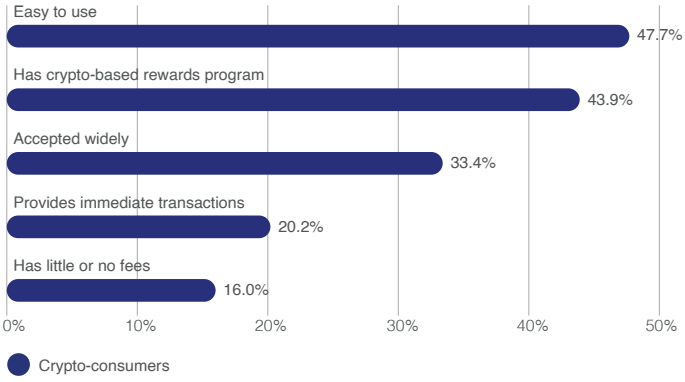


Figure 31: Crypto-consumers' top reasons for using crypto-backed or exchange-issued credit cards

Conversely, the majority who do not use crypto credit cards cite limited availability as the primary barrier, with 66.1% indicating that such financial products are not offered in their region. Other factors deterring usage include the perceived lack of benefits (17.3%), qualification criteria (16.8%), and concerns related to taxation (13.6%) and privacy (13.1%). This data, visualized in Figure 32, underscores the potential for increased adoption if these cards become more accessible and if their advantages are communicated more effectively to address the concerns and misconceptions of potential users.

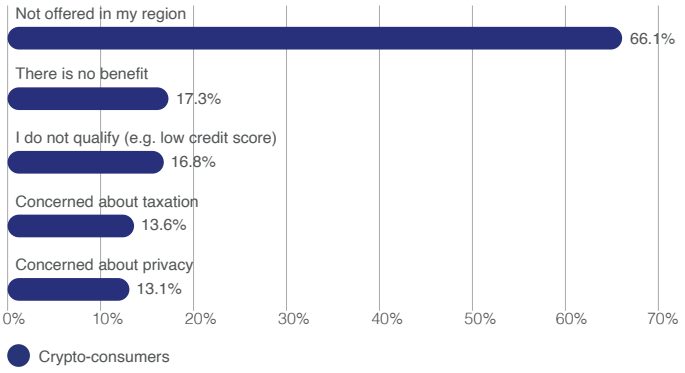


Figure 32: Crypto-consumers' top reasons for not using crypto-backed or exchange-issued credit cards.

5.3 Means for obtaining crypto

5.3.1 Overview of Methods

In the current state of cryptocurrency acquisition among crypto-consumers, as shown in Figure 33, the primary method remains purchasing (or investing in) crypto, with 76.1% engaging in this form of acquisition, with a slight decrease from 78.3% of 2022. Earning crypto through completing minor tasks or running after online gigs is 42.5% with no change. Participation in affiliate and/or loyalty programs as a means to obtain crypto has seen a notable decrease to 28.3% from last year's 69.3%, reflecting a shift in promotional strategies or consumer interest. Cryptocurrency mining has also declined from a quarter in 2022 to 21.9% today. There's an uptick in receiving cryptocurrencies as salary or allowance, now at 19.8% compared to the prior 12.1%. The practice of gifting crypto has seen a minor increase to 13.4%. Crypto-consumers who receive crypto payments from their customers for the services they provide within their own businesses have risen marginally to 15.0% from 12.6%. These trends indicate shifts in the ways consumers are engaging with cryptocurrencies, with a notable increase in earning them through work or as a salary and a decrease in obtaining them through affiliate/loyalty programs. Which is promising to achieve a more sustainable crypto economy.

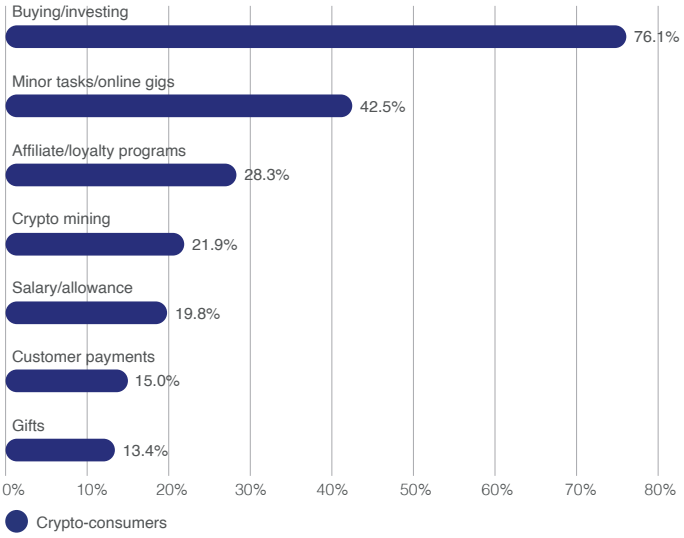


Figure 33: Main methods for obtaining crypto-currency.



5.3.2 Income Factor

The data presented in Figure 34 highlights some correlations in how crypto-consumers acquire cryptocurrencies per different income levels. In this section, the crypto-consumers are divided into four income groups: very low (<$5,000), low ($5,000-$9,999), middle ($10,000-$49,999), and high (≤$50,000). Buying (or investing in) crypto remains the most common method across all income brackets, with a clear trend showing higher percentages as income increases. While 70.9% among those earning under $5,000 buy crypto as a major way of obtaining crypto, this ratio reaches 81.3% for those earning above $50,000. Participation in affiliate or loyalty programs – which sees a significant decline this year – is more prevalent among lower-income groups, peaking at 31.1% for those earning between $5,000 and $9,999, then decreasing as income rises. This suggests that lower-income individuals may rely more on these programs as a means to earn crypto as a side or passive income. Conversely, moderately higher earners are more likely to receive crypto as part of their salary or allowance, although this method is less common for the highest earners, indicating highest earners are acting more as investors with their wealth primarily associated with non-crypto works/businesses.

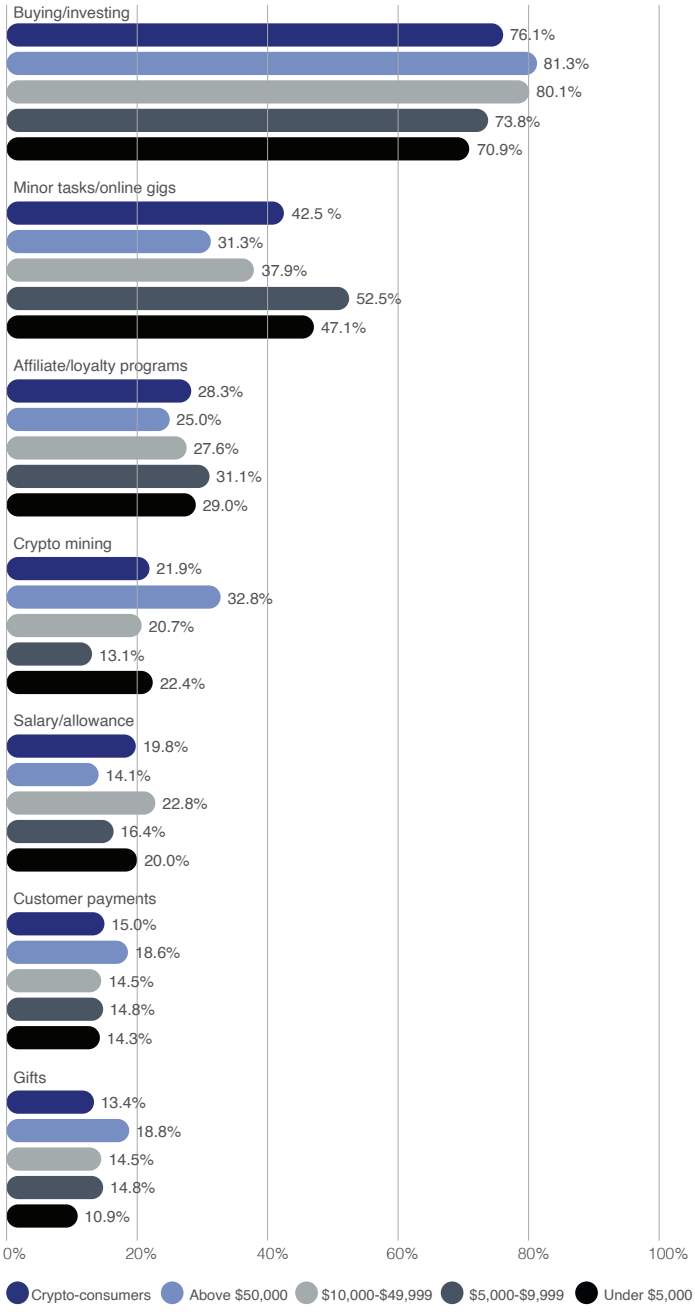


Figure 34: Main methods for obtaining cryptocurrencies by income level.



"As crypto-consumers' income increases, their likelihood of buying crypto-assets increases and using affiliation programs decreases."

Crypto mining, on the other hand, shows a varied trend, with the highest income group being the most active miners at 32.8%, possibly reflecting the financial capability to invest in the necessary equipment, which includes costly graphics cards or ASIC devices. As anticipated, the group earning under $5,000 shows a significant engagement in minor tasks or online gigs at 47.1%, which may indicate a reliance on these activities as a supplemental income stream or even the main source of income. Gifts in crypto form show an upward trend with income, starting at 10.9% for the lowest earners and reaching 18.8% for the highest, possibly due to the higher earners being in networks that are more crypto-savvy or affluent. Overall, the data reveals that while buying and investing is the dominant method of acquiring crypto across all income levels, other methods such as affiliate programs, online gigs, and crypto mining are differentially preferred depending on the consumers' income, reflecting diverse approaches to crypto acquisition related to financial means and opportunities.

Investigating the (linear) correlation between income levels and crypto obtaining methods, we reached the following Pearson correlation coefficients (r):

- Buying/investing: 0.951, indicating a very strong positive correlation with income.
- Minor tasks/online gigs: -0.943, showing a very strong negative correlation with income.
- Gifts: 0.876, suggesting a strong positive correlation with income.
- Customer payments: 0.836, also indicating a strong positive correlation with income.
- Affiliate/loyalty programs: -0.904, indicating a strong negative correlation with income.
- Salary/allowance: -0.345, showing a weak negative correlation with income.
- Crypto mining: 0.775, suggesting a moderately strong positive correlation with income.

"Crypto-currencies are mainly used for purchasing digital goods and services."

Pearson's r can be between +1 and -1, where 1 indicates a total positive linear correlation, 0 is no linear correlation, and -1 is a total negative linear correlation. These coefficients suggest that as income increases, individuals are significantly more likely to buy or invest in cryptocurrency and slightly more likely to engage in crypto mining. Conversely, those with lower incomes are more inclined to earn cryptocurrency through affiliate/loyalty programs and minor tasks or gigs. Receiving cryptocurrency as gifts or customer payments also tends to increase with higher incomes, although to a lesser extent than buying or investing. The correlation for salary or allowance is relatively weak, suggesting other factors may influence whether people receive their salary in crypto.

The latest figures show that 81.3% of the high-income group are purchasing crypto, which is ten percent lower than in 2022 but still higher than 2021 numbers. This group is also actively engaging in crypto mining (32.8%), which surpasses the previously noted 25% and indicates a rebound, potentially due to better profitability or increased investment capacity. However, high-income earners show less interest in minor tasks and online gigs, with only 31.3% participation, which is slightly higher than the prior 30.8% but still the lowest among all income groups. Their engagement in affiliate or loyalty programs is also lower at 25%, down from last year's 44.2%. Their involvement in receiving customer payments (18.6%) and salaries in crypto (14.1%) is notable, although it does not lead the categories. Middle-income earners are active in buying crypto at 80.1%, with moderate involvement in mining at 20.7% and receiving crypto as part of their salary at 22.8%. Low-income consumers lead in minor tasks and online gigs at a whopping 52.5%, with lower engagement in business-wise customer payments and salaries at 14.8% and 16.4%, respectively. The very-low-income group focuses on affiliate programs at 29.0% and is also very active in minor tasks/gigs at 47.1%, yet they buy crypto less commonly at 70.9%.

Almost a quarter of all crypto-consumers do not buy or invest in crypto-assets primarily, and this ratio hits as high as one-third among the lowest-income segment. Hence, cryptocurrencies used by crypto-shoppers are not always acquired through purchases or investments but rather through some type of compensation for work, activities, loyalty promotion, etc. Thus, for the vast majority of crypto-shoppers, cryptocurrencies are already a component of a circular economic system in which they are in some way earned and spent, making them a suitable medium of exchange.

6. SHOPPING TRENDS

Consumers who use cryptocurrency for shopping have some unique preferences and tendencies when it comes to their purchasing and spending behaviors. However, these habits can vary based on factors including gender, age, income, and occupation. Understanding these factors can help companies decide what to sell, how to accept payments, and the best ways to advertise and sell their products.

6.1 Top Goods & Services

Crypto-shoppers are inevitably restricted to the products and services provided by businesses. Nevertheless, those consumers display diverse purchasing behaviors across various product and service categories, with some product lines drawing more attention than others. Also, there is a notable preference for digital goods/services over physical goods. Yet, mobile data and airtime top-ups are the most purchased category among crypto-consumers, with 51.2% showing interest, likely due to the universal availability of those products through providers like Cryptorefills. Virtual game items, credits, and downloadable extra content (e.g., from online game stores, platform portals, company websites, etc.) are a close second at 48.1%, reflecting the popularity of online gaming. Mobile apps are in the third spot with 26.3%. Digital entertainment services (e.g., streaming services, entertainment portal subscriptions, movie and music providers, etc.) are purchased by 20.9% of consumers in crypto, losing its third position in 2022 and becoming the fifth choice. This year, we included the utility bills and fees (e.g., electricity, phone, internet) as a response option for the first time, and the results are indeed surprising as 21.3% of crypto-consumers pay at least one of their utility bills via a cryptocurrency (either directly or through gift cards) placing it in the fourth spot. The complete ranking is provided in Figure 35.

The computer software (excl. mobile apps) and cloud/internet services (e.g., hosting, domain, VPN, etc.) category has seen a notable decrease from 21.2% in 2022 to 15.7%. Yet, hardware and electronics (e.g., laptop, TV, computer parts, etc.) purchases also seen a decline from 20% to 13.3%, foods and beverage (incl. delivery) from 18% to 13.9%, travel and hospitality (e.g., tours, hotels, etc.) from 14.1% to 7.2%, online publications and paid content (e.g., e-books, online magazines, newspaper portals, library/content subscriptions, etc.) from 11.2% to 9.9%, pharmacy (e.g., health, cosmetics, beauty, supplements, etc.) from 5.6% to 4%, printed publications (e.g., books, magazines, newspapers, etc.) from 5.1% to 2.5%, and fashion (e.g., clothing, apparel, accessories, etc.) from 12.2% to 8.3%. On the other hand, online gambling (incl. betting) increased to 13.5% from 12.2%, and the newly added luxury items category is preferred

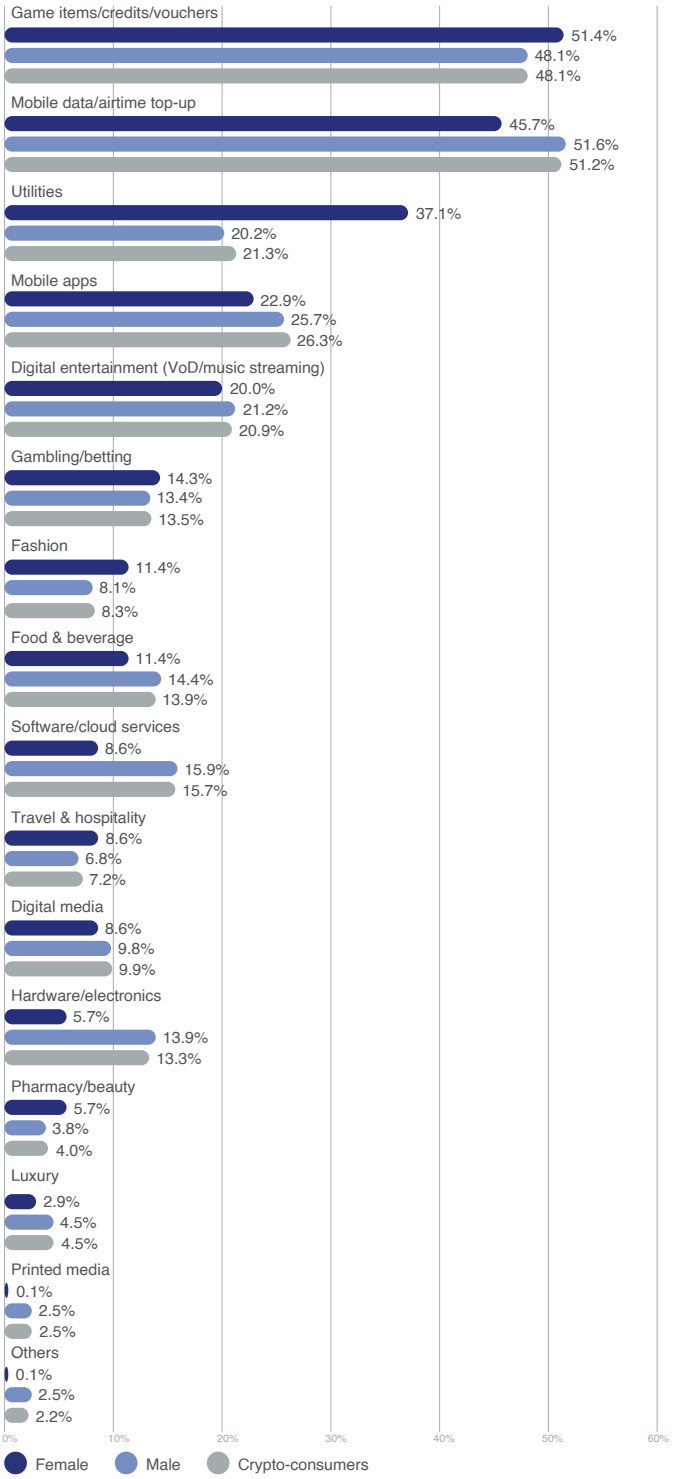


Figure 35: Top goods and services preferred by crypto-consumers.

by 4.5%. Other options (including cash-outs, donations to charity, open-source/crowdfunding projects, etc.) have negligible importance. The full list provided in Figure 35 shows declines in interest in tangible items, non-digital services, and some of most conventional digital products, whereas "mostly digital" everyday expenditures and billable services are in higher demand. Nevertheless, our data also shows that consumer preferences for purchased goods and services vary by gender, income level, and employment type.



"Crypto-currencies are mainly used for purchasing digital goods and services."

6.2 Gender Factor

In analyzing the spending habits of crypto-consumers by gender, current data shows that women differ in their purchasing preferences compared to men in several categories. Female crypto-shoppers show a stronger preference for travel and hospitality services, as 8.6% purchase products/services in this category, while 6.8% of males spend their crypto to buy those. Fashion is another area where women outspend men, with 11.4% of female crypto-consumers making such purchases against 8.1% for male consumers. Pharmacy and beauty products also see higher spending from women at 5.7%, compared to 3.8% for men. Utilities are a notable category where women's spending is significantly higher at 37.1%, suggesting that female crypto-consumers might prioritize homemakingrelated services. In contrast, men's spending on utilities is lower at 20.2%. A slight lead for females in gaming expenditures and in online gambling/ betting is also remarkable.

Men have maintained a lead in mobile top-ups (51.6% vs 45.7%). Likewise, hardware/electronics at 13.9%, with women spending 5.7% in the same category. 15.9% of male crypto-shoppers buy software and cloud services with crypto, whereas 8.6% of females do so. Yet, men have moderately higher interests in mobile apps, luxury goods, printed media, and food and beverage. Men's spending pattern looks slightly more oriented towards technology and digital services, with the exception of gaming-related purchases. The complete ratios are given in Figure 35. Here, we have to note that, currently, just less than one-tenth of crypto-consumers are women; therefore, when the number of female crypto-consumers increases, the ratios may be subject to change as the stats would be more mature.

6.3 Income Factor

Income levels significantly influence the purchasing preferences of crypto-consumers. As seen in Figure 36, the likelihood of shopping for some specific items directly correlates with one's yearly income. The top 5 categories for those in the highest income bracket (above $50,000) are game items/credits (with 50.8%, increased from 44.2% in 2022), mobile top-ups (with 45.8%, increased from 30.8% in 2022), mobile apps (at 27.1%), food and beverage (at 27.1%), and software and cloud services (23.7%, declined from 42.3% in 2022). The high earners remarkably lead in nearly all tangible goods and non-digital services, including food and beverage, travel, hardware/electronics, printed media, pharmacy/beauty, fashion, and luxury purchases, as well as in gambling, digital media, and computer software. This trend has been pretty consistent throughout the years.

For the middle-income bracket ($10,000-$49,999), the top 3 consist of game items/credits (46.4%, unchanged since 2022), mobile top-ups (at 42%, increased from 38%), and mobile apps (at 24.6%). They are not leading in any category and have a roughly more balanced product breakdown showing a balanced preference for both digital and physical goods, with digital still prevailing. Among those, there is notable interest in digital entertainment, travel, and gambling. Low-income earners ($5,000-$9,999) prioritize mobile data/airtime top-ups (at 57.6%), game items/credits (at 57.6%), mobile apps (at 32.2%), and utilities (at 32.2%), yet they are leading in utilities and digital entertainment categories, indicating a strong interest in digital consumption and paying bills. The very low-income group (under $5,000) shows the highest propensity for mobile top-ups (at 60.2%), followed by game items/credits (at 47.2%), and mobile apps (at 16.5%). They are leading in mobile top-ups and have a higher tendency in digital goods/services. They are the least in printed media, fashion, and gambling categories.

We put forward three highly probable reasons for the tendency to buy digital items more than physical goods and services, especially among lower-income groups. First, many physical goods and services (e.g., hardware, travel, etc.) have higher prices than many digital goods, so they may be less affordable for lowincome consumers. Second, most physical goods are indivisible (or have a minimum amount) in terms of quantity, so while it is possible to buy varying amounts of game credits or mobile top-ups, it is not possible to order half hardware. Last but not least, most physical goods and services either require shipping of goods to the physical presence of the consumer or require the consumer to go and get the goods or services; hence, these options may not be available to the locations where low-income consumers densely reside (e.g., low-income or conflict-affected countries).

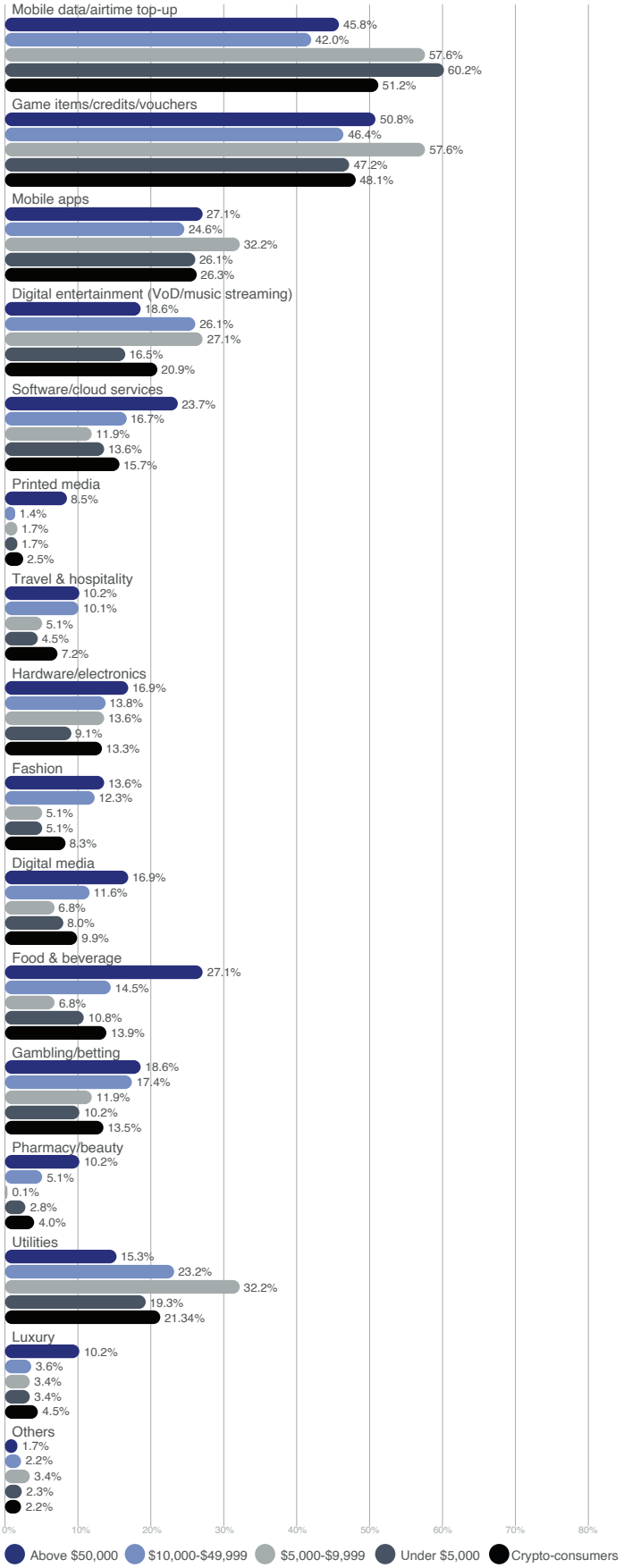


Figure 36: Top goods and services per crypto-consumers' income.

6.4 Employment Factor

The employment type of crypto-consumers also notably influences their spending habits, as illustrated in 37. Self-employed, entrepreneurs, and investors showcase a diverse purchase spectrum, with 58.3% paying for mobile top-ups, 49.4% buying game items/credits, 30.1% purchasing mobile apps, and 26.3% paying for digital entertainment services as their most common buy. They are leading in mobile top-ups, software, hardware, food and beverage, travel, and gambling. There is no category in which they bring up the rear. Full-time, part-time employees, and retirees show a strong preference for mobile top-ups at 44.3%, for game items at 41.6%, for utilities at 23.8%, and for mobile apps at 21.1%. They are leading in utilities and printed media. Students and the unemployed are most engaged in game credits/items at 57.7%, followed by mobile top-ups at 52.9%, and mobile apps at 29.8%. They lead in fashion purchase rates. Yet, they spend less on utilities at 19.2%, but this still ranks among their more frequent purchases, contrasting with their lower interest in digital entertainment at 14.4%. They also spend the least on printed media, travel, food and beverage, and gambling. Their spending is less diversified, focusing heavily on digital goods – except for fashion items – and avoiding luxury expenditures, which overall aligns well with the interests typical of younger demographics. This data points to the varied consumer profiles within the crypto market, even suggesting different consumer clusters, with the type of employment significantly shaping spending patterns, and suggests that as crypto adoption grows, these preferences may shift to reflect a wider range of goods and services.



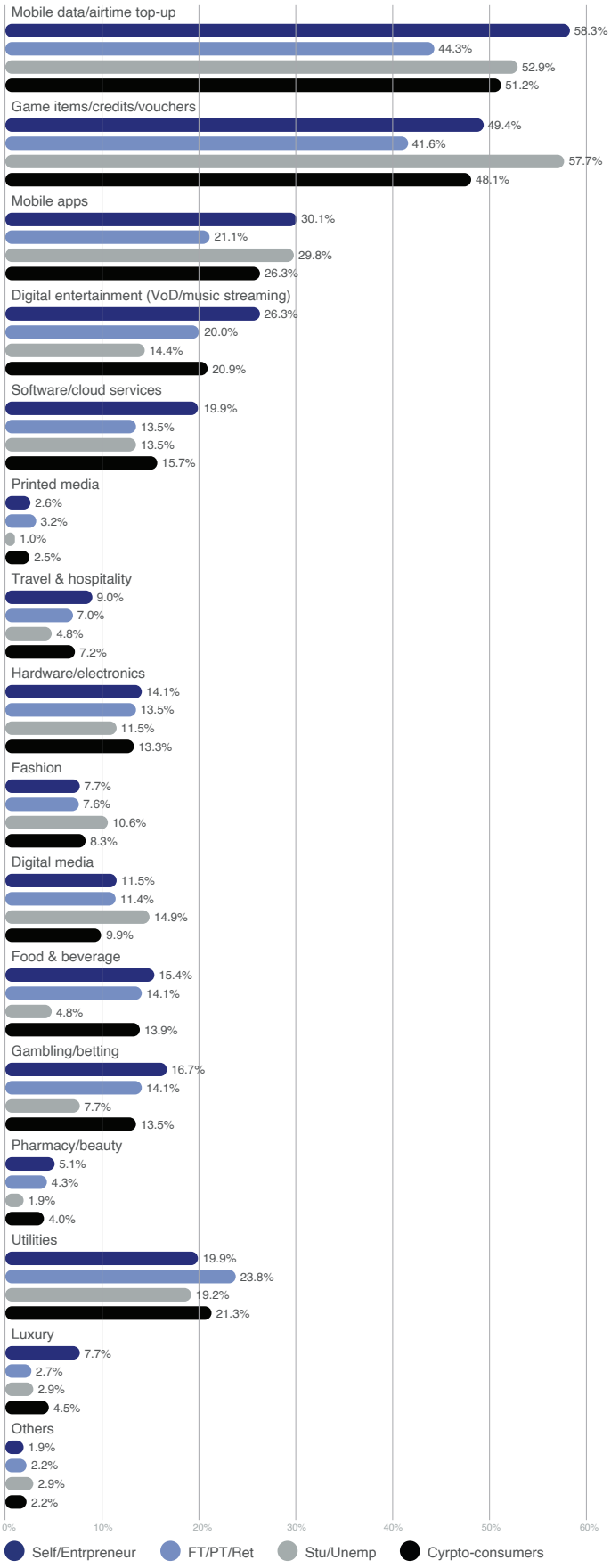


Figure 37: Top goods and services per crypto-consumers' occupation.

6.5 Direct vs. Indirect Purchases

Among purchases made with cryptocurrency, only 56% are direct transactions at stores or merchants accepting crypto, comparable to last year's 56.9% with a marginal decrease. Indirect purchases, where consumers use crypto to buy gift cards or vouchers at stores selling those before the actual shopping for intended goods and services, have correspondingly increased marginally, accounting for 44% of transactions, up from 43.1% the previous year. Considering that this ratio was 40.6% in 2021, an increasing trend can be observed. As shown in Figure 38, direct purchases are still more common among crypto-consumers, which may be to avoid commissions and implicit costs that appear when buying gift cards first. However, this trend suggests a growing convenience in using gift cards, but it also highlights that the number of stores directly accepting crypto remains limited, driving consumers towards indirect methods of using their cryptocurrencies for shopping.

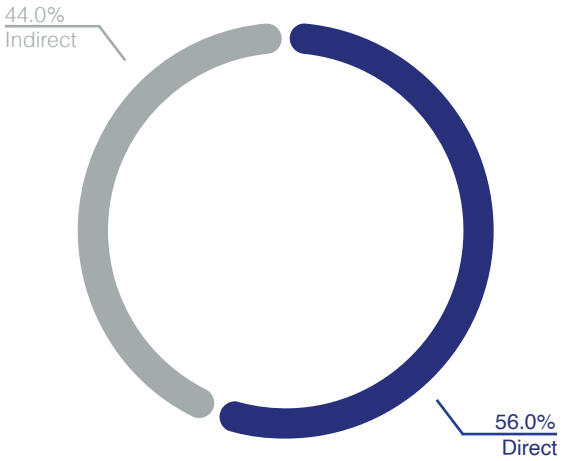


Figure 38: Share of purchases made either direct or indirect (i.e., via gift cards or vouchers).



6.6 Lightning Network and layer-2

The Lightning Network is a "layer-2" payment protocol. It is designed to be layered on top of the "main" Bitcoin network as a scalability solution to enable faster and cheaper transactions. The Lightning Network can be thought of as a peer-to-peer system for making micro-payments of cryptocurrency. Transactions occurring on the Lightning Network are processed "off-chain" through a network of bidirectional payment channels. Users wishing to pay with the Lightning Network must first open a payment channel by committing a transaction to the underlying (layer-1) blockchain. Once a channel is open, users can make and/or receive any number of payments. Every transaction on the Lightning Network updates the distribution of funds on the channels but not on the underlying blockchain; therefore, it is "off-chain". Only the final settlement transaction, which is made by closing the channel, will redistribute the funds to the underlying blockchain according to the transactions that occurred on the Lighting Network.

Although available to Litecoin and technically for other blockchains that are associated with the Bitcoin network, the Lightning Network's use today is mainly prevalent in (if not exclusive to) Bitcoin. Therefore, for the purpose of this report, when we refer to the Lightning Network, we are referring to this technology applied to the Bitcoin network and the transfer of Bitcoin cryptocurrency. Nevertheless, there are now many other layer-2 solutions tailored for various blockchain networks other than Bitcoin's.

For a crypto-consumer to pay with Bitcoin via Lightning, the user must:

1. Obtain a "Lightning-enabled" Bitcoin wallet,
2. Connect the wallet to a "Lightning node" (this is automatic in the newer generation of Lighting wallets)
3. Open and fund a Lightning channel (the store's channel or a well-connected channel that can reach the store).

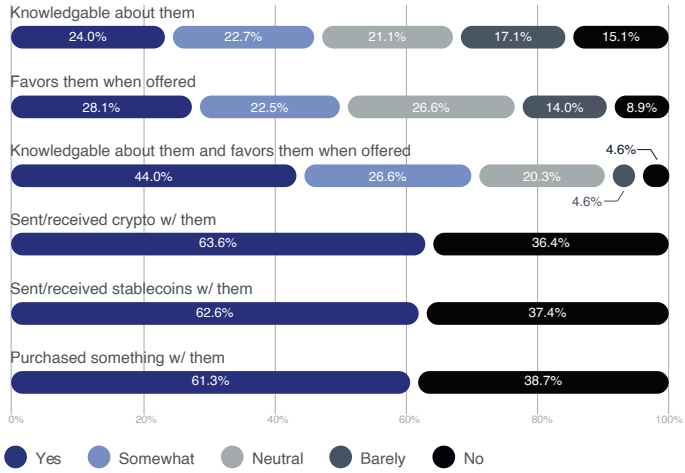


Figure 39: Crypto-consumers' experience with the Lightning Network, layer-2 systems, and scalability solutions.

So, despite being immediate, the complexity of crypto-shopping (which is already found to be too high by some crypto-consumers) further increases with the use of Lightning Network.

Figure 39, the understanding and use of the Lightning Network and/or other layer-2 schemes among cryptoconsumers have shown noticeable growth. According to the latest data, 46.7% of crypto-consumers are now knowledgeable about the Lightning Network (or others), indicating a ten percent increase compared to the 42.1% reported as knowledgeable or somewhat knowledgeable in the previous year. Accordingly, with a significant increase from 2021's 49.3% and last year's 54.5%, now 63.6% of crypto-consumers have used the Lightning Network to send or receive cryptocurrency at least once, and 61.3% have utilized it for purchases (was 52.8% in 2022 and 46.9% in 2021), reflecting a continuation of the upward trend. The proportion of consumers who favor the Lightning Network for transactions

"Crypto-consumers who are well aware of the Lightning Network claim to prefer it whenever it is offered by the stores."

stands at 28.1%, and those who both know and favor the Lightning Network comprise 44% of crypto-consumers, showing a willingness to adopt new technologies for their potential benefits. This suggests that while there may be some gaps in understanding the layer-2 technology, the convenience, faster transaction times, and lower fees associated with the Lightning Network and other layer-2 networks are driving their increased adoption for transactions and shopping within the crypto community. The disparity between those who have tried using the Lightning Network and those who are knowledgeable about it highlights a trend of consumers actively engaging with new technologies, even if their comprehension of the underlying mechanics remains developing.

Layer-2 solutions like the Lightning Network are increasingly important in the cryptocurrency space, especially for stablecoin transactions, which can be expensive on their native networks like ERC-20 tokens on the Ethereum network. The Lightning Network, known for enabling faster and more costeffective Bitcoin transactions, points to a trend that could extend to stablecoins, offering users cheaper and faster payment options. Figure 40 shows that, currently, a whopping 62.6% of crypto-consumers have used layer-2 networks specifically for buying goods and services with their stablecoins. A good increase from 55.2% recorded last year. Given that a significant portion of consumers are engaging with Layer-2 networks for stablecoin transfers, we can anticipate that the use of stablecoins in crypto-shopping will likely increase as more consumers seek out these efficient and cost-saving methods.

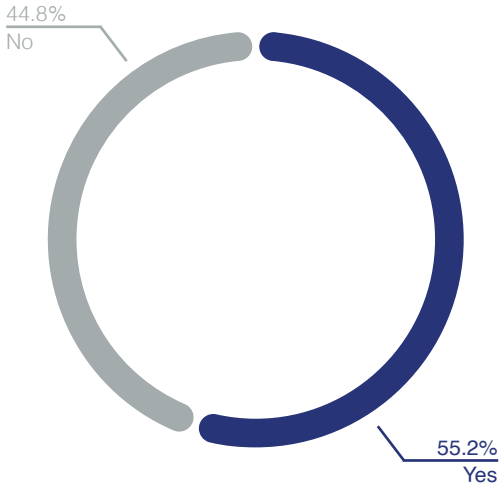


Figure 40: Share of crypto-consumers transacted with a stablecoin through a layer-2 network, among all consumers using layer-2.

With a large increase from last year's 59.2%, now 70.6% of crypto-consumers who are knowledgeable about the Lightning Network or other layer-2 solutions claim that they favor it as a payment option when offered. What is more interesting is that all other things being equal, as many as half of the crypto-consumers stated that they would favor one store over another if it accepted payments via the Lightning Network. Even more significant is the fact that this percentage is more than two-thirds among the ones who are knowledgeable about the Lightning Network, whereas only 9.2% are knowledgeable about layer-2 and still intentionally avoid using it for whatever reason. Furthermore, Lightning Network and other layer-2 users make crypto-shopping more frequent than the general crypto-consumer population (more on this in the next section).



As of early 2021, we observed that only a tiny fraction (1.9%) of the total purchases and as low as %2.8 of Bitcoin payments made via our platform were processed through the Lightning Network, although the crypto-consumers reported deep interest in Lightning Network as a payment option. In 2022, on the other hand, we saw an outstanding increase in the preference for the Lightning Network, especially as a share of the Bitcoin payments. This is well illustrated in Figure 41. According to our analytics, in July 2021, payments made over the Lightning Network constituted as little as 3.7% of all purchases and 8% among Bitcoin payments (per the number of orders, not volume). However, in June 2022, this rate vastly increased to 9.1% of all purchases and to 33.6% among Bitcoin payments. In other words, one-third of all payments that were directly made with Bitcoin (excluding third party payment processors, like Binance Pay) were sent through the Lightning

to 2021's data mentioned above. The rise in the use of other layer-2 solutions is also worth mentioning. Newer data on this matter has not yet been analyzed. Network, which is a huge improvement when compared

In lieu of the advancements, data from our infrastructure, as well as from various actors in the sector, show that Lightning Network transactions are still a small portion of all Bitcoin transfers, even in the stores that offer it. Hence, it may be logical to think that there are still some demotivating factors and/or barriers to access that inhibit adoption. These may include technical issues, such as not having the skills or the knowhow to set up Lightning wallets and channels correctly, but also economic reasons, such as committing (prepaying) funds on a Lightning channel. Yet, we are highly optimistic about those potential barriers considering the improvement seen in Figure 41.

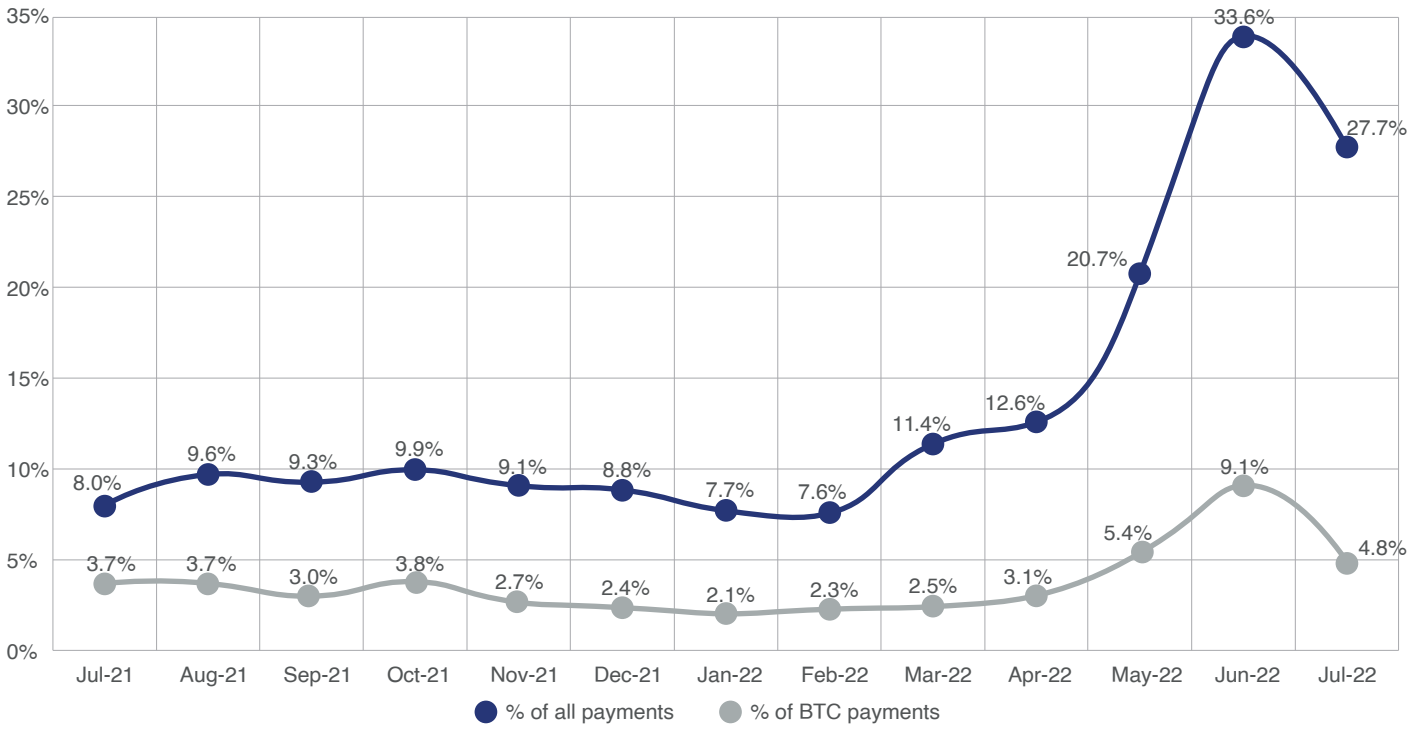


Figure 41: Payments made via Lightning Network as a share of all orders and BTC payments.

6.7 Recurrence

Recurrence and frequency of shopping activities are crucial for income streams from both the retailers' and providers' viewpoints because they show how loyal the customers are. Fortunately, crypto-shoppers frequently make repeat transactions.

While the market expands, the frequency of cryptocurrency usage for shopping remains steady, with changes on both ends. Figure 42 reveals that currently, 13.7% of cryptoconsumers use cryptocurrencies for shopping on a daily basis, marking a slight increase from the 12.5% reported in 2022. Likewise, 14.6% of crypto-consumers buy and sell cryptocurrencies on a daily basis. Nevertheless, a quarter of cryptoconsumers purchase stuff using their cryptocurrencies on a weekly basis (unchanged since last year), yet a quarter state that they buy and sell crypto weekly, which altogether indicates a correlation between the people's frequency of trading crypto and their crypto-shopping habits.

From the data above, 39.1% of crypto-consumers shop with crypto at least once a week or so, showing how common it has become. Another 38.4% buy goods and services with crypto every month (with a decrease from last year's 44.3%, but higher than 2021's 34.1%), while 39.7% of crypto-consumers trade crypto monthly, supporting the correlation claims above. 18% shop with their cryptocurrencies once or a few times a year, which is a rise compared to the 12.2% of 2022. The ratio of consumers who rarely or almost never engage in crypto-shopping has remained unchanged at 4.5%. So, among consumers, there is an increase in the frequency of both daily and yearly shopping behavior, possibly indicating that crypto-shopping is becoming more beneficial for some and less desirable for others at the same time.

Crypto-shopping has evolved into a regular activity for the majority of users, with 77.5% engaging in it at least once a month or more. There is a small decrease from last year's 83.4% due to the fast expansion of the market with many new crypto-consumers, yet the figures are still higher than 2021's 75%. Therefore, it is also interesting to elaborate on what frequent shoppers purchase. Frequent shoppers, particularly those transacting daily or weekly, demonstrate a preference for digital over physical goods, likely due to the convenience offered by cryptocurrencies in the digital economy. Buying cryptocurrency itself is also done slightly more frequently than crypto-shopping. Those findings can be expected due to the high interest in using crypto-assets for investment and financial purposes. Details can be obtained from Figure 42.

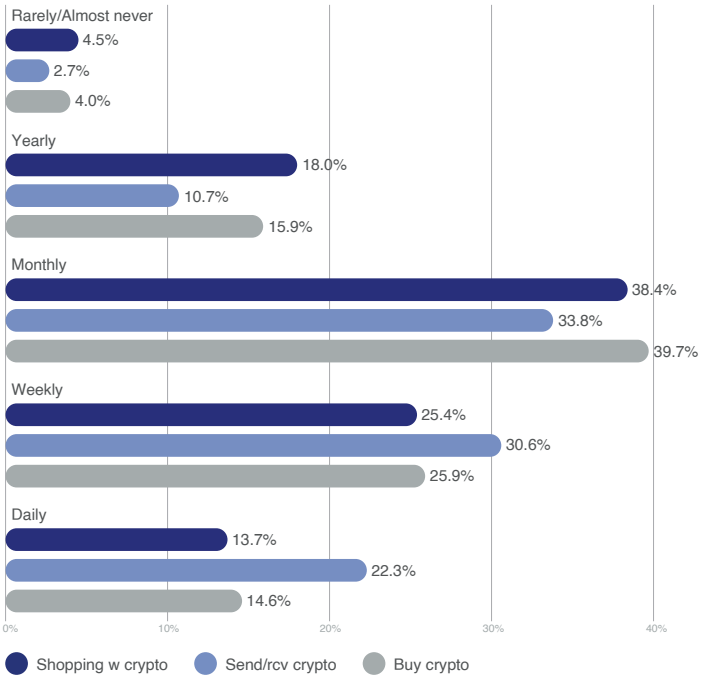
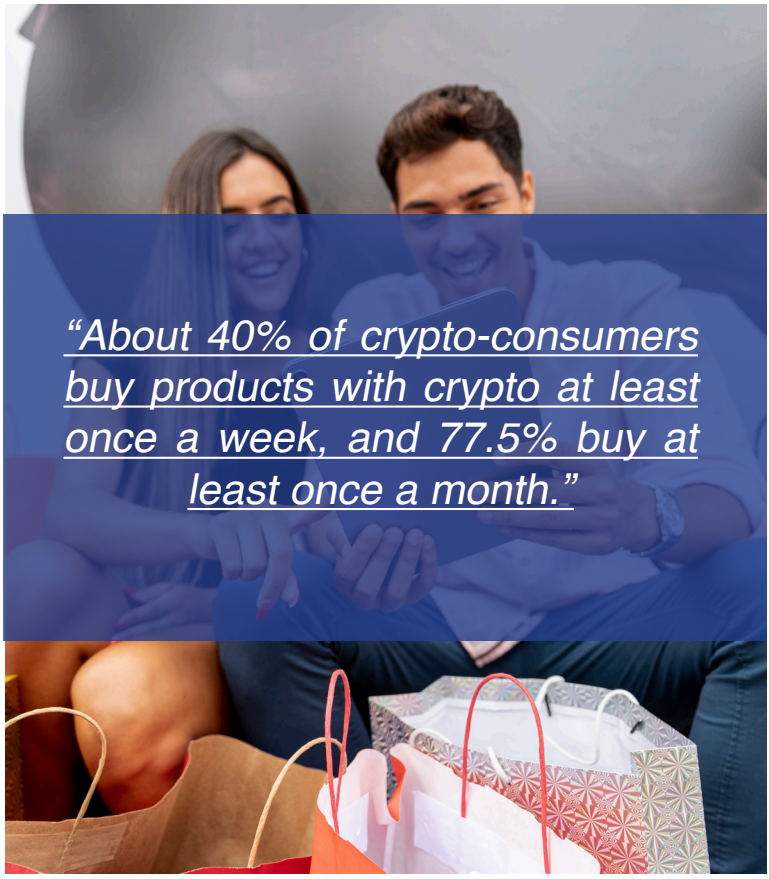


Figure 42: Crypto-consumers' frequency of making purchases and transfers (incl. exchanges) with cryptocurrencies.



6.7.1 Lighning Network and Layer-2 Factor

The crypto-consumers who have used the Lightning Network at least once, including the ones who use it occasionally or whenever available, have a much higher crypto-shopping frequency when compared to the consumers who have not yet tried the Lightning Network. As shown in Figure 43, 15.9% of the crypto-consumers who use the Lightning Network do crypto-shopping on a daily basis. This is more than twice the ratio of the ones who do not use the Lightning Network. Likewise, 31.3% of cryptoconsumers using the Lightning Network do cryptoshopping on a weekly basis, this is more than 50% higher than non-users. When combined, nearly half of Lightning Network-using crypto-consumers do crypto-shopping at least on a weekly basis. This rate is only 27.4% among the ones who do not use Lightning Network and about 40% among the general crypto-consumer population. The shopping frequency of the Lightning Network users (and the gap between the non-users) is quite impressive. Generally, it is safe to assume that the Lightning Network users have more expertise in the field and have more exposure to blockchain due to their work. Moreover, there are more innovators among them. What we found even more noteworthy is that the better user experience (i.e., higher speeds and lower costs) that the Lightning Network provides may most likely have been playing a significant role for its users in making a habit out of crypto-shopping, whereas the non-users may find it more expensive and may not get the same benefits as the users.

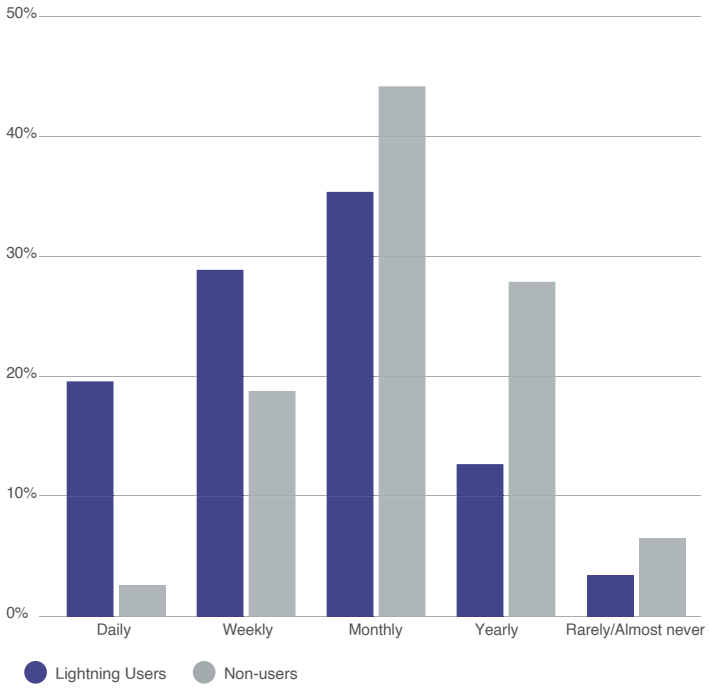


Figure 43: Crypto-shopping frequencies of Lightning Network users and non-users.



"Crypto-consumers using Lightning Network have a much higher shopping frequency than non-users."

7. CUSTOMER EXPERIENCE

Businesses should assess the consumers' previous and present experiences to understand the market's demand for future actions. Our data shows that they are pleased by many aspects of crypto-shopping, but also that there are still some bothersome problems.

7.1 Satisfaction

On the whole, crypto-consumers are generally happy with their shopping experiences. However, as order confirmation delays and transaction costs rise, satisfaction rates plummet, making them the key elements influencing how satisfied consumers are with their crypto-shopping experiences. Although costs and delays are closely related in blockchain ecosystems, fees are decided upon prior to an order being submitted, whereas delays occasionally occur after an order has already been placed. So, we go into further detail on delays here and fees in the subsection after that.

7.1.1 Order Confirmation Delays

There are two reasons for delays: the intentional processes of the stores (e.g., payment handling, billing procedures, supply-chain issues, etc.) or the waiting queue (e.g., the memory pool, otherwise known as the mempool) of a particular cryptocurrency platform. Since most modern e-commerce systems can handle orders within minutes (actually, even in seconds), when longer delays are mentioned, the readers should think of the latter case. It is important to understand that such delays vary a lot from one cryptocurrency to another; even for the same currency, it can differ from time to time depending on the utilization rates of the waiting queues (the mempool paradigm and its effects on the user experience are further elaborated in Section 7.2).

The speed of order confirmation for crypto-consumers appears to be improving through years, with 35.3% now reporting instant transactions, a slight increase from the one-third reported in 2022 and a notable increase from one-fifth of 2021. Additionally, 39.4% see their orders confirmed within just five minutes. Together, this accounts for around three-quarters of crypto-shoppers enjoying confirmations within a five-minute window, marking a



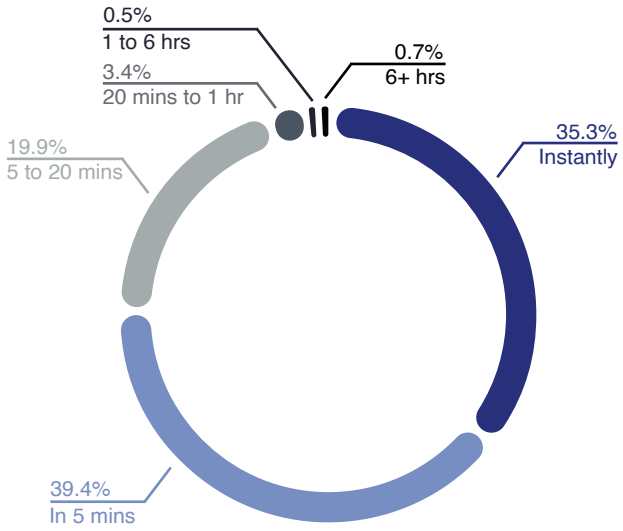


Figure 44: How long it takes for an order to be confirmed.

"In crypto-shopping, 75% of the orders are confirmed within the first 5 minutes, and 92% of the orders are confirmed within 20 minutes."

substantial rise from half the previous year. This enhancement in transaction speed can likely be attributed to two factors: advancements in crypto-payment technologies the merchantes offer and a greater adoption by crypto-consumers of faster and more cost-effective options, including lighter currencies like LTC, DASH, BNB, layer-2 solutions like the Lightning Network and Arbitrum, and scalability platforms such as Polygon.

A further 19.9% of orders are confirmed within 5 to 20 minutes, meaning that an impressive 94.6% of all crypto transactions are confirmed in less than 20 minutes. So, only a small fraction of orders fall into the longer confirmation times, with 3.4% taking 20 minutes to an hour, and even fewer, 0.5%, taking between one to six hours. Orders taking over six hours to confirm are very rare, at just 0.7%, showing a steady decrease from previous figures. These longer wait times (i.e., above 1 hour), which can detract from the customer experience, are becoming increasingly infrequent, indicating that stores and service providers are succeeding in reducing delays. The overall trend is towards faster confirmations, enhancing the crypto-shopping experience. The complete breakdown of order confirmation feedback is provided in Figure 44.

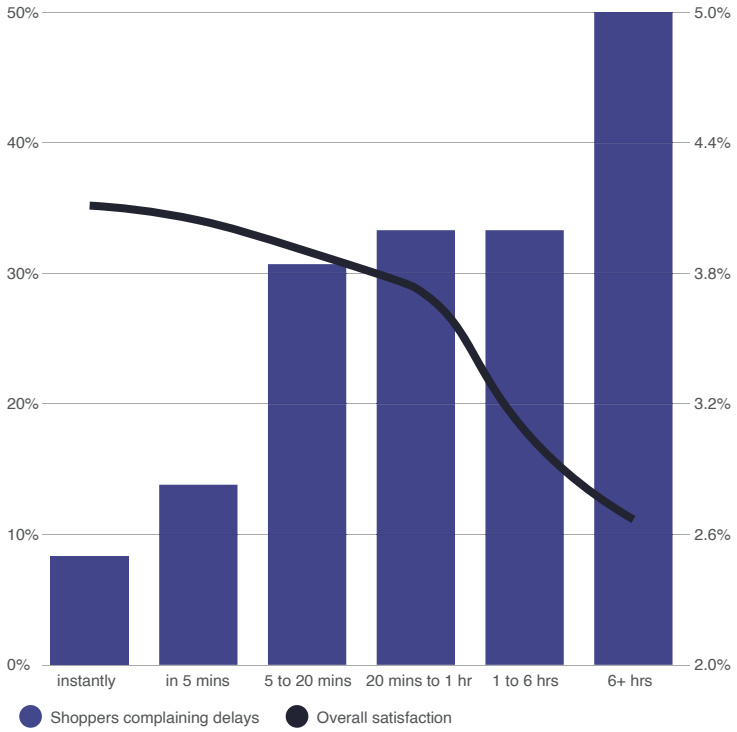


Figure 45: Breakdown of crypto-consumers complaining about delays and their satisfaction per delay length.

Figure 45 shows how transaction delays affect overall consumer satisfaction. The satisfaction rates are produced over a 5-point Likert scale, where five stands for the best satisfaction and one stands for the worst (on the right Y-axis). Yet, the bars show the share of crypto-consumers who complain about the delays per duration of transaction delay (on the left Y-axis). The data makes it obvious that crypto-consumers find confirmation delays tolerable as long as they don't last more than an hour. But delays of more than an hour sharply lower customer satisfaction levels. After around 6 hours of delays, the customers' satisfaction dips below "neutral" (3) levels, although consumers still benefit from crypto-shopping to some extent despite the delays. Anyway, we may therefore conclude that a delay of no longer than an hour is tolerable for crypto-consumers before the satisfaction levels begin to decline. This scale should be considered a minimum standard from a business standpoint and might be used as a target for providing the best customer experience.



"Among all other age groups, young people of Gen-Z are the happiest with their purchase experiences with crypto."

7.1.2 Income Factor

Although not exactly linear, there is a positive correlation between the income groups of crypto-consumers (very low: <$5,000, low: $5,000-$10,000, middle: $10,000-$50,000, high: >$50,000) and their cryptoshopping satisfaction degrees (on the 5-point Likert scale), as illustrated in Figure 46. The share of satisfied ('5' and '4' points on the Likert scale) shoppers is the highest among the low-income segment, at 83%. Despite financial constraints, these consumers seem to value the alternative payment solutions provided by crypto, possibly due to limited access to traditional banking services.

The very low-income shoppers, however, have the lowest satisfaction rate, at 61.4%, and highest dissatisfaction rates ('1' and '2' points on the Likert scale), at 22.2%, possibly due to having no tolerance for transaction fees and commissions that impact the lower-value transactions the most. Middle-income earners show decent satisfaction at 74.6%, while high-income individuals also report a high satisfaction rate of 74.5% but with a slightly elevated dissatisfaction rate of 8.5%, hinting at unmet expectations for a subset of this group. Compared to previous data from 2022, satisfaction has generally improved across all income levels, suggesting that the cryptoshopping experience is aligning more closely with user expectations over time.

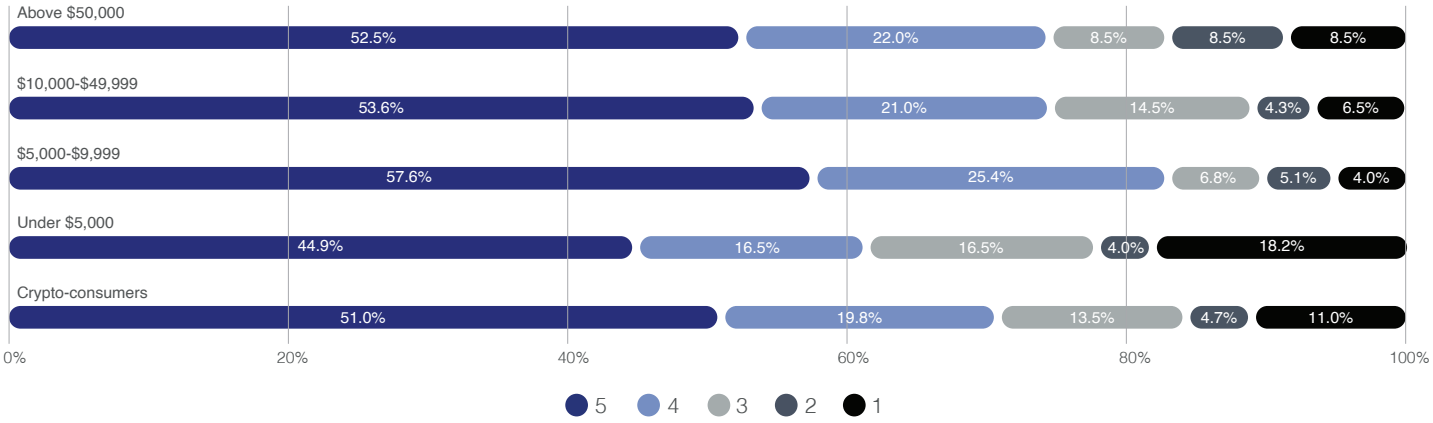


Figure 46: Crypto-consumers' overall satisfaction per their annual income.



"Crypto-consumers with higher income are more satisfied with their crypto-shopping experiences."

7.1.3 Other Factors

What also affects the satisfaction rates is the crypto-consumers' age. Younger consumers of Generations Y and Z have higher satisfaction, whereas the rates drop as age gets older. This might be a result of the complexity of crypto-shopping and related technologies, which the younger generations can likely learn and adapt faster. Furthermore, the adoption of Lightning Network and layer-2 systems are also found to have a correlation with positive experiences.

"Crypto-consumers using Lightning Network are happier with their purchase experiences."

7.2.Issues

The issues that bother crypto-consumers the most are carefully examined. We also incorporated demographic breakdowns because we noticed there are minor variations among various population groupings.

7.2.1 Overview of Issues

Among the most unpleasant problems encountered when purchasing goods and services with cryptocurrencies are high transaction fees and protracted processing times. As was previously mentioned, the majority of crypto-consumers are already used to paying fees and waiting for delays, but in reality, these charges seem to be more than they can bear. However, crypto-shoppers face more than just delays and costs. An extensive list of connected concerns is shown in Figure 47.

The most discomforting issues faced by crypto-shoppers seem to stay with little changes in the order, yet we observe a general decline in the density of those complaints. High transaction fees, previously the primary concern in 2021 and second in 2022, is now again the top concern among cryptoconsumers, as reported by 35.5%. The transaction fees are the amount of crypto-money that will be “gifted” to the blockchain nodes that process the pending transactions. As there is no tariff for such handling, the fees fluctuate depending on the length of the queue of pending transactions, commonly called the mempool. When there are too many pending orders for the processing nodes to handle within a reasonable time, only those orders pledging the highest fees are processed. In such a situation, transactions offering very low fees cannot even be processed at all, resulting in the cancellation of the transactions due to timeouts. This undermines the usability of crypto-shopping.

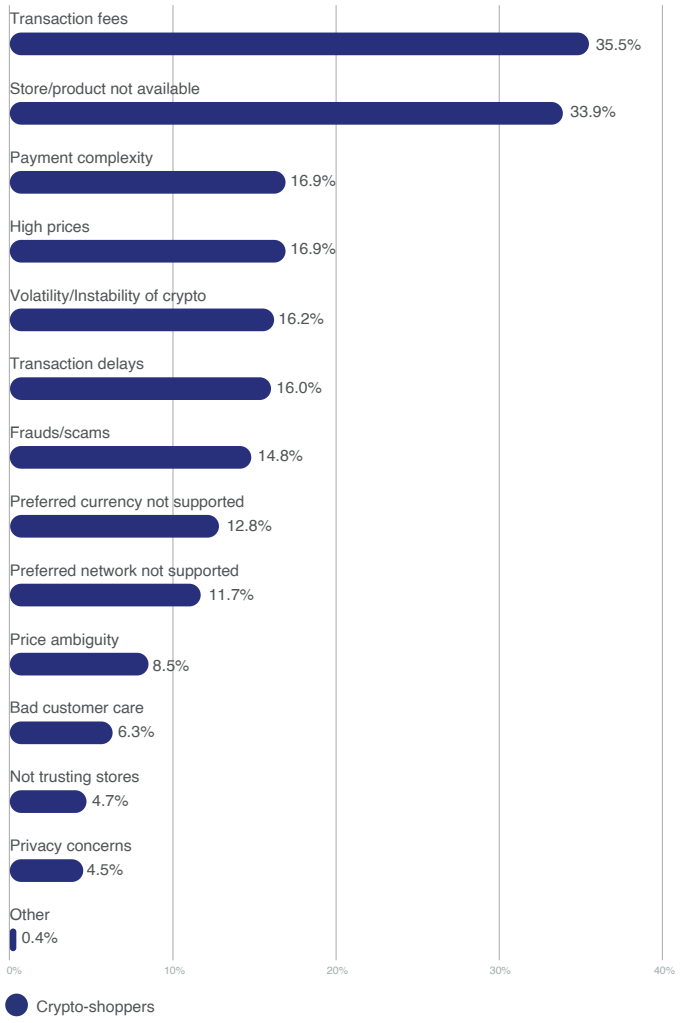


Figure 47: Issues that crypto-consumers face during shopping.

The unavailability of stores and/or products is the second concern at 33.9%. Although there is a decline from the last year as a result of the expanding market, this must still be understood as a huge signal for entrepreneurs, investors, and businesses who are looking after new markets or channels, as this translates to people who are ready to pay extra fees (although not so willingly) and wait for delays to be able to buy stuff with their cryptocurrencies, but they cannot find the correct spots to spend their money! Related to the problem of the fees is the "waiting problem" since this also depends on the blockchain being used and its current mempool status. Transaction delays have shifted down to the fifth most common complaint among crypto-consumers, now at 16.0%, down from 21% in 2022 and 25.9% in 2021, indicating a continuous improvement.

Payment complexity and high prices are both cited by 16.9% of consumers, indicating that while there is a willingness to engage in crypto-transactions, for some cryptoshoppers the process is quite exhaustive, and for some, product costs are higher than expected. This can either be pointing out a comparison to the prices in conventional shops (so that the goods and services are more expensive when sold in cryptocurrencies) or the level of prices in general (e.g., due to the phenomena of low purchasing power and/or high inflation in some countries). Another notable concern is the volatility or instability of cryptocurrencies, reported by 16.2% of shoppers, which underscores the need for more stable transaction environments, including support for stablecoins. Consequently, 8.5% are complaining about the ambiguity of the fiat value of the goods and services they are about to buy, probably because of complex and volatile conversion rates. Provision and acceptance of stablecoins provide a solution to this volatility issue, but they come with their own issues, which again include the fees. The most widely accepted stablecoins are generally ERC-20 tokens (e.g., USDT, USDC, etc.), thus requiring an even higher amount of "gas" (i.e., fees) than a typical Ethereum transaction. Nevertheless, more efficient and cheaper blockchains (e.g., Binance Smart Chain) or layer-2 scalability networks (e.g., Polygon, OMG, etc.) could be a solution, provided that they are easy enough to be used within a shopping context. Drastic and sudden changes in the conversion rates can indeed make consumers feel like they are paying more (or sometimes less) than they should. Plus, they may worry that by spending their cryptocurrency now, they might be missing an opportunity to earn money on it if its value increases after they have already spent it.

Additionally, 12.8% of shoppers report issues with their preferred currency not being supported, suggesting a gap between available options and consumer preferences. Yet, 11.7% (down from 16.3% in 2022) state that the blockchain network that they would favor is not supported by the stores accepting crypto-payments, even though their preferred currency may be accepted. Therefore, in order to keep their customers (and attract more), stores must improve the selection of the currencies they accept and should support alternative solutions, like layer-2 networks. The situation with frauds and scams has improved, with 14.8% of consumers reporting concerns with a great decrease from 2022's 23.3%, signaling an increased awareness and possibly experiences of fraudulent activities in the crypto space. Furthermore, some consumers (6.3%) are just in need of supporting customer care. Trust in stores accepting crypto is another challenge but is less of a concern, with 4.7% of shoppers wary of the merchants. Privacy concerns are a minor issue as well, at 4.5%. Despite these challenges, the primary issues signal a market opportunity for new ventures and existing businesses to cater to the crypto-savvy customer base that is emerging. This shift in consumer complaints is a clear message to businesses to expand their acceptance of cryptocurrencies to capture this ready and willing market segment.

"Even 45.5% of crypto-consumers who are (certainly or somewhat) willing to pay some transaction fees do find the current transaction fees too high."

7.2.2 Age Factor

Perceptions of issues among crypto-shoppers vary by age, with some concerns being more pronounced in certain age groups, as shown in Figure 48. The top 3 problems remain mostly similar, though. Store or product unavailability is a widespread issue, particularly felt among the 45+ age group (38.8%), who have the most interest in tangible products, as well as the 15-24 age group (37.8%), who have a demand for the newest digital products/ services. Transaction fees are a common concern across all age groups, with those 25-34 feeling it most (38%) and slightly less so for the 34-45 group (35.7%). Younger consumers seem to have more tolerance to transaction fees. Fraud and scams are comparably worrying for all age groups, varying between 13.4% and 16.8%. While transaction delays are more bothersome for the youngest of crypto-consumers, the 15-24 age group (17.3%), the complaints centered on delay decline linearly as age increases (12.2% for age 45+), indicating varying levels of patience across generations. Payment complexity is no longer an olds issue but is equally voiced out by all. Consistent with last year's findings, high prices are most problematic for the 25-34 age group (21.2%). Privacy concerns are lowest among the youngest at 3.1% but rise as age increases, to 6.1% for the oldest consumers, emphasizing the increased value placed on privacy with age. These insights highlight the need for businesses to tailor their approaches to the distinct preferences and pain points of different age groups within the crypto-shopping community.

The volatility and instability of cryptocurrency values are particularly concerning for 19% of the 25-34 range, where most young and early-career professionals are found, whereas other groups have a lower and similar rate, around 14%. Likewise, the 25-34 age bracket is most affected by high prices (21.2%), although it's unclear how this has changed from the previous year's 14.6%. Price ambiguity troubles the youngest and oldest consumers the least, whereas 25-34 and 35-44 groups are equally affected. Young adults from generations Y and Z are most vocal about the lack of support for their preferred currencies or networks in stores, likely due to their eagerness to explore new technologies with more benefits. Meanwhile, Generation X's skepticism towards stores is noted as a continued trend. Consistent with 2022 data, privacy concerns are still a significant issue, primarily for the oldest consumers at 6.1%, while younger shoppers under 45 show less concern, possibly reflecting generational differences in digital privacy perceptions.

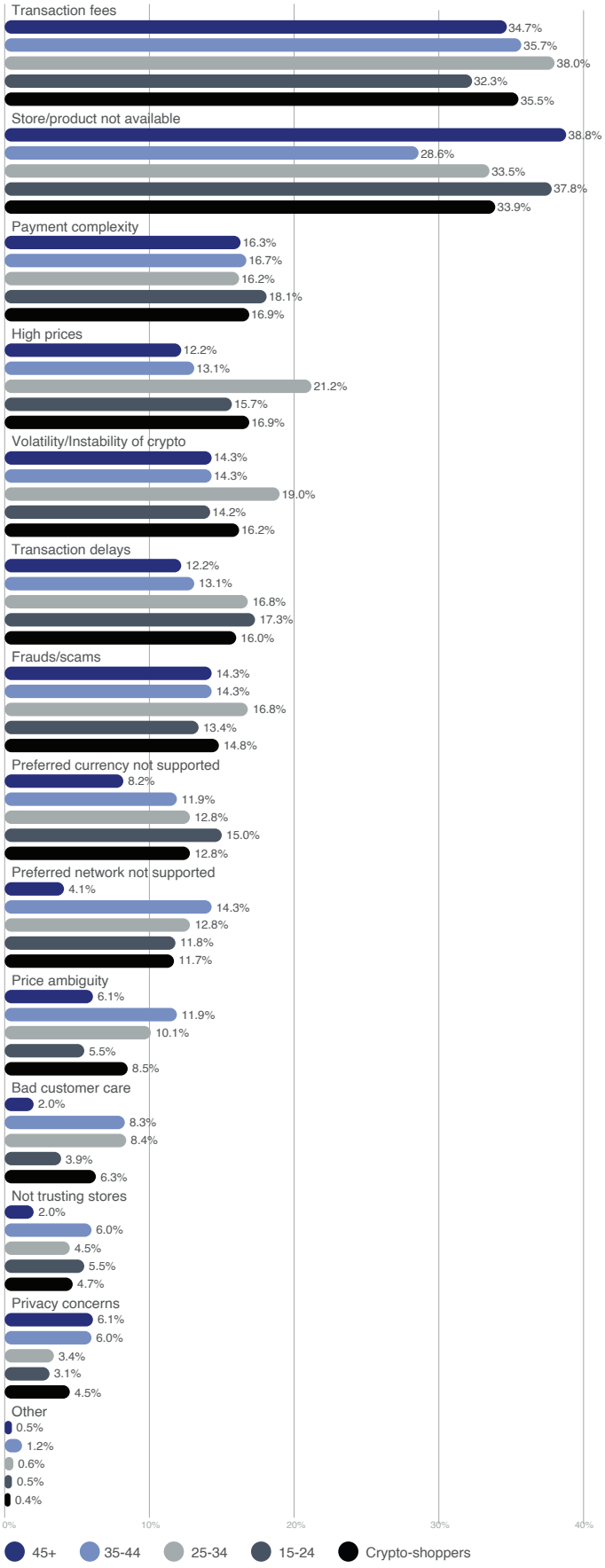


Figure 48: Issue perception per crypto-consumer age.

7.2.3 Income factor

As shown in Figure 49, crypto-shoppers with different income levels may be facing different challenges or may have different priorities. Store or product unavailability is most troubling for those earning $5,000-$9,999 at 40.7%, followed by those who earn less than $5,000 at 36.9%. The highest income earners, above $50,000, are less affected by availability issues at 16.9%. Though not entirely linear, a negative correlation is apparent, potentially due to greater access to diverse shopping platforms. Transaction fees are a significant concern across all income brackets, most notably for those earning above $50,000, at 47.5%, which might reflect higher absolute costs due to larger transaction sizes. As income level decreases, transaction fees become less discomforting for the shoppers, which is quite counterintuitive. This could indicate that lower-income shoppers are either engaging in smaller transactions using cheaper methods where fees constitute a smaller proportion of the overall amount, or they may have adapted to the fees as an accepted aspect of crypto transactions.

Frauds and scams are reported as issues more by the lowest and highest income groups, at 18.2% and 18.6%, respectively, which could stem from the lower-income group's limited resources to absorb potential losses and the higher-income group's larger transaction values attracting more fraudulent activity. Transaction delays are least concerning to those earning under $5,000 at 13.1%, while the highest earners report the highest level of inconvenience at 23.7%. Payment complexity is a bigger challenge for the lowest and highest income brackets, again. Yet the lack of support for preferred networks or currencies is more important for those with higher incomes, indicating a desire for more streamlined and personalized transaction experiences. Trust in stores is least for those with lower incomes, while privacy concerns are notably higher for the $10,000-$49,999 bracket at 8.7%. These insights highlight that while some issues are universally felt among crypto-shoppers, the degree to which they are experienced can vary greatly with income.



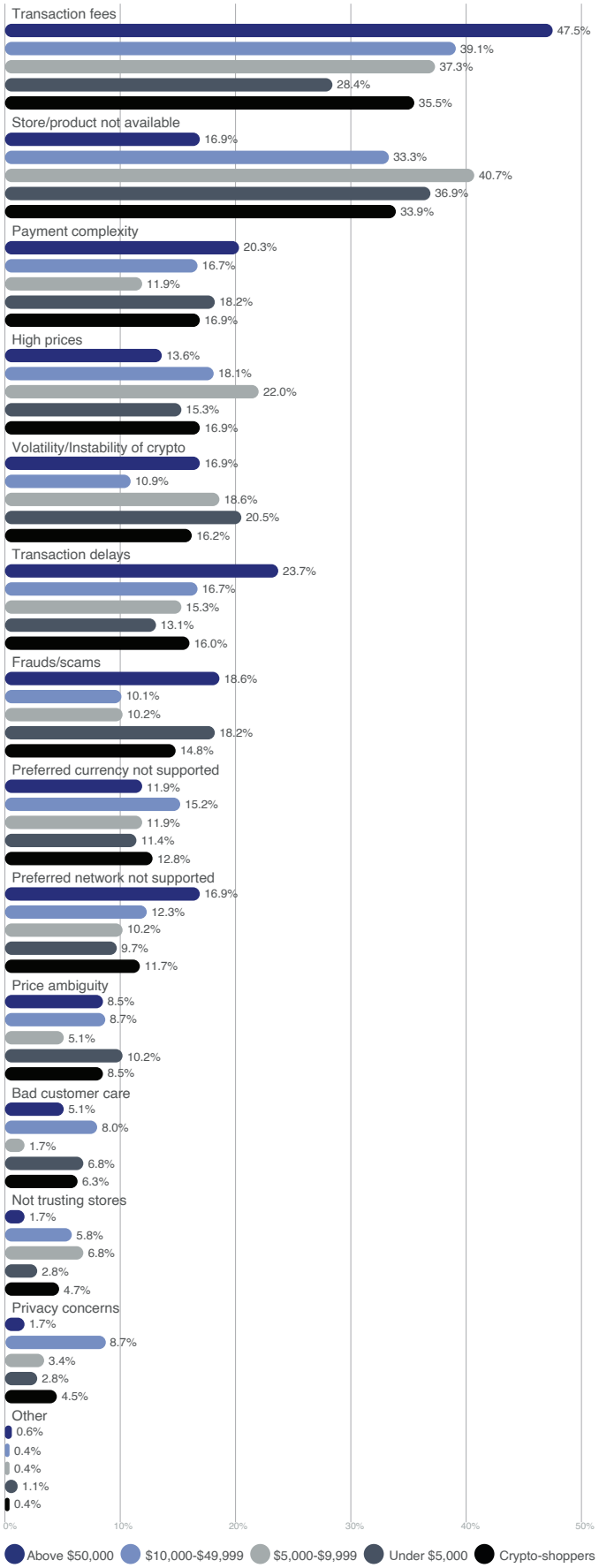


Figure 49: Issue perception per crypto-consumer income.

Volatility and price instability of cryptocurrencies concern lowincome shoppers the most at 20.5%, potentially due to the higher impact of fluctuations on limited budgets. High prices are most felt by the $5,000-$9,999 bracket at 22%, highlighting sensitivity to cost among lower earners. Payment complexity troubles high-income consumers at one-fifth. That may be related to their age also being older. Trust issues with stores and bad customer care are reported less by high-income shoppers, at 1.7% and 5.1%, respectively, suggesting that confidence and service satisfaction may increase with income. Privacy concerns peak at 8.7% among the $10,000-$49,999 income group, then diminish with higher income.



"High transaction fees, the volatility of cryptocurrency prices, and expensiveness of goods and services affect the low-income crypto-consumers the most."

7.3 Future use

Despite the pointed issues, crypto-consumers display a positive outlook on the future of crypto-shopping as depicted in Figure 50, with more than half (either strongly or somewhat) agreeing that they plan (or predict) purchasing goods and/or services using cryptocurrencies within the next month at least once, while 15.6% would likely not. Looking ahead, two-thirds of crypto-shoppers are convinced they will use crypto for purchases at least once in six months, and 68.4% express intentions to continue crypto-shopping within a year. These figures suggest that despite existing challenges, the convenience or advantages of crypto-shopping are sufficient to keep a majority engaged, and there is a prevailing hope among shoppers that the current issues will improve over time. Figures mostly remained unchanged from 2022 data.

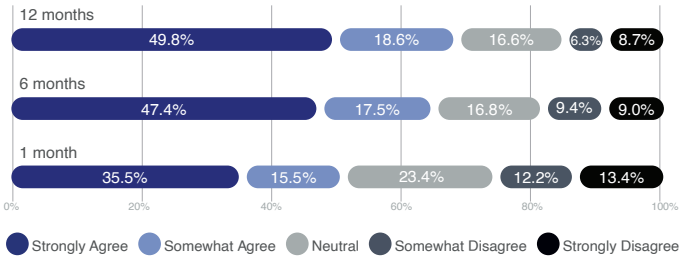


Figure 50: Share of crypto-consumers that will shop using crypto within the next...

Figure 51 reveals the crypto-consumers' predictions about Bitcoin prices by the end of 2023 and 2024. Note the survey was conducted between June and September 2023, under somewhat steady market conditions and a year after the big Terra (and UST) crash and the FTX scandal. By the end of 2023, slightly more than half of crypto-consumers estimate Bitcoin will be valued between $25,001 and $50,000, aligning closely with the views of shoppers who identify as crypto trading experts at 56.4%. Moving to 2024, expectations shift notably higher, with a quarter of crypto-consumers and 23.7% of trading experts anticipating a price between $51,000 and $75,000, yet 18.6% of consumers alongside 24.6% of trading experts projecting it between $75,001 and $100,000. Interestingly, a tiny yet optimistic subset, 1.7% of consumers and 1.9% of experts, foresee the value soaring over $200,000 by the end of 2024. The expectation of a significant increase in cryptocurrency prices makes crypto-consumers refrain from spending the crypto assets in their portfolio due to the fear of missing a future gain. While there are also crypto-shoppers who believe that Bitcoin will lose much of its value in a year, these projections indicate a trend towards higher valuation expectations over time and a continued belief in Bitcoin's investment potential despite market volatility.

"Within the next month, two-thirds of existing crypto-consumers will do crypto-shopping at least one more time."

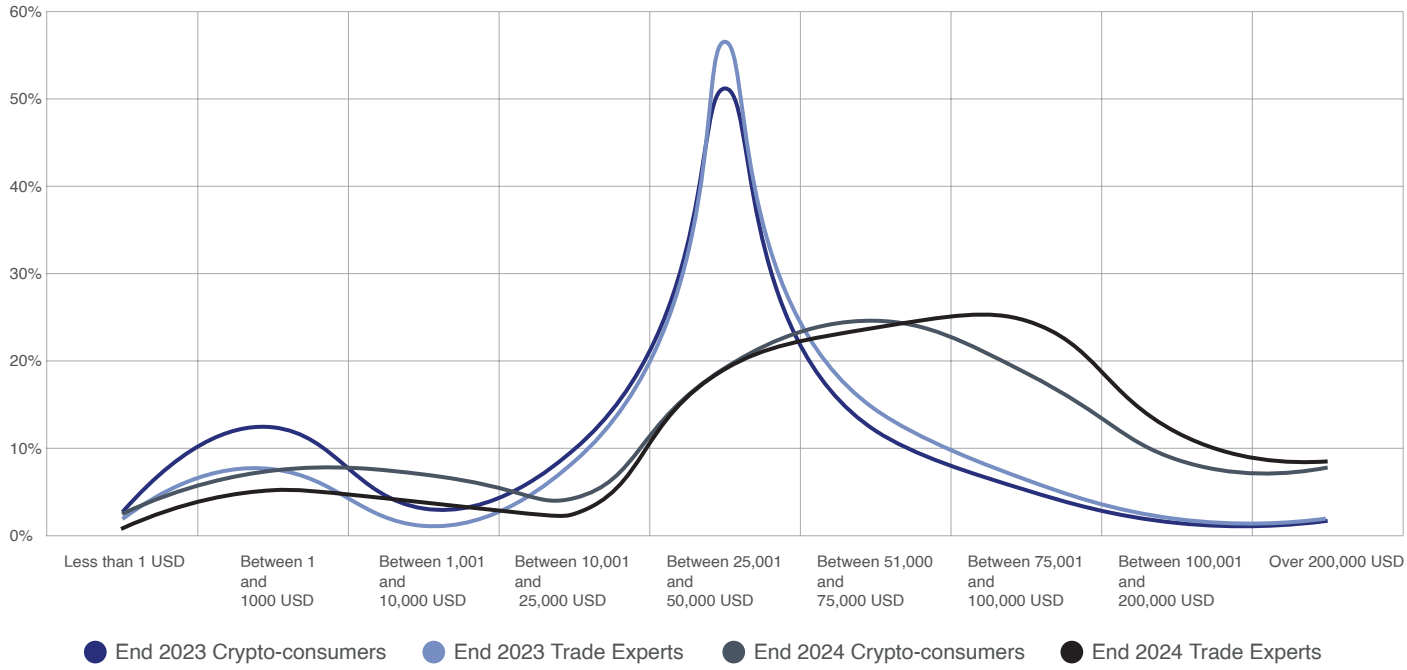


Figure 51: Crypto-consumers' BTC/USD rate predictions by the end of 2023/2024.

7.4 Expertise

Crypto-consumers' level of knowledge regarding blockchain technologies and cryptocurrencies may limit or boost their crypto-shopping experiences, as well as their benefits and concerns, depending on the depth of information they have. Lack of knowledge increases the difficulty perception and causes some unrealistic expectations, whereas expertise increases the satisfaction rates, although it increases some concerns (e.g., privacy), and vice versa.

Most crypto-consumers are knowledgeable about at least the basics of blockchain technologies and cryptocurrency concepts. Some are even (self-proclaimed) experts, but the ones with very limited knowledge are not negligible either. From Figure 52, two-thirds of crypto-consumers already have a general understanding of what a blockchain is and how it works to some extent, while nearly one-sixth (decreased from one-fifth in 2022) do not even know the fundamentals. Knowledge about Bitcoin seems slightly higher than general blockchain knowledge. Notably, more than two-thirds of crypto-consumers are confident in their knowledge of obtaining Bitcoin, paralleled by a comparable rate for acquiring other cryptocurrencies. Expertise in the Lightning Network, however, remains less common, with only 46.7% strongly or somewhat agreeing on their understanding, indicating it is still an area largely reserved for the more technically adept or enthusiasts within the community.

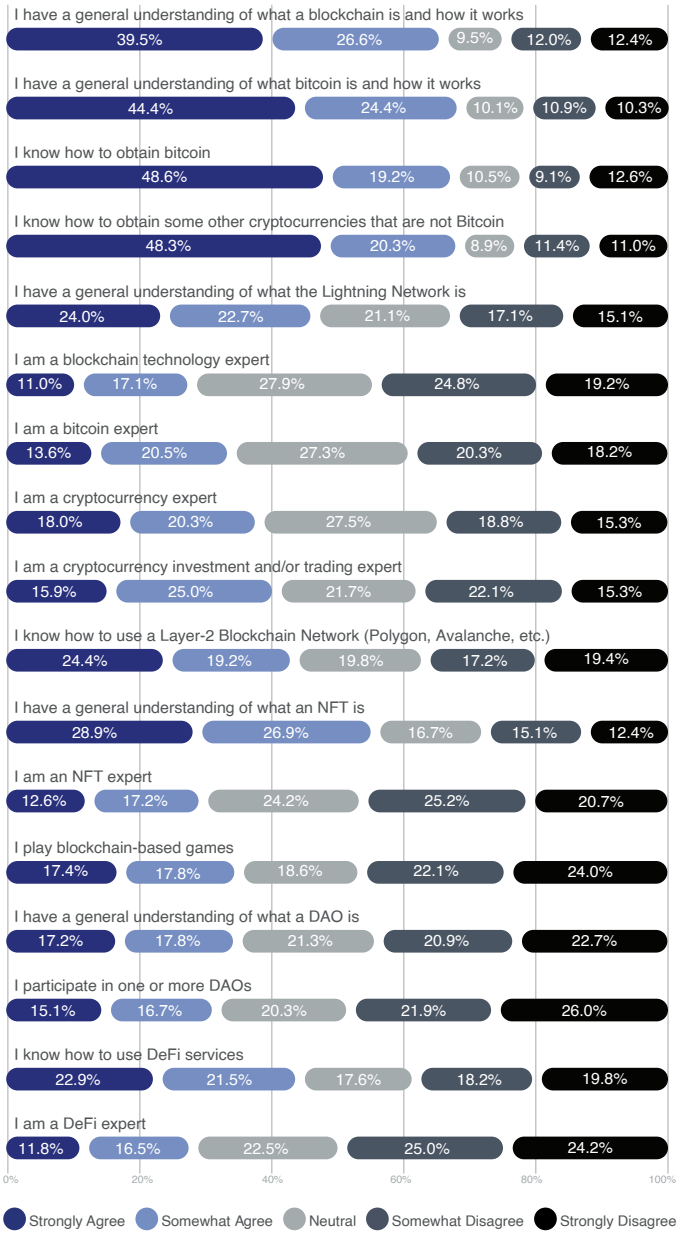


Figure 52: Knowledge base and expertise level of crypto-consumers.



"About one-fifth of crypto-consumers still do not know how to obtain Bitcoin or other cryptocurrencies."

Expertise in specific areas like DeFi and NFTs is less common, with around 29.8% claiming that they have some level of expertise in NFTs, while 28.3% claim some expertise on DeFi technologies, yet the share of the ones who know how to use DeFi services without claiming expertise is as high as 44.4%. A third of crypto-consumers play or played or at least came into close contact with blockchain-based games, which is indeed a large percentage. More than one-third are knowledgeable about distributed autonomous organizations (DAOs), and around 30% even participate in a DAO. These stats point towards a maturing market where foundational crypto knowledge is becoming more widespread, yet deeper technical understanding remains more limited among consumers.

Data presented in Figure 53 indicates a strong quadratic correlation between crypto-consumer expertise and their shopping frequencies. Both the least knowledgeable shoppers and the ones who are (self-claimed) experts in cryptocurrency trading and investments shop with crypto more frequently, while neutral respondents shop with lower frequency. Experts with 20.8% purchase stuff using crypto daily and 36.1% weekly, reflecting a strong engagement with the crypto market. “Somewhat” expert consumers have significantly lower daily shopping ratios but show a notable weekly 31.3% and monthly 42.0% shopping frequency. Those who keep a neutral stance on the question tend toward monthly and yearly transactions. Less knowledgeable and unknowledgeable individuals engage less frequently than experts, yet they still have shorter periods between their purchases compared to the middle bracket, indicating that even with minimal understanding, there is active participation in the crypto market. These insights underscore the connection between crypto literacy and utilization in commerce, where familiarity seems to breed not just contentment but also activity.

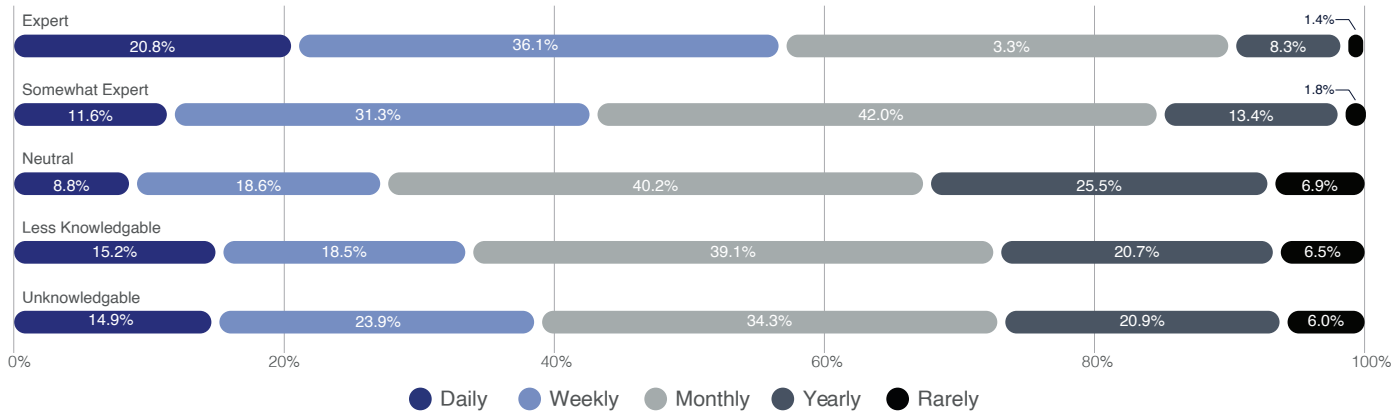


Figure 53: Crypto-consumers’ shopping frequency per their degree of expertise.

8. MOTIVATIONS

Crypto-shopping has already gone far beyond being a trendy experimental technology because using cryptocurrencies in shopping addresses a few crucial demands of both customers and businesses. In order to achieve a global market that is more profitable to all parties, it is important to find out how valuable using cryptocurrencies in shopping is to crypto-consumers, as well as which problems they struggle with most while crypto-shopping.

8.1 Drivers

The latest data presented in Figure 54 underscores a robust enthusiasm among many crypto-consumers for embracing and advancing cryptocurrency's role in commerce. Others with less enthusiasm also have other economic motivations for using crypto for shopping.

8.1.1 Enthusiasm and Trust

A significant two-thirds are keen to experiment with new technologies and are apparently tech enthusiasts; two-thirds believe in cryptocurrency's future prominence in the economy, yet also two-thirds suggest that using crypto for purchases will expand its adoption to a broader scope. 61% think that using crypto for shopping on a regular basis will increase the fiat value of cryptocurrencies, bringing good to everyone in the ecosystem. Nevertheless, just over half of crypto-shoppers define themselves as innovators. This forward-looking perspective is not isolated to tech enthusiasm; similar to last year's figures, 60.3% consider crypto transactions as safer and more secure than other means of payments, underscoring a trust in crypto over traditional banking systems. Likewise, 57% echo a distrust in banks and traditional payment processes in terms of data privacy, whereas 55% are against the extensive control of governments and banks over monetary policies.



"57% of crypto-consumers do not trust banks, payment system providers, or other financial institutions."

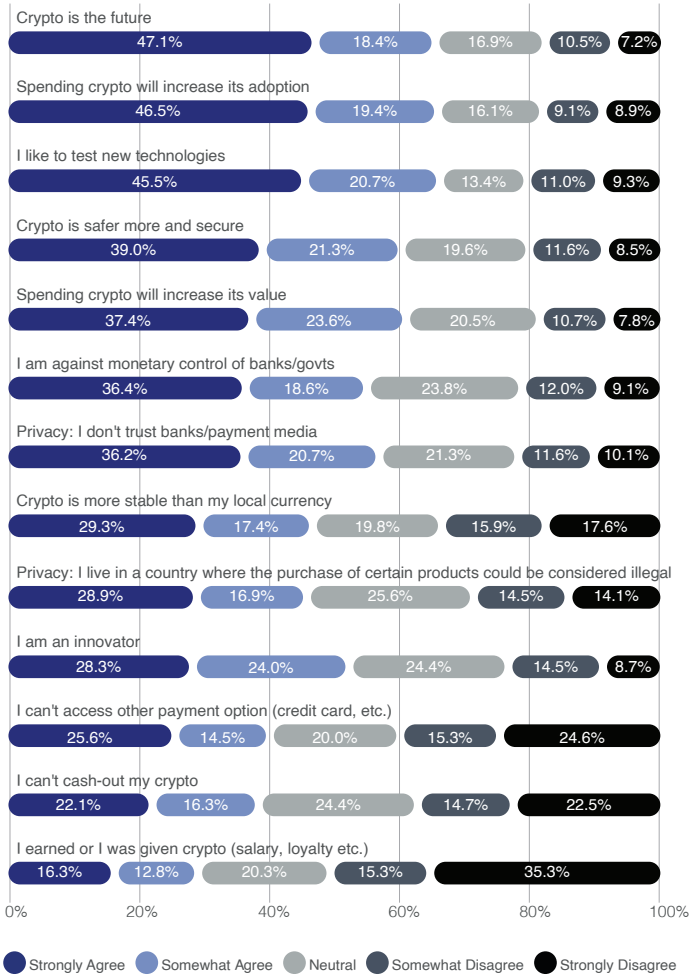


Figure 54: Main reasons for using cryptocurrencies in shopping.

8.1.2 Economic Necessities

In some cases, crypto-shopping even becomes a necessity rather than a choice between comparable options, especially in struggling economies. Although most cryptocurrencies, except for stablecoins, are known for their huge price volatility (as also observed through 2021 and 2022), 46.7% state that (at least some) cryptocurrencies are more stable than the local currency they are using in their home market, revealing a blend of idealism and necessity driving crypto engagement. The situation here appears to have worsened as that number was 41.4% in 2022. Even more dramatic is that 40.1% turn to crypto due to no or limited access to conventional payment methods, including debit and credit cards (e.g., due to being unbanked or underbanked, etc.), which was 36.1% in 2022 and 43.1% in 2021. Hence, they are forced to use cryptocurrencies in shopping for their everyday needs and wants. While almost 30% earn some sort of income paid in one of the cryptocurrencies, 38.4% of crypto-consumers cannot even cash out the cryptoassets they keep in their digital wallets due to the unavailability of such an option or high fees/commissions they would face otherwise.

Figure 55 shows the breakdown of crypto-consumers who cannot access conventional payment methods according to the income level of their country of residence. Access to conventional banking services remains acritical issue across various income levels. Among low-income

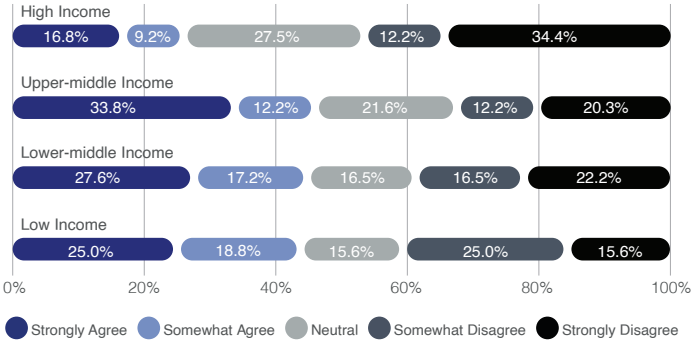


Figure 55: Share of crypto-consumers who cannot access other payment options, breakdown per country income.

earners, 43.8% strongly or somewhat agree that they lack alternative payment methods, reflecting a persistent barrier to financial inclusion. Lower-middle-income individuals follow closely, with 44.8% facing similar challenges. The issue is notably prevalent among upper-middle-income respondents as well, where 46% confirm limited access to traditional financial services. Interestingly, even among high-income participants, 26% express difficulty accessing such services, underscoring that financial exclusion can affect individuals across the economic spectrum. These figures highlight the role cryptocurrencies may play in providing financial services to the underbanked, with the potential to bridge gaps in current banking systems.



8.2 Barriers

Despite all the advantages, there are also a few significant (and less significant) drawbacks that concern cryptoconsumers and even cause them to reconsider using cryptocurrencies for their purchases. Those concerns are considered barriers against a wider adoption of crypto-shopping. Figure 56 presents the breakdown of such reasons that inhibit their willingness to do more crypto-shopping.

In 2021, high transaction costs were seen as the principal obstacle, yet it has been overtaken by the scarcity of products purchasable with crypto in 2022, which is still the case. As strongly or mildly expressed by half of all crypto-shoppers, it is hard or impossible to find some products or services in the crypto-markets, highlighting a gap in the market where consumers are ready to spend but are hampered by limited options. The unavailability of specific stores, brands, goods, and services within the crypto-markets is inhibiting crypto-shopping's spread. This is likely explained by a lack of understanding of the sector, more conservative marketing plans and company policies, or a lack of technical know-how by businesses and stores. Since there are countless stores and products in numerous sectors, this problem looks insoluble, but it is not. Gift cards (and derivatives like vouchers, coupons, promo codes, etc.) are a solution to be provided for the underserved demand of crypto-consumers. There are clear opportunities for businesses intending to expand their market, but if such a need is not addressed very quickly, people may look for alternative channels.

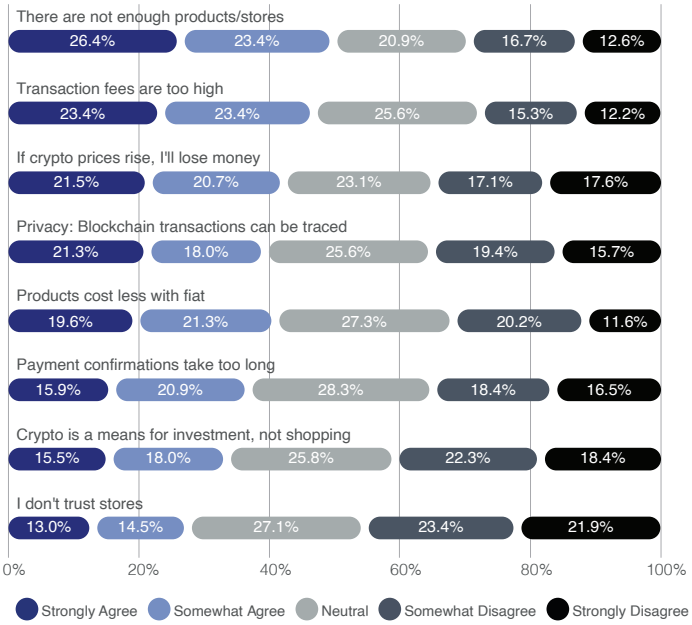


Figure 56: Main reasons for not using cryptocurrencies in shopping.



"Half of crypto-consumers have difficulties in finding the stores or products they are looking for."

In the second spot, we see the enduring concern of high transaction fees as cited by 46.9%, which, although no longer the top barrier, remains very significant and has seen a remarkable increase from 2022's 39.7%. Some shoppers have adopted ways to avoid/minimize fees or can now tolerate them as long as they can buy their stuff. But even so, Bitcoin and Ether, the two most preferred cryptocurrencies, have considerably high transaction fees caused by the high demand as well as the underlying blockchain technologies. Ethereumbased ERC-20 stablecoins also have high transaction fees.

Furthermore, the third-most disrupting factor (42.2% comparable to 2022's 43.1%) is the expectation that the crypto prices will increase soon. Such projections or expectations may be positive for the long term, but combined with the volatility of crypto prices, they can be harmful to the market in the short term, as they make crypto-shoppers hodl (yes, hodl!) their crypto instead of spending them at the current prices. There is not much individuals and businesses can do to prevent this due to the nature of cryptocurrencies, but the opposite case may also happen. The prices will eventually converge to a trendline as the market grows.

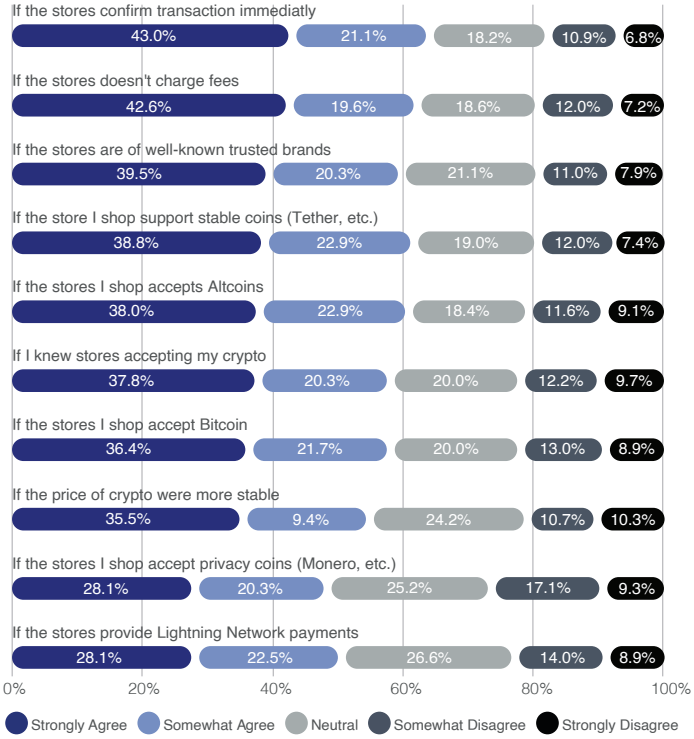


Figure 57: I would likely to shop more...

Nevertheless, with no change from last year, about one-third of consumers who occasionally shop with cryptocurrencies still do not see them as a means of shopping but merely commodities for investment. 36.8% slightly, more than in 2022, avoid crypto-shopping when there is another viable option due to the long transaction and order confirmation delays. Hence, the widespread adoption of faster layer-2 solutions, like the Lightning Network, will also boost crypto-shopping adoption. A whopping 40.9% reported that most products are sold at a higher price when sold in crypto compared to their fiat prices, which annoys crypto-consumers and makes them abstain from shopping with crypto to some extent. Not trusting the stores is reported as demotivational by more than a quarter, and 39.3% stated that they are concerned about the traceability of the transaction in most blockchain systems.

As presented in Figure 57, crypto-consumers indicate a willingness to increase their frequency of cryptoshopping if certain conditions are met, with 58.1% expressing a higher likelihood of shopping if they knew where to find stores that accept their crypto. Acceptance of Bitcoin as a payment option by their current favorite (non-crypto) stores would also encourage 58.1% of them to shop more with crypto. A significant 60.9% would be more inclined to spend their cryptocurrencies if stores accepted a broader range of altcoins (i.e., coins other than Bitcoin), while 48.4% would do so if stores accepted privacy coins like Monero. The option to use stablecoins (e.g., USDT, USDC, BUSD, etc.) and Lightning Network payments is appealing to 61.7% and 50.6% of consumers, respectively, reflecting a desire for more diversified and more convenient payment options. Rapid transaction confirmation is a priority for a whopping 64.1% of shoppers, and avoiding additional charges for crypto purchases is critical for 62.2%. Recognizable and trusted brands accepting crypto could also persuade 59.8% to shop more frequently. Additionally, 54.9% of consumers are looking for more price stability in cryptocurrency markets to increase their shopping frequencies. These insights highlight key areas for retailers to focus on to attract and retain crypto-savvy customers.

"More than half of crypto-consumers would likely shop more if the stores accepted privacy-coins and stable-coins as well."

9. OUTREACH

Crypto-consumers' preference and utilization of web portals and social media platforms provide a better understanding of the crypto market and offer a goldmine of opportunities for businesses looking to tap into the market. A dive into the social media and web portal usage patterns of crypto-consumers reveals key platforms for targeted marketing and engagement strategies. So that businesses can directly connect with their audience, influence consumer behavior, and position themselves effectively in the bustling crypto ecosystem. For a sector driven by fast-paced innovation and community engagement, the right online presence can make all the difference in capturing attention and capitalizing on the crypto wave.

9.1 Crypto-related Media

Online interactive news (and data) portals started replacing traditional newspapers and magazines more than a decade ago, and this is no different in crypto fields. As depicted in Figure 58, web portals serve as a crucial resource for crypto-consumers, with CoinMarketCap (coinmarketcap.com) leading the pack as 52.7% of all crypto-consumers frequent this site to keep an eye on market data and follow new cryptorelated projects. Meanwhile, 34.3% opt for CoinGecko (coingecko.com), demonstrating consumer preference for a range of information sources. Among more news-oriented websites that feature columns and blogs, Cointelegraph (cointelegraph.com) and CoinDesk (coindesk.com) appear to be strong in the list, with usage rates among crypto-shoppers at 26.6% and 21.3%, respectively, indicating that crypto-consumers are not just about numbers but also value varied columns, opinions, insights, and analyses. Bitcoin Magazine, the only printed media we could include in the study, surprisingly bought or followed by 19.2% of those surveyed, suggesting a dedicated group that seeks out more narrative-driven and traditionally printed content within the crypto space. On the other hand, 46.1% of crypto-consumers state that they do not use or follow any digital or printed media as such, but rather rely merely on social media platforms, which is a significant ratio.



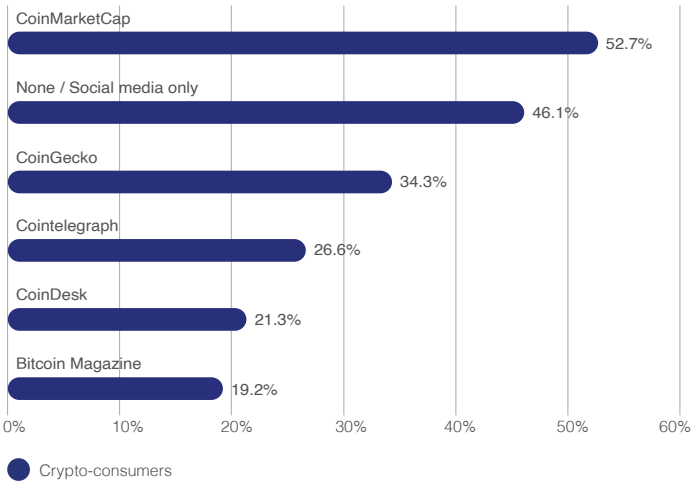


Figure 58: Crypto-related news media preferences of crypto-consumers.

9.2 Social Media

Since blockchain technologies – including crypto-currencies – are under fast and continuous development, and since the cryptocurrency markets are very volatile, social media platforms have become vital sources of information for crypto-consumers. This is shown in detail in Figure 59. YouTube demonstrates a commanding presence as more than two-thirds of the crypto-consumers engage with the platform daily, and the majority for extended periods. This indicates the crypto-consumer community's inclination toward video content for insights, education, and updates, as well as entertainment. Please note that our survey does not limit the intention of usage solely to crypto-related sources or purposes, but keeps a general point of view.

Twitter appears to be a fundamental news source for crypto-consumers, with a daily usage rate of 53.3%. It is also frequently used to share insights for investments and follow important or influential figures. Facebook and Instagram are popular platforms for crypto-consumers, with daily usage rates of 48.4% and 46.7%, respectively. Yet the majority of daily users of both spend more than half an hour a day using those, making them central hubs for news and community interaction. Discord, with a daily engagement rate of 36.6% among crypto-consumers, plays a critical role in fostering community connections and facilitating immediate conversations within the crypto realm, also considering that there are official Discord channels for many crypto-related companies and communities.

While TikTok, Reddit, and Snapchat record lower daily engagement rates of 30.6%, 20.9%, and 23.4% among crypto-shoppers, respectively, they may be representing important niches that cater to specific segments of the crypto audience. LinkedIn's daily engagement is also relatively modest at 24%, but its users are likely to have a different profile than others with a more professional/ business-oriented focus and higher education. It is easy to imagine its role in professional networking among crypto enthusiasts, developers, and investors. Platforms likeWeChat and Twitch are used the least by the crypto-shoppers, with a significant percentage of respondents not using them at all. This suggests that the content or community on these platforms may not align with the interests of the wider crypto community, or it could reflect regional preferences and platform accessibility. Age may be another significant factor here.

The do not use/no profile statistics of social media platforms among crypto-consumers indeed highlight significant patterns. WeChat and Twitch see the highest non-usage rates at 59.7% and 49.6%. LinkedIn's 30.4% non-user rate may reflect a lesser emphasis on professional networking within the crypto-shopper community. Popular platforms like Facebook and Instagram also have notable non-user rates of 15.9% and 14%, indicating that a significant portion of the crypto audience avoids these mainstream platforms, possibly due to privacy concerns or a preference for more niche or crypto-focused communication channels. This data reveals potential challenges and opportunities for businesses and content creators aiming to reach the crypto-savvy population.

In terms of frequency, the data reveals that platforms such as Facebook, Twitter, and YouTube command daily attention from over half of the respondents, signifying their integral role in the daily digital routines of crypto-consumers. Even platforms with less daily engagement still maintain a steady monthly to weekly presence, underscoring the consistent and broad reach of social media in the crypto landscape. This persistent engagement pattern across various platforms suggests that while daily users are highly active, even those who engage less frequently remain connected to the pulse of the crypto conversation.

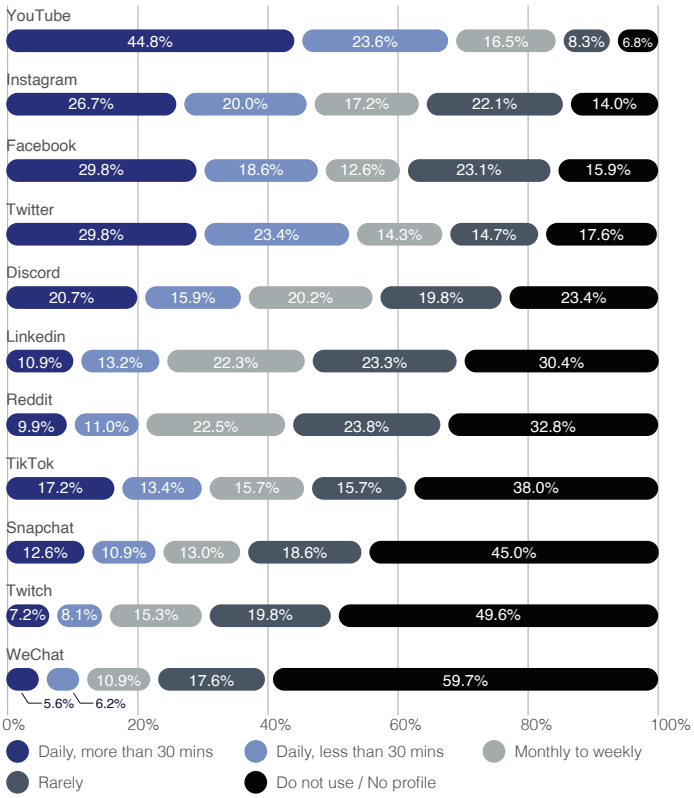


Figure 59: Social media preferences and usage of crypto-consumers.

10. CONSUMER SEGMENTATION

This section presents the newest edition of a comprehensive standalone study aiming at discovering and introducing the customer segments within the entire crypto-shopping community, first introduced in our 2022 report. The study features a multivariate non-linear regression analysis, namely K-prototypes mixed clustering methodology, to identify and describe the different segments of crypto-shoppers, as well as their demographics, motivations, and related preferences. Last year's edition was based on 2021 data due to time constraints, yet in the 2023 edition, we utilized the most up-to-date data and re-analyzed the consumer clusters.

10.1 Crypto-consumer segments

Similar to the 2022 edition, our analysis yielded seven different consumer clusters found with clear distinctions in their members' demographic backgrounds, education levels, motivations to adopt crypto-shopping, expectations regarding crypto's future, crypto-spending patterns, and economic power. However, the names, characteristics, and extent of those clusters are quite different than the ones found in the 2022 edition. The updated clusters are divided into three socioeconomic leagues and labeled with pretty self-explanatory names as follows:

- Crypto upper classes
- Middle classes
  - Tech-savvy shoppers
  - Crypto enthusiasts
  - Thinkers
- Disadvantaged classes
  - Junior survivors
  - Struggling observers
  - Striving pragmatists

While this categorization is a custom scheme, it is lightly inspired by the VALS model of customer segmentation. Figure 60 shows the outcomes of our social stratification efforts concerning population breakdown for the defined crypto-consumer clusters, whereas Figure 61 (not on an exact scale) provides a brief exposition of the definitive characteristics of those clusters and shows how they are aligned according to each other.

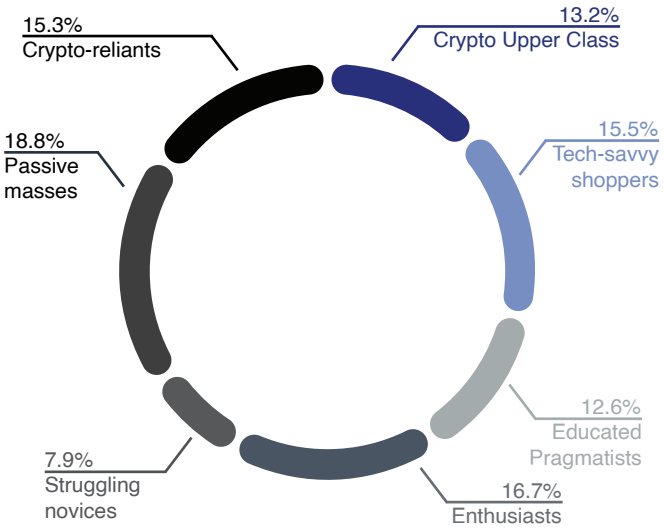


Figure 60: Breakdown of crypto-consumer clusters.

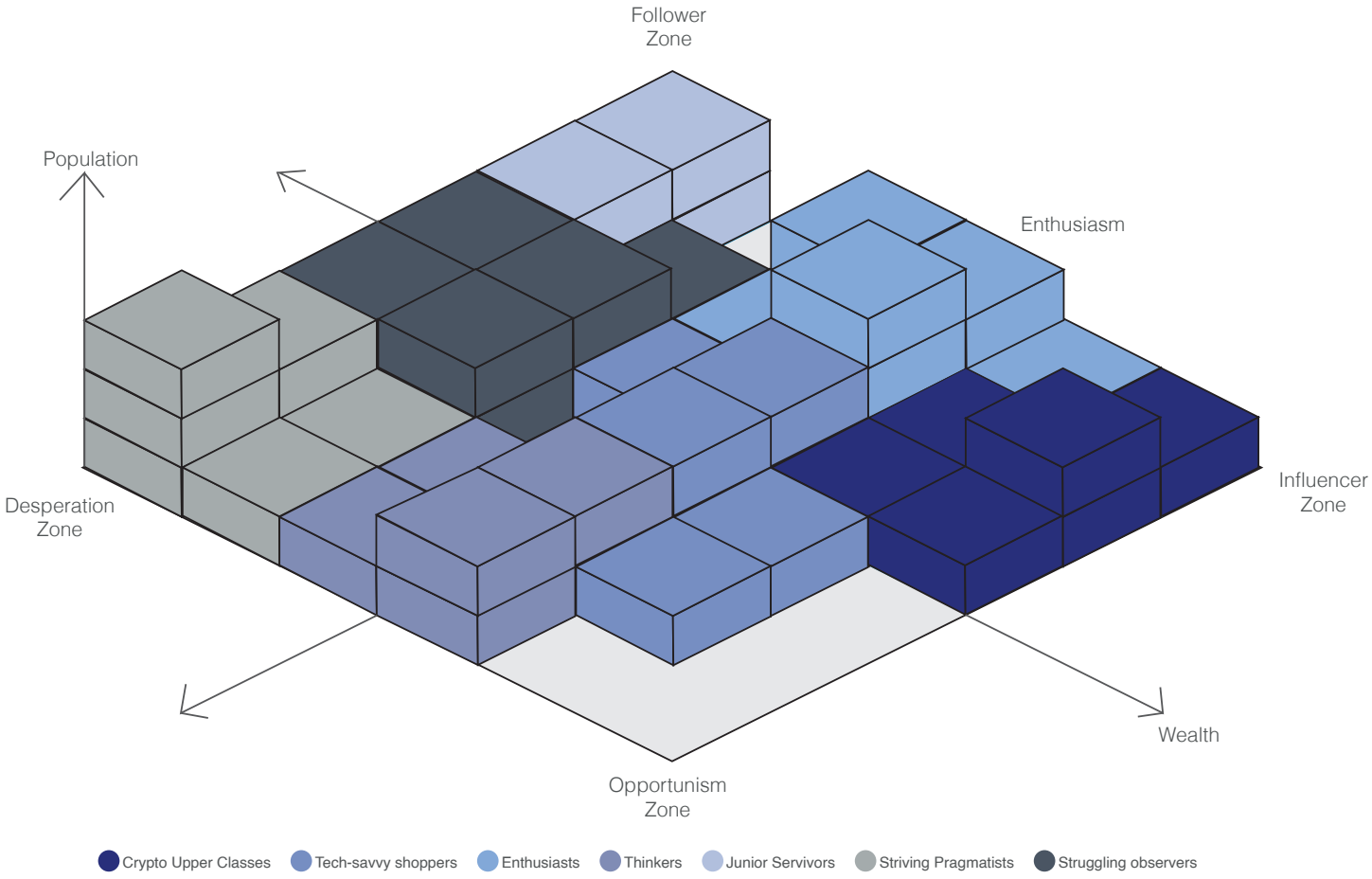


Figure 61: Crypto-consumers segmentation map.

10.1.1 Crypto Upper Classes

Crypto Upper Classes represents the highest socioeconomic segment among crypto-shoppers. It is an amalgamation of the Crypto Elites and Indifferent Wealthy clusters defined in the previous year's study. This year, we opted to merge these groups as the population of earlier Crypto Elites was significantly small. So, the Crypto Upper Classes category now features both the "creme de la creme" layer of the cryptoshopping society who are innovators and have lots of resources, as well as a wealthy, large population who follow crypto news and invest in crypto but are not necessarily into crypto-shopping. Crypto Upper Classes constitute 13.2% of the entire crypto shopping population, making them a mid-size segment in terms of population. This community, on the other hand, is financially the most powerful among all, and by far. They are mostly from high-income or upper-middle-income countries and have high or high-average personal incomes. Individuals in this group are most likely middle-to-high-rank white collars, middle-to-high-scale entrepreneurs, and investors. There are only a small number of students, unemployed or retired, in this elite community. It is also no surprise to find out that they have moderate-to-high education levels (but not the highest), with some having some post-graduate degrees (i.e., master's and doctorate).



Among those upper classes, the average level of blockchain or crypto expertise is surprisingly low, possibly due to being interested only in the financial aspects of the field rather than the technicalities. Nevertheless, they surely are enthusiasts and strongly believe that blockchain technologies will be an essential part of the World's financial future. They also push hard to make this become real with their financial decisions. They are by no means forced to use crypto at all and have broader access to alternative payment options, though some work in the crypto industry (or at least are exposed to blockchain owing to their work or businesses). Broadly speaking, their engagement with cryptocurrencies is more on the investment side rather than shopping purposes, but still, this group is among the current leading forces within the crypto economy. Apart from buying more and more often, they earn crypto from their crypto-driven businesses, investments, and through large-scale mining. Characteristic features of Crypto Upper Classes are illustrated in the radar chart in Figure 62.

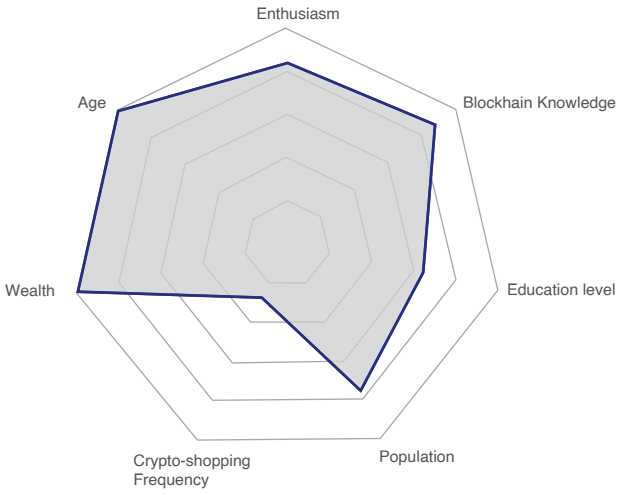


Figure 62: Characteristic features of Indifferent Wealthy.

10.1.2 Tech-Savvy Shoppers

The Tech-savvy Shoppers are similar to the Enthusiasts in many aspects, including an innovative mind, blockchain knowledge, decent shopping frequency, and enthusiasm for crypto. However, there are also some differences. On average, those have a higher degree of education but a smaller income. Provided that they have some disposable income, Tech-savvy Shoppers get the most benefits from cryptocurrencies by using them as a payment method in shopping, whereas they are not into crypto investing that much. Tech-savvy Shoppers are mostly self-employed, while some are employees, most likely as lowrank white collars, grey collars, and other skilled workers, even more likely than Enthusiasts. They have the highest share of self-employed (but not investors) and the lowest share of students.

Individuals from this medium-sized group, making up 15.5% of crypto-shoppers, mostly reside in lower-middle-income countries with a strong presence in high-income countries. They seem to follow and try the newest fashion and technology and try to make habits out of those innovations, although they are by no means forced to use crypto to survive. They have a stable income, provided by employment or through family (although less than they eventually aim to have), and a hardearned decent life quality. Even though they mostly buy crypto to obtain, they also participate in the crypto economy and get paid by completing small online tasks or a side hustle that pays crypto. Attending loyalty programs and mining are also popular when their budget allows. Shoppers in this segment do not earn their salaries in cryptocurrency but may be involved in commercial activities that yield crypto profits. There is a potential transitivity between Tech-savvy Shoppers and Enthusiasts, yet it is also understood that they would rather be among the Crypto Upper Classes someday. Characteristic features of Tech-savvy Shoppers are illustrated in the radar chart in Figure 63.

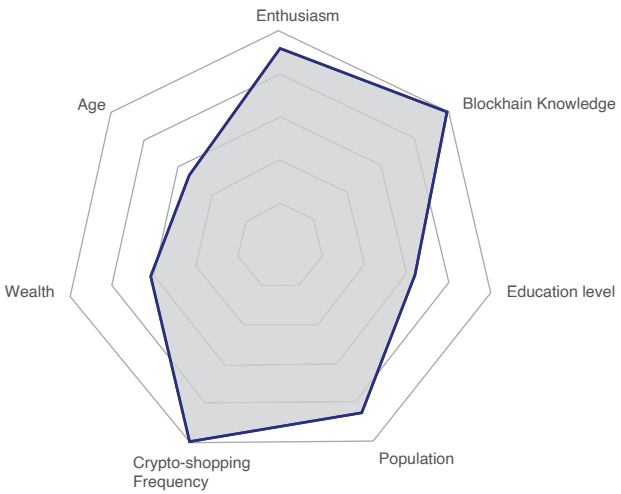


Figure 63: Characteristic features of Dreamers.

10.1.3 Enthusiats

A large number of people who actively and frequently buy, earn, invest in, and spend cryptocurrencies are so-called crypto-enthusiasts who believe in the power and potential of crypto-shopping, cryptocurrencies, and blockchain technologies in general. People in this group seem to benefit from the opportunities that blockchain-based systems enable whenever they can. Furthermore, even though they are not forced to use crypto to survive, crypto is often their only (or most feasible) option for shopping and payments as they claim limited access to more traditional options, which indicates that they are an integral part of the crypto economy as both producers and customers. Most of those in this cluster have a decent income. They reside in various countries with different income levels, while most live in lower-middle-income countries. However, their income is remarkably lower than that of the Crypto Upper Classes.

Those people constitute the second largest crypto-shopper segment in terms of population, as they account for 16.7% of all. On average, they have a low-to-medium level of education, where having a high school degree can be considered typical. The main reasons we call this group “enthusiasts” are that they have relevant technical expertise in anything blockchain, they believe that cryptocurrencies will be much more common in the future, and they have the passion to advocate crypto. Likewise, they have the highest share of Lightning Network (or other layer-2) users, at 81.7%, and a high shopping frequency since more than one-fifth shop with their crypto every day (or almost every day) and circa 60% do crypto-shopping at least once a week. They have the highest number of individuals whose salary is paid in crypto and also the highest engagement in crypto commerce. Characteristic features of Enthusiasts are illustrated in the radar chart in Figure 64.

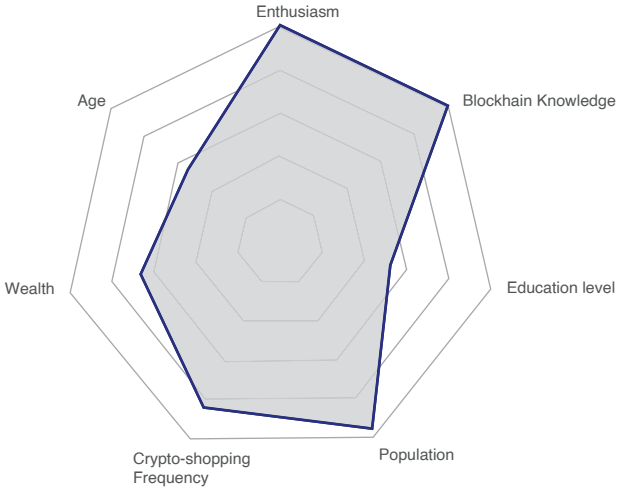


Figure 64: Characteristic features of Desperate and Excluded.

10.1.4 Thinkers

A good degree of education, an innovative mind, and an entrepreneurial spirit are not enough to move the wheels. Some surplus in the budget and higher-average-to-high quality of life provided by a steady job (or family sources) can easily be an inhibitor against taking risks associated with the broader adoption of crypto beyond investments and savings. Thinkers – also called Educated Pragmatists – are quite knowledgeable about crypto and are aware of the trends. However, their financial capabilities are fragile; therefore, they think twice before spending their crypto for purchases. They are indeed the lowest level of the middle class in terms of wealth. This segment suffers from a variant of the well-known "middle-income trap" phenomenon; hence reducing the so-called risky actions, like shopping. They constitute 12.6% of all crypto-shoppers, making them a smaller group. However, gaining their trust and elevating their crypto-shopping habits would be a profitable achievement for businesses. They are very late adopters, mostly buying their crypto and saving them for the future. They are by no means underbanked and have access to other payment options, but they get clear benefits from using crypto.

People among Thinkers mostly have full-time jobs or are self-employed. Low to middle-rank (and possibly younger) white collars and grey collars are in the scope. Yet the high density of students must also be noted. They are mostly from high-income and lower middle-income countries and have middle-level average personal income (although the income variance is relatively large within the cluster). They have the highest level of education and a noticeable level of knowledge of crypto. While they have some enthusiasm and belief that crypto will be more common in the future, they are slightly more skeptical than other middle and upper segments. In contrast to their enthusiasm, and in parallel with their skepticism, they mostly refrain from personal adoption of crypto on a large scale for shopping purposes. Their current shopping and payment customs (also possibly their investment strategies) do not match their future projections due to the conformist stance they pose. Nevertheless, they have the potential to increase their adoption of crypto assets as it is common to earn small amounts of crypto in exchange for short online tasks and mining among the individuals in the group. Thinkers may be compared to the Trapped Innovators presented in the 2022 study. Characteristic features of those Thinkers are illustrated in the radar chart in Figure 65.

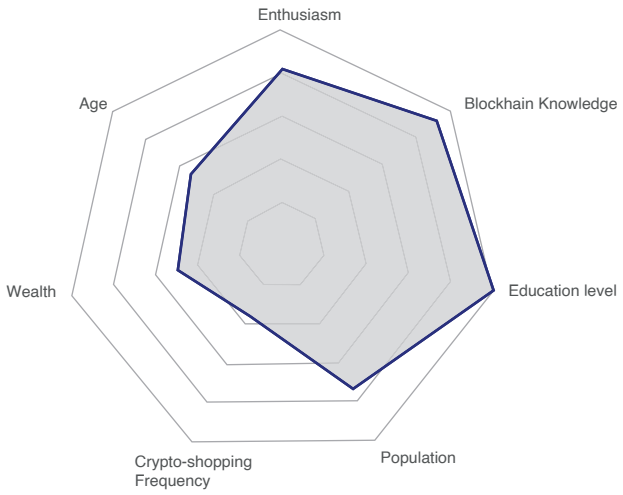


Figure 65: Characteristic features of Crypto Elites.

10.1.5 Junior Survivors

Nowadays, it is not uncommon to see many young people interested in almost everything related to blockchain, just like many other trending technologies. These youngsters generally continue their education at various levels and are not yet employed in a decent full-time job. While some have a temporary job, some are just employed at a lower rank or in the earliest phases of their career. So, they have not accumulated enough wealth to establish a considerable presence in the crypto market but utilize crypto-shopping as a part of their survival strategies, hence the name Junior Survivors. In line with those is that they are not (yet) among the creators of such innovative technologies but definitely are impassioned followers, with great enthusiasm and without any sort of expertise at all. However, they still believe in crypto to a great extent and expect it to be much more prevalent in the foreseeable future, in which, not surprisingly, they want to be among the crypto elites. Those juniors make up the smallest segment of crypto-shoppers in terms of population, with a ratio of 7.9%.

Junior Survivors have the highest share of students, the lowest share of retired and unemployed, and are predominantly from lower-middle-income countries. Their education level is very low, but this will go higher in time as they conclude their ongoing studies. Among them, it is also quite common to earn small amounts of crypto in exchange for small online tasks and minor freelance jobs. They are more shoppers than investors since they purchase goods and services using their hard-earned crypto pretty often, as 17.1% shop daily and 40% shop at least once a week. Many of them face financial exclusion issues at different levels, including being unbanked or underbanked, which can be partly mitigated with the help of crypto. Characteristic features of Junior Survivors are illustrated in the chart in Figure 66.

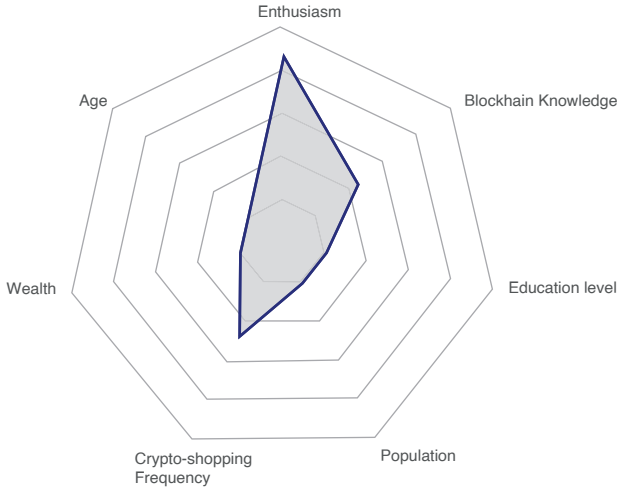


Figure 66: Characteristic features of Enthusiasts.



10.1.6 Striving Pragmatists

Among crypto shoppers, a midsize group, with a share of 15.3%, is living in harsh conditions due to facing somewhatto- serious poverty, being in a politically unstable country, or experiencing financial exclusion (at personal or even regional level). The majority of the people in this cluster have the lowest education level (most likely below a university degree), though they are of higher ages. Yet, they mostly have some desirable technical skills that let them contribute to the global economy and accumulate some income through teleworking, gigs, or various forms of digital labor. As this group includes unbanked, underbanked, or financially excluded individuals, being able to use cryptocurrencies when receiving and making payments, as well as shopping, is like an oasis full of life in the middle of an all-dry desert.

They have the highest share of people residing in the lowestincome countries with plenty of political problems at varying degrees, mostly in Sub-Saharan Africa, South America, and South Asia, although they can be found everywhere, including the most developed countries, possibly as first-generation immigrants. They have very little knowledge about blockchain or the technologies under the hood of cryptocurrencies and crypto payment systems. Interestingly, they do not have any enthusiasm for crypto and no specific expectations concerning its future. They do not seem to care about ethical, political, and financial discussions centered around the crypto economy as long as they can be paid via crypto (in exchange for their online labor) and spend their crypto earnings.



Even though they have no enthusiasm for crypto and very limited blockchain knowledge, they use newer technologies like stablecoins or the Lightning Network for practical reasons, like reducing fees and speeding up transactions. They claim they are not forced to use crypto and have enough access to alternative options, but those are less helpful as they earn their income in crypto. On the other hand, they cannot find the stores or products they are looking for, indicating a strong demand for different kinds of goods and services offered in crypto. Their financial outlook is similar to that of Junior Survivors, but they are differentiated by their higher age, lower education, lower knowledge, and slightly higher crypto-shopping rates. Characteristic features of Striving Pragmatists are illustrated in the radar chart in Figure 67.

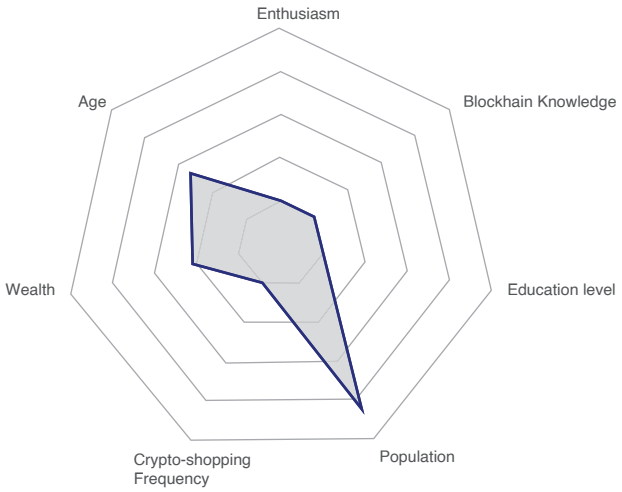


Figure 67: Characteristic features of Ghost Innovators.

10.1.7 Struggling Observers

The Struggling Observers cluster is the largest group per population among all crypto-shoppers, with a whopping 18.8%, almost one-fifth. These individuals display a low level of devotion towards cryptocurrencies, and are cautious with wider use of them. Their blockchain knowledge is somewhat limited, indicating that while they may understand the basics, their grasp of the technology is not deep or technical. This is further substantiated by their very low education level, reflecting a group that likely has minimal formal education (most likely below university degree level), quite reminding the Striving Pragmatists. Struggling Observers have a diverse form of employment (or unemployment) with fewer entrprenuers and also a variety of sources that let them earn in crypto. They accommodate the second-highest share of unemployed and the second-highest share of retired; whereas the share of innovators is very low among them.

Their crypto-shopping frequency is also low, although higher than Striving Pragmatistis, which could imply either a lack of opportunities or a deliberate choice to engage less often due to their cautious stance. Their behavior as crypto users can be better defined as (small) investors rather than shoppers. They are also likely to be younger, only second to Junior Survivors, which could correlate with their lower wealth accumulation. They are termed "Struggling Observers," reflecting their position in the crypto-markets as observing, perhaps aspiring, but not yet fully engaged or reaping the potential benefits. That indicates no near-future intention to run a large-scale crypto business, although they commonly adhere to side hustles that make them earn crypto. Some earn larger amounts potentially from long-term investments. Characteristic features of Struggling Observers are illustrated in the radar chart in Figure 68.

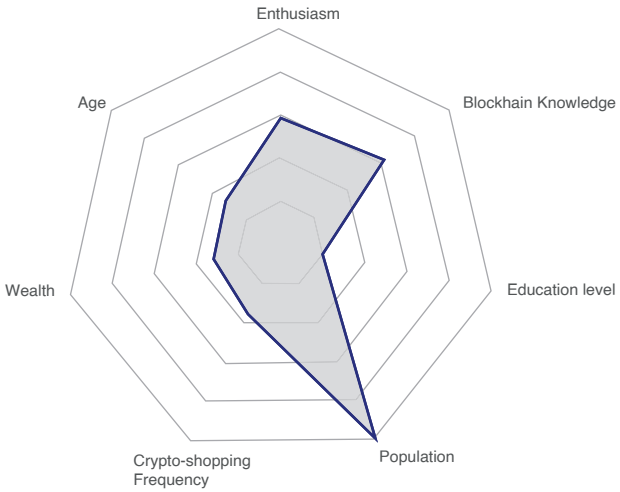


Figure 68: Characteristic features of Trapped Innovators.

10.2 Comparative Analysis

Demographic features, perception of crypto-economy, and crypto-shopping habits.

10.2.1 Demographics

The crypto-consumers come from a highly diverse selection of ethnic, socioeconomic, geographic, and academic/professional backgrounds. The average crypto-consumer is now 31.9 years old (was 33.7 in 2022), considerably young, and only slightly higher than the World's median age, which reached 31 as of 2020. Yet, each group of crypto-consumers has a unique age distribution. Speaking of averages, the youngest consumer segments are the Junior Survivors and Struggling Observers, with mean average ages of 28.3 and 30, respectively. They are followed by Tech-savvy Shoppers, Thinkers, and Enthusiasts, all with an average of 31.7, as well as Striving Pragmatists at 33.8. Crypto Upper Classes is the oldest segment by quite a margin, with an average of 35.3. This is not a big surprise given the other features like education level, total wealth, and share of retired.

In terms of numbers, gender inequality is at extreme levels among crypto-consumers. Women's participation in the crypto-economy is slowly increasing, but the gap is still huge. That phenomenon is also observable at varying degrees in each consumer group. The two youngest groups also have the highest share of female shoppers, which is consistent with the 2022 report, although the segments were restructured. The Junior Survivors group has the most females, as females constitute 19.5% of the entire group. The runner-up is the Enthusiast by a slight margin, with a share of 10.5%. They are followed by Struggling Observers, with 10.3%. In the others, women make even less than a tenth of the group's population. The largest gender imbalance is interestingly observed among the Crypto Upper Classes, where only 2.9% are females. The situation is not much different among the Tech-savvy Shoppers as they only have 3.8% females. The Thinkers is similar at 4.6%, yet Striving Pragmatists is a bit better with 8.9%.

The clustering was not made based on geography, meaning that the people making up those segments by no means live in the same places. However, there are obvious correlations between the crypto-consumers' country of current residence and the group that they are included in. The most notable relation is the wealth (or development) of the countries they are residing in, according to the classifications made by the World Bank, as depicted in Figure 69. The Crypto Upper Classes and Thinkers have the highest percentage of members from high-income countries, with rates of 55.9% and 26.2%, respectively. Within Crypto Upper Classes, only 1.5% live in countries facing extreme poverty (i.e., low-income countries).

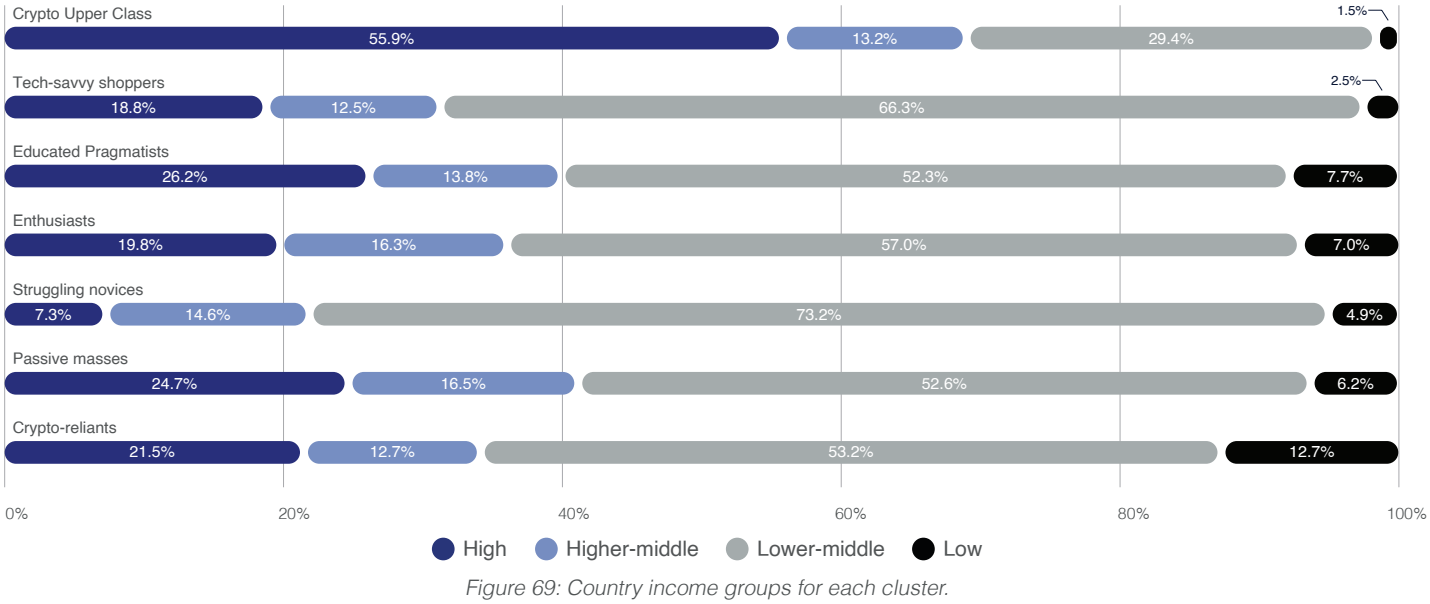


Figure 69: Country income groups for each cluster.

While that was not a surprise, an interesting fact is that among all groups, there are more individuals from lower-middle-income countries than from higher-middle-income countries. The group with the least people from high-income countries is the Junior Survivors (7.3%) since they are predominantly from lower-middle-income countries (73.2%). Less surprisingly, the cluster with the most people from low-income countries is the Striving Pragmatists (12.7%). That share, combined with other segments' figures, points out a very large number of people from struggling economies using crypto to solve their financial exclusion problem.

A consumer's country of residence is only one side of the story. On the other side, there is their personal income, which may or may not align with the wealth of the country they live in. People with higher incomes might be able to do more crypto-shopping than the ones with lower incomes; however, they may also lack the necessity to do so or may have alternative methods. The motivating or demotivating factors can be different for various income segments. Figure 70 provides an insight into the annual income levels of the crypto-consumers in each group. As partly hinted by the group names, Crypto Upper Classes is the wealthiest segment, with one-third earning more than $30,000 a year, followed by the Enthusiasts, with slightly more than a quarter earning more than $30,000. In the third place, we see Tech-savvy Shoppers, with a quarter making more than that amount. On the other edge, we see Junior Survivors with the tightest budget, where less than 5% make more than $30,000, and 82.9% of them make less than $10,000 a year. Struggling Observers and Striving Pragmatists follow with comparable but slightly higher values. However, relying solely on annual income for research and marketing studies is not advised, as living costs are different in each country.

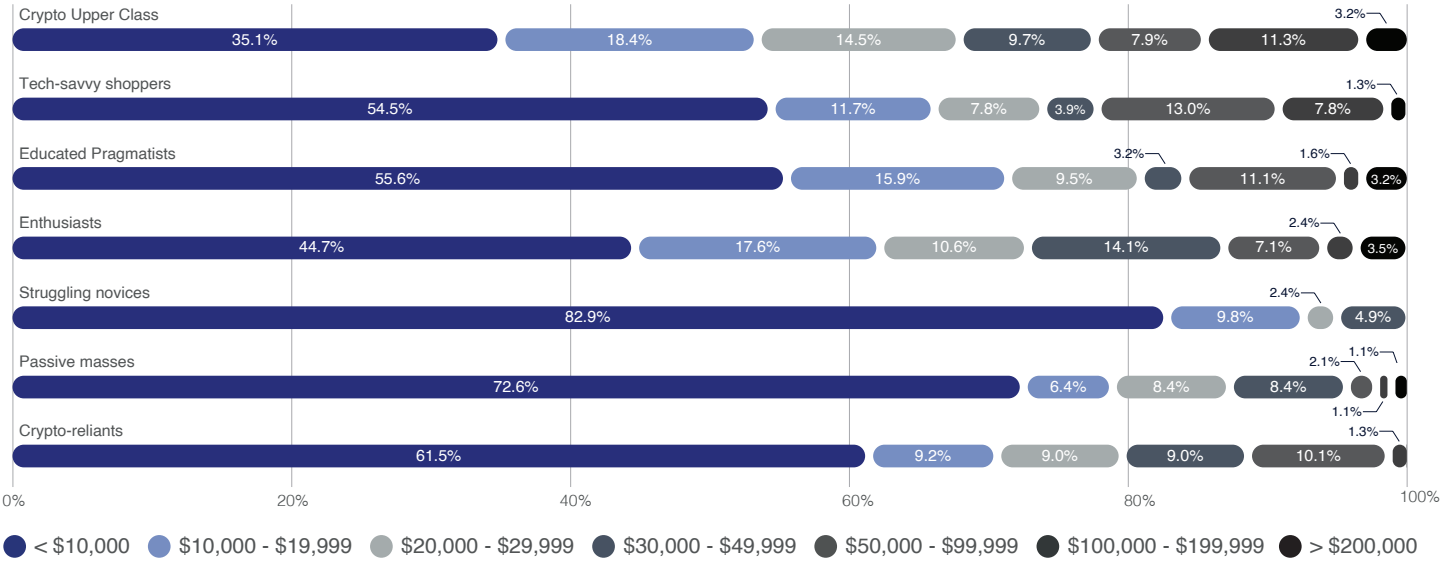


Figure 70: Annual income levels for each cluster.

Employment type, or in other words, source of main income (if any), is a highly definitive factor for two reasons. First, it coarsely tells how likely a consumer is used to (or ready to) tolerate risks within their financial routines (remarking that many forms of crypto are still a risky monetary tool), which also means how likely a consumer is eager to adopt changes in their dollars-and-cents habits. Second, it gives an insight into the range and diversity of potential income and expenditures of a person, independently of their actual income level. For instance, being employed in a steady job is generally associated with taking milder risks and a monotonous spending pattern, especially when compared to being self-employed or being an investor (or entrepreneur), which involves higher risks and more diversified expenditures. On the contrary, being unemployed, retired, or – especially – student indicates a more limited cash flow, yet there is some room for exceptions.

As shown in Figure 71, among all groups, the Crypto Upper Class has the highest share of full-time employees (36.8%) and has a notable presence of self-employed individuals (19.1%), suggesting a strong engagement in the formal and entrepreneurial sectors. Tech-savvy Shoppers, with 38.8% being self-employed, appear to embrace the flexibility and innovation that come with self-employment, possibly reflecting their affinity for new technologies. Thinkers also show a considerable percentage of self-employment (35.4%), which may

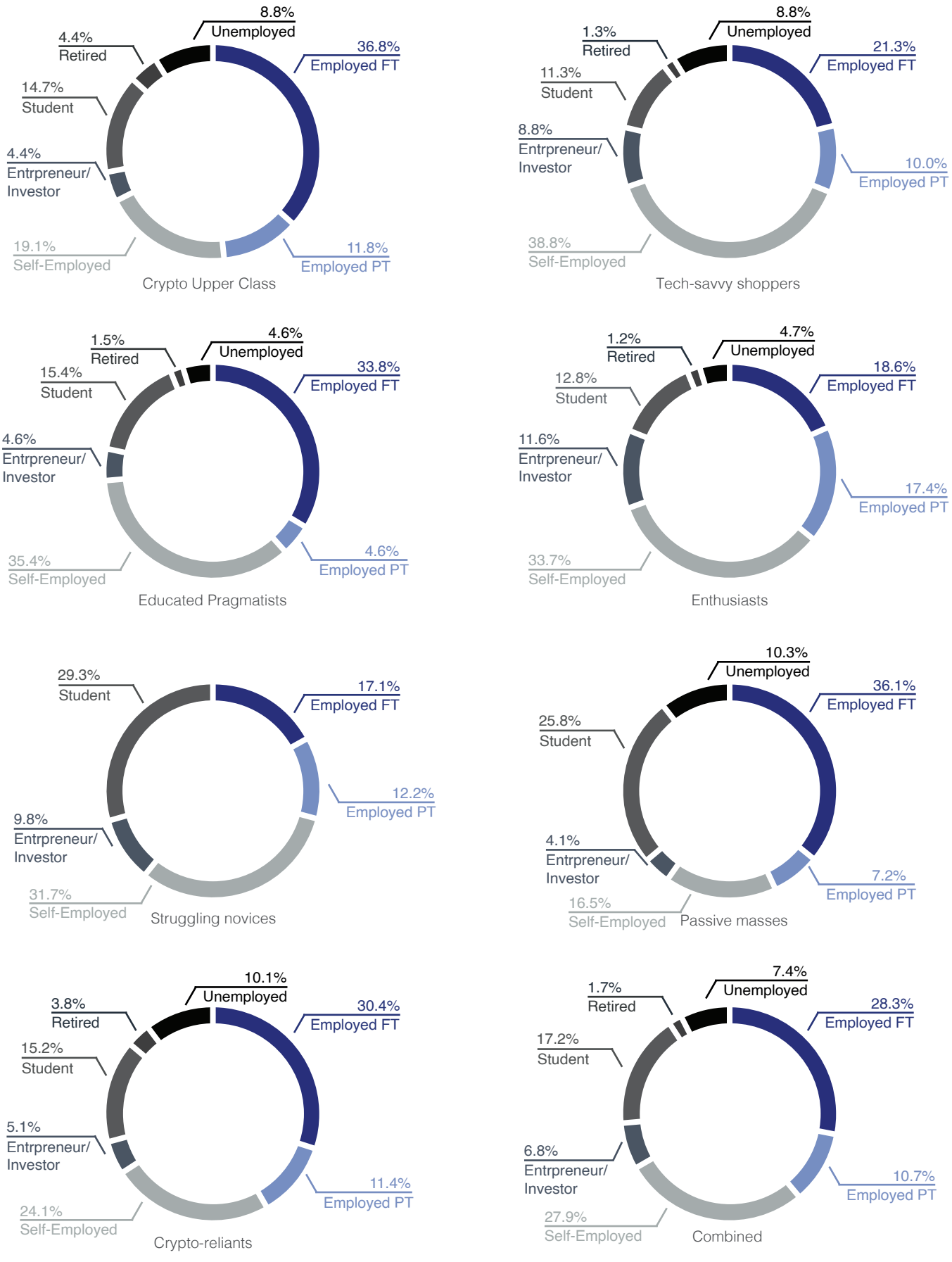


Figure 71: Employment types for each cluster.

correlate with their informed and deliberate approach to work and investments. Enthusiasts, while having the most entrepreneurial spirit (11.6% as entrepreneurs/ investors), pose a relatively balanced distribution across employment types.

Junior Survivors and Struggling Observers have no retirees within their ranks, most likely caused by their lower average age. While Struggling Observers have a high ratio of full-time employed (36.1%), they also have the highest unemployment rate (10.3%) and second-highest share of students (25.8%), which are some reasons why they are struggling. Striving Pragmatists demonstrate a spread across full-time and part-time work, self-employment, and a notable segment of students (15.2%). Note that across all segments, the combined data indicates that full-time employment (28.3%) and self-employment (27.9%) are the most common employment types among crypto consumers, with a significant percentage of students (17.2%) engaged in the crypto space, potentially signaling a trend of younger individuals investing time and resources in understanding and leveraging cryptocurrencies.

Whether they are employed somewhere, are self-employed, or are investors in some businesses, cryptoconsumers are by no means solely tech workers but working in a wide range of industries, although ITrelated jobs are common. However, the concentration of popular sectors varies across different consumer segments. While the entire breakdown is given in Figure 72, the top industries of each group may tell another catchy story. In the updated data, Striving Pragmatists seem to be unique as they have the fewest individuals working in the IT-related sectors. Yet, they lead in the education sector (21.4%) and construction (10.7%). The construction industry also has a notable presence among Struggling Observers (8.1%), suggesting that those with less interaction with cryptocurrency or low enthusiasm may be involved in more traditional trades. Clearly, they have little interest in the blockchain technology itself. But, they use it to get the benefits and mitigate the economic issues they are facing, including but not limited to getting paid for their online side hustles and remittances.

On the other hand, Tech-savvy Shoppers and Thinkers show a strong presence in the computer/electronics (9.5%) and banking/finance (9.8%) sectors, aligning with their interest and fluency in technology and financial systems. Notably, software is a significant industry for the Crypto Upper Class (12.2%), which could be indicative of their advanced understanding and active participation in the creation or utilization of blockchain technologies. Retail emerges as a prevalent industry among Junior Survivors (17.2%). Interestingly, Struggling Observers have the highest engagement in the government sector (3.2%). Healthcare shows a surprising prominence within the Crypto Upper Class (12.2%), suggesting a diversification of interests among the most affluent crypto-consumers. The education sector (possibly including some students) is very common among all segments. In contrast, scientific services do not appear to be a top industry for any group, with the highest percentage showing in the Crypto Upper Class (4.1%). The consulting industry shows a peak among Striving Pragmatists (8.9%).

Overall, the updated data reinforces the notion that cryptocurrency is not just a domain for the tech-savvy but has reached a broad array of industries, with varying levels of adoption and integration based on economic, educational, and professional backgrounds. The diversity of industries among the different clusters suggests that cryptocurrency's influence is widespread and not limited to any single sector.

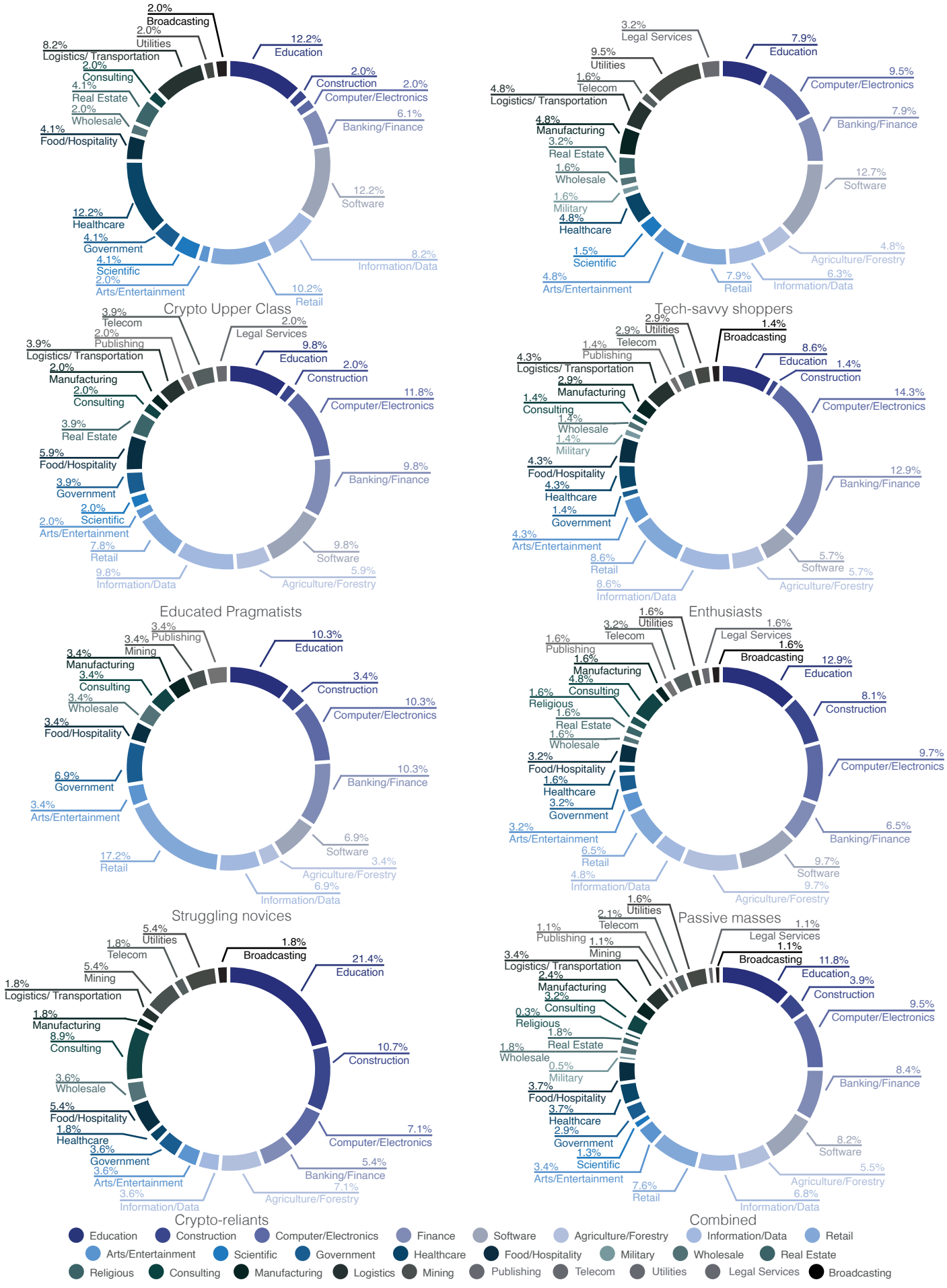


Figure 72: Occupation industries for each cluster.

10.2.2 Opinion on crypto

Crypto-consumers' perception of cryptocurrencies (and crypto assets in general) changes significantly according to their background, industry, and, of course, personality. As their perception defines their attitude, it was an important factor when determining the clusters.

Most crypto-shoppers have at least a very basic understanding of what blockchain is and how it works, but clearly not everyone. The updated data reveals that almost all Tech-savvy Shoppers (98.8%) and Enthusiasts (98.8%) strongly agree with having a solid understanding of blockchain technology, showcasing a deep engagement with the underlying mechanics of cryptocurrencies. The Crypto Upper Class also demonstrates a substantial grasp, with over 80% expressing some confidence in their blockchain knowledge. On the other end of the spectrum, Striving Pragmatists exhibit a notable lack of blockchain understanding, with as much as 84.8% expressing such a lack of knowledge. This suggests a segment of the consumer base that engages with cryptocurrency possibly more for its financial implications than for its technological underpinnings. Junior Survivors and Struggling Observers show a mix of some knowledge and a lack thereof, with a considerable number falling into the neutral category or disagreeing about their understanding.

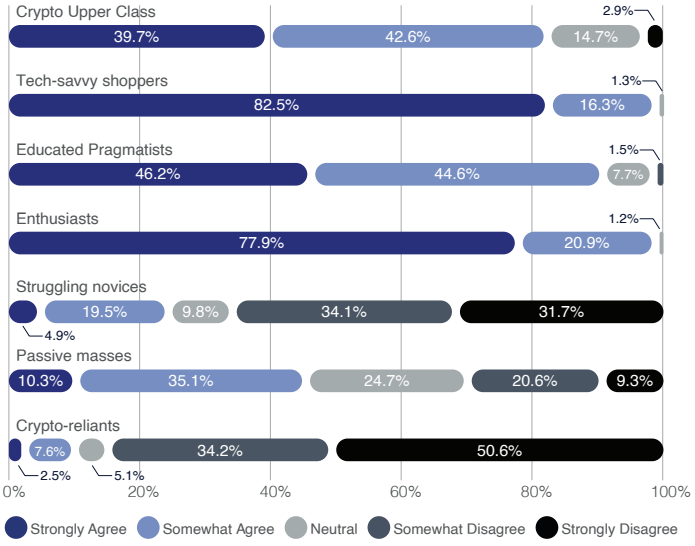


Figure 73: Basic blockchain knowledge for each cluster.

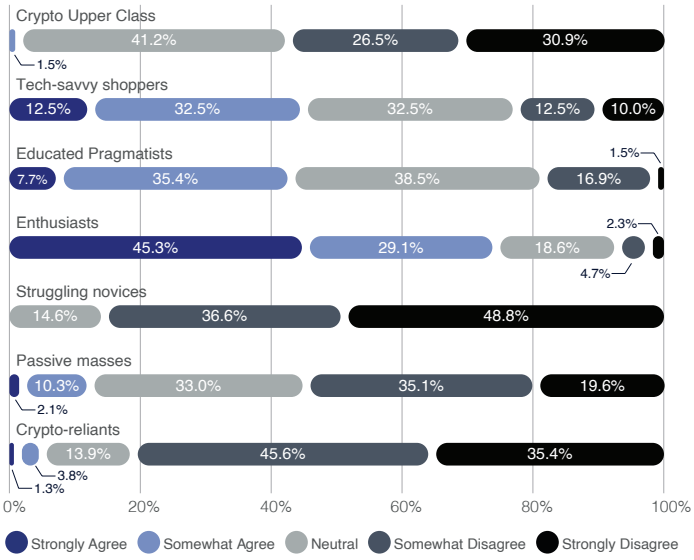


Figure 74: Blockchain expertise for each cluster.

This distribution of knowledge indicates that while some groups are deeply entrenched in the technical aspects of blockchain, others are interacting with cryptocurrencies more superficially, and some others are for survival, not driven by a deep understanding or interest in the technology itself. Figure 73 provides a detailed breakdown of these insights, reflecting the diverse levels of comprehension and interest in blockchain technology within different segments of crypto-consumers.

Blockchain expertise, a deeper and more technical understanding than general knowledge, is notably less prevalent among crypto consumers. The chart in Figure 74 has some similarities with Figure 73, yet there are significant differences. The data reveals a striking absence of self-identified blockchain expertise within the Crypto Upper Class, where a significant 57.4% either disagree or strongly disagree about their expertise, and a substantial 41.2% remain neutral. This contrasts with the Enthusiasts, where 74.4% confidently claim some expertise, a testament to their deep engagement with the technology.

Tech-savvy Shoppers and Thinkers show a considerable amount of expertise, with over 40% in both segments agreeing on their proficiency. However, Struggling Observers and Striving Pragmatists display substantial gaps in expertise, with over 50% in each group acknowledging their lack of in-depth understanding. Junior Survivors display the highest level of acknowledged non-expertise, with an overwhelming 85.4% disagreeing on having any blockchain expertise, indicating a segment primarily engaged with cryptocurrency from a practical perspective rather than a technological interest.

A major factor that helps define the clusters is the consumers' belief that blockchain technologies and everything crypto will be an integral part of our future. Such a belief (most likely accompanied by a passion) is one of the two fundamental drivers of the adoption of cryptocurrencies in payments and shopping (the other one is that the crypto solves society's several acute everyday problems better than other options or it is the only viable option). In the updated data, the optimism about blockchain's future varies significantly across different consumer segments, as Figure 75 illustrates. The Tech-savvy Shoppers lead, with a whopping 98.8% believing that the use of blockchain will be more common in the future, closely followed by Enthusiasts and Junior Survivors who are also highly confident. The Crypto Upper Classes shows strong belief as well, but with a more cautious stance by some. In stark contrast, Struggling Observers show significant skepticism, with a majority remaining neutral or doubtful. Striving Pragmatists display the highest level of doubt, with nearly 90% strongly or somewhat disagreeing with the notion of blockchain's future significance, suggesting they engage with crypto out of necessity rather than conviction in its potential. So, they do not expect it to be a part of the future, and neither do they care to keep it as their main payment method. They seem eager to replace it if possible, but crypto is currently the only option for many.

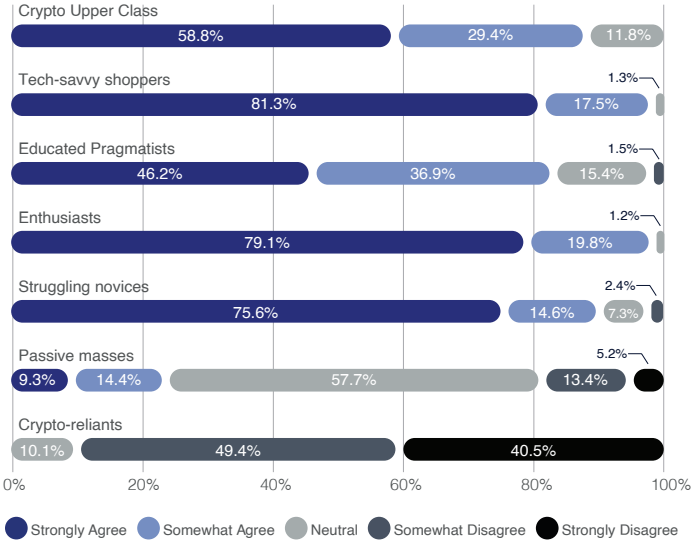


Figure 75: Agreement with the statement "blockchainis the future" for each cluster.



The consumers' stance towards crypto also depends on how they obtain their crypto holdings in the first place, which changes remarkably (but not completely) from cluster to cluster. When people get earnings in cryptocurrencies in return for the services they provide or when they get parts of the revenue of their business in the form of cryptocurrencies, they tend to do more crypto-shopping without cashing their crypto out, a very understandable move with cost and time benefits. What makes the difference is that not everyone earns crypto, and not everyone earns comparable amounts. As observed in Figure 76, the most preeminent way of getting some crypto for all segments is buying it (or investing in it), most likely through exchanges. Having freelance jobs that let getting paid in crypto or earning crypto through accomplishing small (mostly online) tasks appear to be the second or third most popular way. Regardless of income, this tendency also draws a line between crypto-consumers and other crypto investors/traders who do not commonly shop with their crypto.

Crypto Upper Classes, with the involvement of only a quarter, have the least interest in the aforementioned small-scale freelance jobs, possibly due to having decent full-time jobs and other more reliable sources of income. Likewise, they are not involved in crypto based commerce either. Apart from buying or investing (80.9%), they also mine (22.1%) and collect crypto for free (30.9%), either as an initial coin offering of any type or as a reward in loyalty programs. Tech-savvy Shoppers have the most (51.9%) freelance/online task income paid in crypto, followed by Enthusiasts (47.6%) and Junior Survivors (46.2%). Combining that with the prevalence of freelance jobs and minor tasks that pay crypto among the latter two, there is a significant likeliness that many Enthusiasts and Junior Survivors have a continuous (but not necessarily steady) flow of crypto as their main source of income. Which resembles some sort of coexistence of different segments on the same sides of the market.

Tech-savvy Shoppers are also leading in the popularity of crypto mining (27.8%); what they do not commonly do is get their salary paid in crypto. This is particularly popular among Enthusiasts (36.6%), Striving Pragmatists (28.4%), and Junior Survivors (25.6%). Gifting is common among Enthusiasts and Crypto Upper Classes. When it comes to earning crypto in commerce, like selling stuff, Enthusiasts (24.4%) lead, while Thinkers (21.9%) and Striving Pragmatists (20.3%) follow. Nevertheless, what is less popular among Enthusiasts is mining (17.1%), only slightly higher than Striving Pragmatists (16.2%), possibly due to the high costs of the equipment required to have a feasible setup.

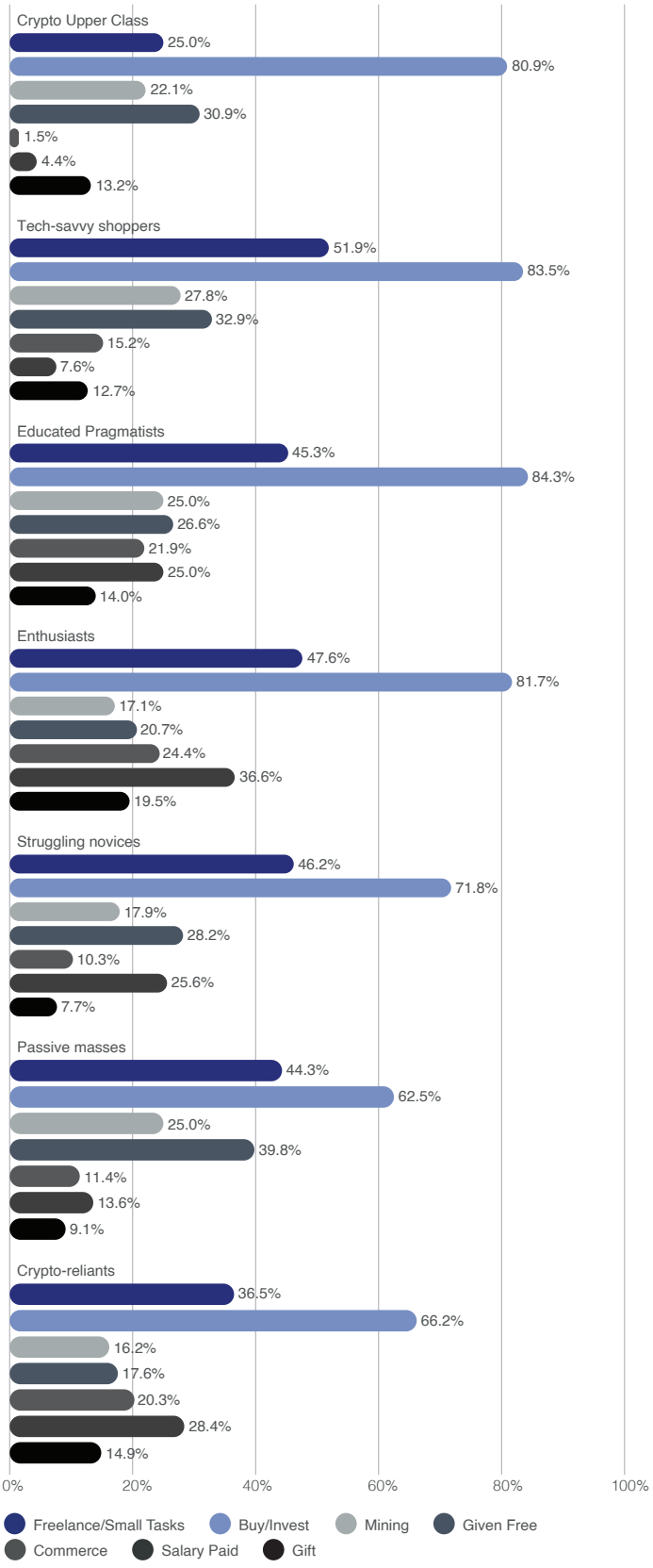


Figure 76: Source of cryptocurrency holdings for each cluster.

10.2.3 Crypto-shopping habits

The shopping and payment behaviors among various segments of crypto-consumers vary widely. Certain groups engage in crypto transactions regularly, others sporadically. A number of consumers turn to cryptocurrencies out of necessity, finding traditional means inaccessible, while others opt for digital currencies out of a keen interest in technology.

The reliance (at the necessity level) on crypto-shopping varies significantly across consumer clusters, indicating a range of motivations and needs for using cryptocurrency in shopping. For instance, the Tech-savvy Shoppers group shows a high level of autonomy, with 82.5% strongly and another 13.8% somewhat affirming that their use of crypto is a choice rather than a necessity, making up a whopping 96.3%. Contrastingly, only 1.3% of the Striving Pragmatists feel that they are not compelled to use crypto, suggesting a substantial dependence on cryptocurrencies in shopping, due to high costs and inconvenience of access to traditional financial services considering that they claim that they have access to traditional alternatives. Enthusiasts and Junior Survivors also demonstrate a preference for crypto, with a majority feeling unforced in their usage. On the other hand, a significant portion of Struggling Observers remains neutral, indicating ambivalence towards or a lack of alternatives to crypto-shopping.

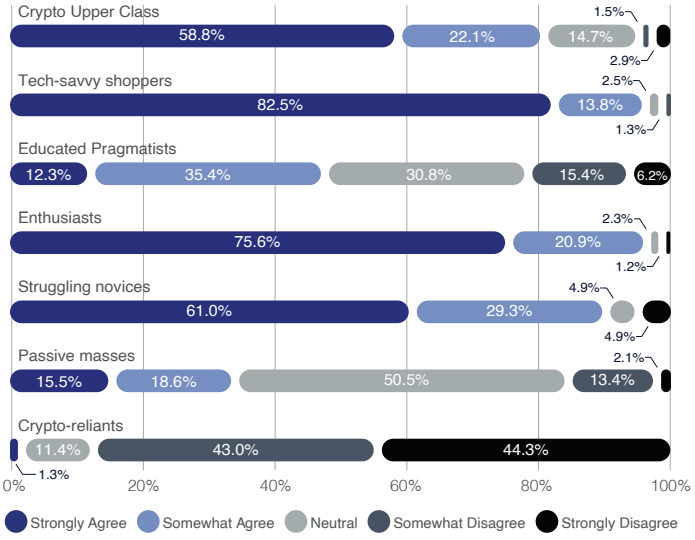


Figure 77: Consumers not forced to use crypto for each cluster.

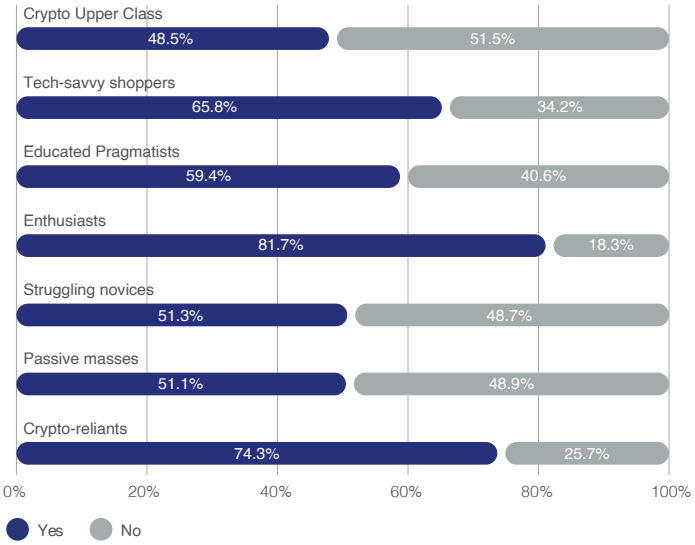


Figure 78: Usage of Lightning Network for each cluster.

The Crypto Upper Class largely sees crypto-shopping as a choice, not a necessity, with 80.9% not feeling forced to use crypto, hinting at voluntary use possibly linked to their business interests or investment benefits in the crypto space. Only a minor segment (4.4%) feels compelled, suggesting they leverage crypto more as a strategic asset than an obligation. This data, as detailed in Figure 77, highlights the complex and varied landscape of consumer attitudes towards crypto reliance.

Adoption of the Lightning Network (or other layer-2 technologies) in making crypto payments can be considered a technical skill, although things have become much easier than when it was first introduced. So, one would expect it to be used only by consumer groups with some expertise. But that is definitely not the case, as the potential benefits of using it are crucial for those who are living on a budget and relying on crypto-shopping as a matter of survival, as well as anyone who wants to save on transfers and remittances. Figure 78 shows how popular the Lightning Network is among the members of Enthusiasts with 81.7% usage, likely due to their eagerness for transactional efficiency and advanced crypto solutions.

Close behind are Striving Pragmatists at 74.3%, suggesting that even those with limited blockchain expertise are keen on leveraging technologies that offer quicker and cheaper transactions. The Crypto Upper Class's 48.5% adoption rate indicates balanced popularity, as the immediate benefits of the Lightning Network may be less compelling for them. Junior Survivors and Struggling Observers have the lowest usage rates, hovering just over 50%. The reason could be that they are shopping with crypto less often, which makes the benefits they can get from layer-2 technologies more marginal. This statement is, in fact, in parallel with the breakdown given in Figure 79. Additionally, a lower level of technical proficiency or a lack of understanding of more complex systems beyond basic cryptocurrency transactions may have a role.

Crypto-shopping frequency, reported in Figure 79, is another factor for consumer segmentation and must be taken into account by businesses in developing efficient marketing strategies. In all groups, the majority resort to crypto-shopping at least on a monthly basis, while some do more frequently. Interestingly, no one from the Crypto Upper Class reported daily shopping habits, whereas Striving Pragmatists and En thusiasts exhibit the highest daily shopping frequency at 25.8% and 22.8%, respectively. Enthusiasts also demonstrate the highest weekly shopping habit at 36.7%, suggesting a consistent engagement with cryptoshopping. On the other end, the Crypto Upper Class tends to shop on a monthly (41.3%) or yearly basis (44.3%), which may indicate a focus on larger, less frequent purchases. Junior Survivors and Struggling Observers show more moderate shopping frequencies, with monthly rates of 40% and 34.8%, implying a regular but less intensive engagement with crypto-shopping, possibly linked to purchasing necessities or budgeting constraints.



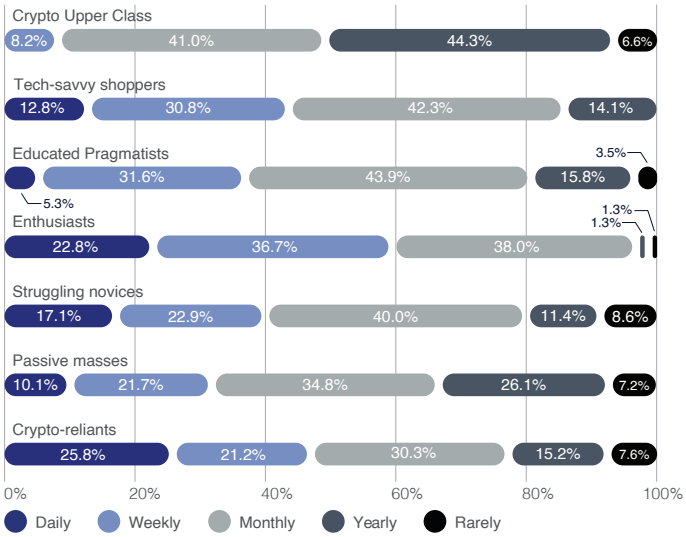


Figure 79: Crypto-shopping frequency for each cluster.

Coin preferences (for shopping purposes) do not differ very significantly across different consumer segments. However, there are a few specific choices that may be for a reason. First of all, Bitcoin is still very prevalent among all consumer groups and the number one choice with a unique exception as Junior Survivors favor USDT more than Bitcoin. The top three groups with most BTC usage are Enthusiasts (72%), Thinkers (65.6%), and Tech-savvy Shoppers (64.6%). This is highly interesting, because many individuals in those segments are very innovative and aware of better options in the sense of transaction speeds and costs, and are eager to test those. Likewise, they are among the most frequent shoppers, which makes them more susceptible to Bitcoin's expensive and slow transactions. Such insistency on Bitcoin may be for several reasons, including that it is the first and still most popular cryptocurrency. But, there is another valid reason: crypto-consumers who shop a lot are aware of and use layer-2 protocols that allow faster and cheaper transactions, like the Lightning Network (as shown in Figure 78).

Figure 80 shows the major coin preferences of all consumer groups. Unlike the last year, now we cannot say that Bitcoin's place in the very front line is secured. Tether (USDT), as a popular stablecoin, shows the potential to take the lead. Binance Coin (BNB) also has an increasing popularity thanks to cheap and fast transactions and continuous support from the exchange platform. Ether (ETH) and Litecoin (LTC) are not competing for second place anymore as they are falling behind in the competition. The ratio of ETH ownership varies between 15.4% and 42.2%, it is competing with BNB for the third spot. The ETH ownership rates decrease as income levels decrease. MATIC, USDC, BUSD, and Ripple (XRP) are also quite popular among some segments. Among Crypto Upper Classes, 13.2% have MATIC, 11.8% have USDC, and 11.8% have XRP, for instance. MATIC is also popular among Tech-savvy Shoppers (16.5%) and Striving Pragmatists (10.8%). Unlike last year's findings, DOGE is now remarkably popular among Enthusiasts and Crypto Upper Classes, possibly due to the hype in social media. Tron (TRX), possibly thanks to its very low transaction fees, is also preferred by Junior Survivors (12.8%) and Enthusiasts (9.8%). We should definitely note that stablecoins are becoming increasingly popular among all consumer segments. USDT and USDC (also BUSD, DAI, and a few others on a negligible scale) have crystal-clear popularity among Enthusiasts, Junior Survivors, and Tech-savvy Shoppers but are slightly less preferred by Thinkers, Crypto Upper Classes, and Striving Pragmatists.

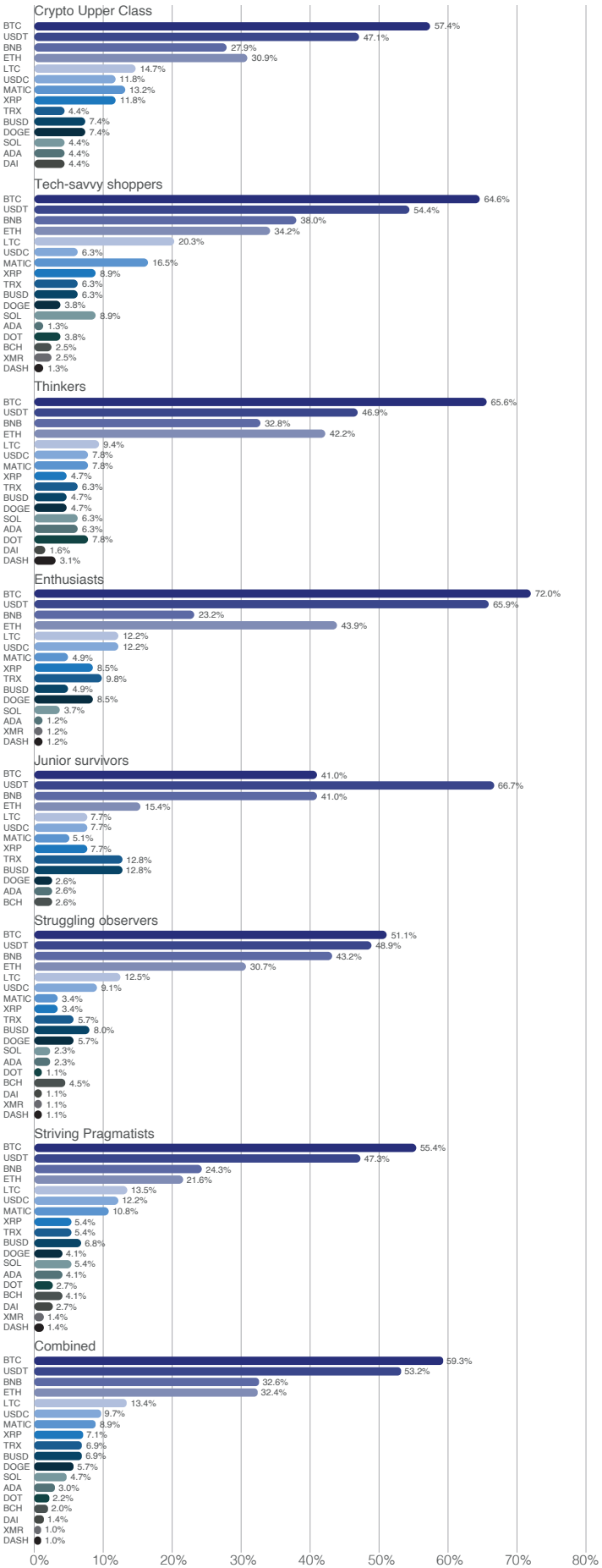


Figure 80: Cryptocurrency preferences for shopping for each cluster.

Previous research has already revealed that not all the factors regarding preferability, prevalence, and frequency of crypto-shopping depend solely on personal choice, meaning that there are some external factors that inhibit (or sometimes boost) motivation to spend crypto to buy goods and services. One such factor is the availability of the stores and businesses that accept crypto payments, as well as their recognition on the consumer side. Recognition of such stores and satisfaction with available options change drastically among different consumer segments. Figure 81 visualizes each cluster's satisfaction with the availability of stores accepting cryptocurrencies as a payment option. Clear from the chart is that Enthusiasts, Junior Survivors, and Tech-savvy Shoppers are well or somewhat satisfied with the current situation. While consumers in Crypto Upper Classes and Thinkers are quite neutral, Struggling Observers and Striving Pragmatists are extremely dissatisfied as they cannot find enough stores offering crypto-payment options, which can be a clear hint for businesses trying to expand their customer base.

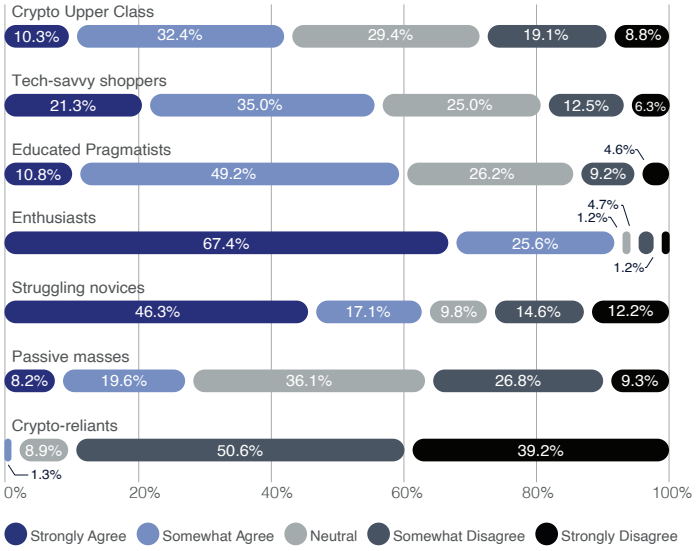


Figure 81: Satisfaction of availability of stores accepting crypto-payments for each cluster.

10.2.4 Outreach

Here, we extend our outreach opportunities analysis to individual customer segments concerning their social media and news media preferences. For the sake of conciseness, however, we limit the scope of this part to merely the top 5 popular social media and top 3 popular news media platforms for each segment. A detailed outlook for both are provided in Figures 82 and 83.

YouTube is, by far, the most popular social media platform for all consumer segments. It has the highest share of overall users and the highest share of daily users in all segments, with the Crypto Upper Class and Tech-savvy Shoppers leading in daily usage rates (around 80%), Thinkers, Enthusiasts, and Junior Survivors following with comparable overall users and slightly lower daily users, suggesting a universal appeal of video content across both the highly informed and the more mainstream crypto audiences. On the other hand, the popularity of YouTube is remarkably lower among Struggling Observers and especially among Striving Pragmatists, although it is still the top choice.

Twitter also shows high daily and overall presence among Tech-savvy shoppers (78.8% daily, 96.3% total), Enthusiasts (75.6% daily, 91.9% total), and Thinkers (64.6% daily, 92.3% total), showcasing the platform's role in delivering timely updates and fostering community discussions. Despite relatively high total usage, the lower daily engagement from Struggling Observers (39.2%) and Junior Survivors (48.7%) indicates that while these groups are present on the platform, their interaction is less frequent. Interestingly, Twitter could not make it into the top 5 among Striving Pragmatists. While a positive non-linear correlation with wealth is observable, it is safe to say that Twitter is mostly used by middle-class crypto-consumers.

Facebook's utility as a news and community platform is evidenced by its high total user rates among all segments, with the Crypto Upper Class (83.8%), Tech-savvy shoppers (86.3%), and Enthusiasts (90.7%) showing robust engagement. However, its daily usage is consistently lower. This is most evident in Struggling Observers (35.1%) and Striving Pragmatists (26.6%), suggesting that while the platform is widely used, it does not constitute a daily routine. Instagram's visual appeal is observable in all segments, with the Crypto Upper Class (51.7% daily, 91.2% total) and Enthusiasts (69.8% daily, 94.2% total) leading. Striving Pragmatists, nonetheless, exhibit a much lower daily usage rate of 17.7%, although the total user rate remains relatively high at 72.2%.

Discord's function as a hub for crypto-related discussions is most valued by Enthusiasts, evident from their high daily (53.5%) and total (82.6%) user rates. Struggling Observers and Striving Pragmatists have fewer daily users but still have significant total users. Notably, Discord is not in the top 5 of Crypto Upper Classes and Thinkers. Yet, LinkedIn's professional networking utility is most pronounced among Thinkers, with a significant 30.8% daily and 80% total usage rate, reinforcing the

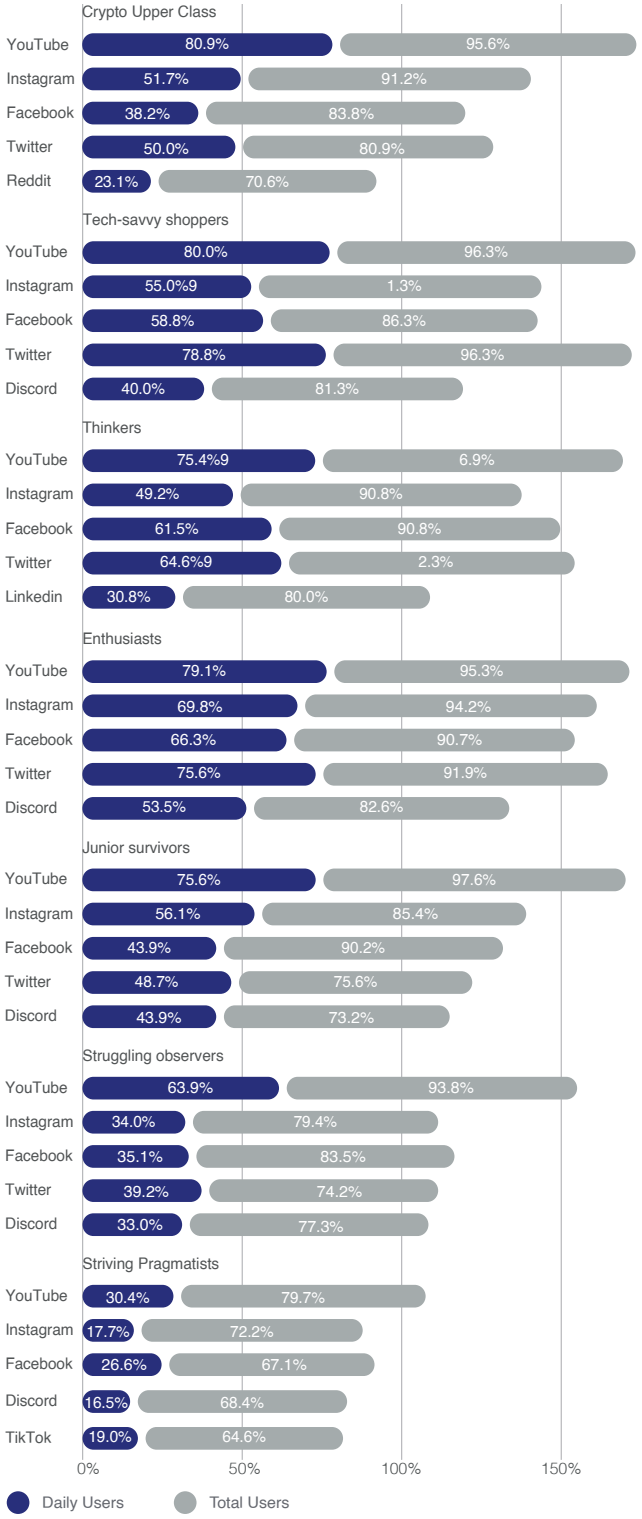


Figure 82: Social media platforms preferred by each cluster.

platform's relevance for professional and business-oriented discourse within the crypto space. Conversely, LinkedIn could not make it into the top 5 in the remaining segments. Likewise, Reddit ranks among the top 5 platforms exclusively for the Crypto Upper Class with 23.1% daily and 70.6% total usage rates, while TikTok distinguishes itself within the top 5 most-used platforms for Striving Pragmatists, with 19% daily and 64.6% users.

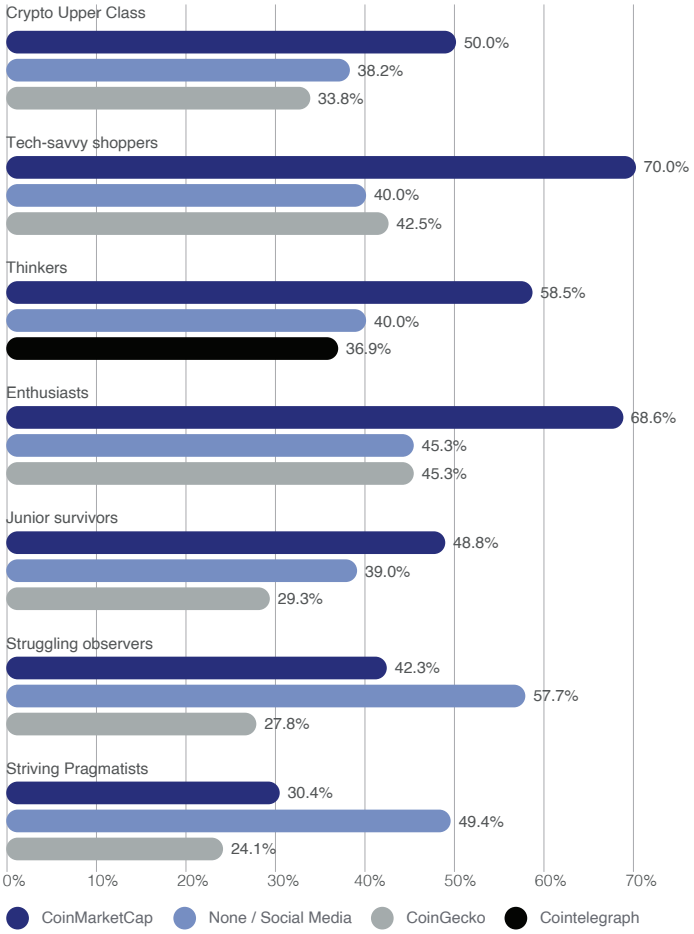


Figure 83: News media platforms preferred by each cluster.

Analyzing the preferred news sources of crypto-consumers across different segments highlights distinct patterns as well. CoinMarketCap leads as the go-to news portal for crypto-market insights, particularly among Tech-savvy Shoppers and Enthusiasts, with usage rates at 70% and 68.6%, respectively. This trend demonstrates their prioritization of real-time market data and comprehensive cryptocurrency information. The use of CoinMarketCap is way lower among Striving Pragmatists and Struggling Observers, among whom it is not the top choice. Interestingly, many crypto-shoppers, such as a significant portion of Struggling observers (57.7%) and Striving Pragmatists (49.4%), do not favor traditional news portals; instead, they rely on social media platforms for updates. CoinGecko, which offers a mix of market data and educational resources, sees moderate engagement from segments like Tech-savvy shoppers (42.5%) and Enthusiasts (45.3%). While the analytical and editorial content from Cointelegraph attracts 36.9% of Thinkers, it is not in the top 3 among other segments. The data underscores varying needs and interests across the spectrum of crypto-consumers, with some groups seeking depth and expertise, and others drawn to the immediacy and communal aspects of social media. These insights could be pivotal for entities looking to connect with these distinct consumer groups within the crypto space.

11. CONCLUSION

As a concluding result of our comprehensive research, we have come up with a number of concise theories regarding the current and future use of cryptocurrencies for shopping and payments.

11.1 Bridging markets

Our research reveals the universal demand for the possibility of buying goods and services by paying in cryptocurrencies. However, the availability of stores, brands, products, and services in the crypto-markets is far from being sufficient. There may be different reasons for that, including but not limited to restricting legal regulations, branding decisions, exclusive business plans, lack of sources or vision, etc. These may prevent the desired stores or products from existing in the crypto-markets. This is precisely where gift cards, vouchers, and coupons come in handy since most stores and e-commerce platforms already issue one or another.



Intermediary companies that sell fiat-valued gift cards (etc.) that the contracted stores issue in exchange for a quasi-equivalent amount of crypto-money are playing a significant role in bridging the conventional online markets with the crypto-markets. In this way, crypto-consumers find the opportunity to shop at their favorite online stores even though they do not directly accept payments in cryptocurrencies. As 44% of crypto-consumers already rely on indirect payments via gift cards, this is clearly a key enabler of the cryptoshopping concept. Such methods may occasionally come at a cost (e.g., commissions), yet they create a win-win condition for everyone. The unavailability of a crypto-payments option for most renowned brands and stores likely explains why crypto-consumers consolidate their crypto-shopping activities at one-stop shops (such as Cryptorefills) that can satisfy a variety of customers' needs via gift cards.

11.2 Financial inclusion

There are crypto-consumers from all around the globe and from a wide variety of socioeconomic backgrounds. However, there are also some easily discernible patterns. The financial inclusion theory suggests that many unbanked or underbanked people, or people with limited access to online banking systems, predominantly from less-developed countries (e.g., in Sub-Saharan Africa, etc.), keep their (usually personal or small-scale) businesses up and running by accepting crypto-payments. Therefore, it makes perfect sense for them to be able to shop with crypto-money. As these people constitute about one-fifth of all crypto-consumers, apparently, crypto-shopping is a matter of survival for many.



For a majority of crypto-shoppers, the cryptocurrencies are already a part of a circular economic process, where it is in some way earned (by performing small tasks online, digital freelancing, etc.) and then spent in the form of crypto-shopping. This means, for certain unbanked or underbanked people, cryptocurrency is perhaps their only chance to participate in the digital economy, both on the demand and the offer sides.

11.3 A better way of payments

From various aspects, paying with crypto-currencies is a better option for shopping rather than paying with fiat money. It is obviously a great opportunity for people who do not have access to other payment or transfer methods. The ones who already earn (e.g., through salary, mining, etc.) some income in cryptocurrencies are potential crypto-consumers as well. On the other hand, many prefer it due to privacy and security concerns, while some want to avoid middlemen and intermediary handlers. A great majority have an innovative spirit and like to adopt new technologies, including the ones involving crypto-currencies.



Despite its inestimable benefits and high potential, there are some drawbacks, including high transaction fees, long confirmation delays, commissions, value instability, and store/product unavailability. Cryptoconsumers tend to tolerate these to a small extent but not entirely. Concerning delays and fees, we see that the race is absolutely still on. Different blockchains and currencies are competing to win the shopping and fast/small transactions space. The Lightning Network is the first case of a scalability network offered to users to make crypto-payments for shopping purposes. It is available only for Bitcoin transactions, and although favored by many crypto-consumers, the reality shows only limited adoption of this technology. Our data reveals a growing trend in the Lightning Network's adoption, but is still far from its potential. The growth is driven by users trying to overcome the cost of using their Bitcoin, but also by more user-friendly next-generation Lightning wallets, and maybe to some extent by the efforts of stores like Cryptorefills in educating their users. There are also many interesting solutions for resolving the delays and fees of Ethereum and ERC-20 token payments, including payments with stablecoins (which are also highly favored by customers). OMG, Polygon, Loopring, XDai, and many others might see stronger adoption in the upcoming months, especially due to the increasing cost of Ethereum.

11.4 Future of money

Okay, this may sound a bit too pretentious, but technological advances force numerous permanent changes in the shopping habits of consumers. Like online banking, credit cards, and digital money, cryptocurrencies are also becoming an integral part of the modern economy and finance. Of course, we do not foresee a complete replacement of conventional money in either the short or medium terms. However, cryptocurrencies already have their own rewarding use cases and will increasingly be more common within the near future, as more than 70% of crypto-consumers are reportedly agreeing with that. Our research shows that cryptocurrency owners see them as both a means for investments and a means for payments. Moreover, using cryptocurrencies addresses some specific needs that cannot be better addressed by conventional alternatives.

We definitely cannot say for sure if any of today's promising technologies, such as the Lightning Network, are here to stay long or if it is "overhyped" already, or which technologies and currencies will emerge as clear leaders in the consumer shopping payments domain. From our data, it seems that the top currencies by market cap and the stablecoins have the biggest chances of succeeding, provided that they can offer easy, scalable, and cost-efficient solutions to both consumers and businesses. Such scalable solutions may pass through other blockchain networks, sidechains, and scalability networks, as long as they are found feasible and usable by both merchants and consumers. Liquidity will also play a role, likely driving the shopper consolidation around such solutions.



12. METHODOLOGY

This consumer analytics report is a result of various academic and theoretic research approaches, as well as some of the best practices in qualitative and quantitative market research methodologies, such as k-prototypes cluster analysis. To avoid potential bias within the study outcomes, our research team is supported by independent researchers. The privacy of Cryptorefils users and the survey participants is of critical importance to maintain the trust of our users and our business. All data collected from the surveys were immediately anonymized using "aliases" and studied in aggregated forms. This publication has full compliance with the latest GDPR requirements.

12.1 Survey & data collection

The core of the report is based on a customized version of the Technology Acceptance Model 2 (TAM2), adapted from the work of Venkatesh and Davis[22]. The data is collected through a comprehensive questionnaire with 141 distinct questions to be answered on a voluntary basis. In lieu of the demographics information, by using the TAM2 model, we covered the experience of users regarding purchasing goods and services using blockchain-based currencies to a great extent. We specifically learned about numerous aspects related to ease of use, usefulness, confidence, and social aspects related to the use of these currencies in shopping. The data collection phase of the survey took place from the 1st of June 2023 to the 10th of September 2023. The market-related data is up-to-date as of the end of June 2023. The data we collected is elaborated for validity through cross-checking key (e.g., contradictory) questions. Furthermore, in-depth verification of the insights obtained from the adapted TAM2 questionnaire is made by comparison to our aggregated user spending statistics.



The study can be best described as a quantitative analysis with some qualitative aspects. In many of the questions, the participants were asked to define their agreement with some given statements using a 5-point Likert scale where the options are "strongly agree", "somewhat agree", "neutral", "somewhat disagree", and "strongly disagree". Occasionally these can also be interpreted as "yes", "somewhat", "neutral", "barely", and "no". The rest of the questionnaire includes multiple choice questions, free-response questions, and multiple-choice questions with the possibility of manual entries.

12.2 Population & Sample size

The entire population of the survey exclusively consists of the registered users of the Cryptorefills website (www.cryptorefills.com). The population presumably consists of crypto-consumers, who are (i) actively using cryptocurrencies in shopping, (ii) have quit using cryptocurrencies in shopping for a while for any reason, or (iii) never tried but are eager to use cryptocurrencies in shopping in the future. The overall population size (N) is confirmed to be 7537 unique individuals. Repeating entries are eliminated carefully. The number of participants, namely the sample size (i.e., the base) of the study, is 516 for all questions in the questionnaire. We can say that this year, the study has broadened and has become more accurate as there are more participants than last year. As a side note, the participants were allowed not to disclose their answers to only a few questions due to privacy concerns; even so, the base is not lower than 200 for any of the survey questions.



The confidence interval is customarily chosen as 95%. The worst-case error margin (i.e., in a binary question with two options, where both options have a selection rate of 50%) is calculated as ±4.2%. As this is a rare case, the mean error margin would be even lower. For instance, for a binary question with selection rates 10% and 90% (e.g., the gender questionnaire in Section 2), the margin becomes ±2.5%. This approach can be generalized to the multiple-choice questions since the option with the most votes can be compared to the rest of the answers. The standard error can be calculated separately for every question using the option selection rates and the sample size.

12.3 Cluster analysis

The consumer segmentation analysis, also called cluster analysis, included in this research also uses the same dataset as the rest of the study (which was not the case in the previous edition due to time constraints). The analysis utilizes the k-prototypes method included in the kmodes library of Python3, over 32 distinct variables (i.e., among survey questions), with the. elbow number of 7, which is also found experimentally by an exhaustive best-fit search between 2 and 25 Although the study was renewed completely this year, the number of clusters found did not change, indicating consistency in the data and validity of our approach. The maximum error margin of that part of the study is the same as the rest of the research at ±4.2%.

12.4 Criticism

Throughout this study, we have followed a scientific approach to increase precision and eliminate biases. However, there is still some discussion worth mentioning. First of all, the survey is conducted with people who are currently crypto-consumers, as they are registered to a crypto-shopping web portal. Therefore, the survey's extent does not cover former crypto-consumers (i.e., people who quit crypto-shopping for good, for whatever reason). So, it was not possible to discover their motivations. Secondly, we also could not reach people who were eager to try crypto-shopping at some point but did not take any action yet (apart from the minority who are registered to our portal but have not made a purchase). Thirdly, the survey was carried out online, on a voluntary basis, so the crypto-consumers who were eager to attend may be the ones who are less busy, who are more helpful, or even who have higher exposure to the survey. Lastly, although the data used in the research is very up-to-date, the cluster analysis part of the study used an older data set, which may not reflect the most recent changes in crypto-shopping behaviors.



On the other hand, in this year's study, we have addressed one of the important concerns existing in the earlier editions of the report: the survey included questions related to the crypto exchanges and crypto wallets preferred by consumers in lieu of the volume of the crypto-money that the crypto-consumers earn, buy, own, or spend, added last year. Hence, it became more accurate and informative in that sense.

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Supports & Partnership

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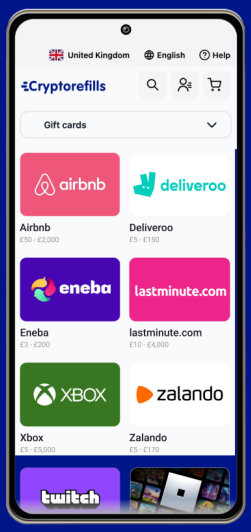
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As one of the earliest adopters of the Bitcoin Lightning Network, and as the first company in the world to launch Ethereum layer-2 payments and fast finality blockchains for E-commerce payments, Cryptorefills is leading the innovation in applied decentralized payments and decentralized gift card infrastructure.



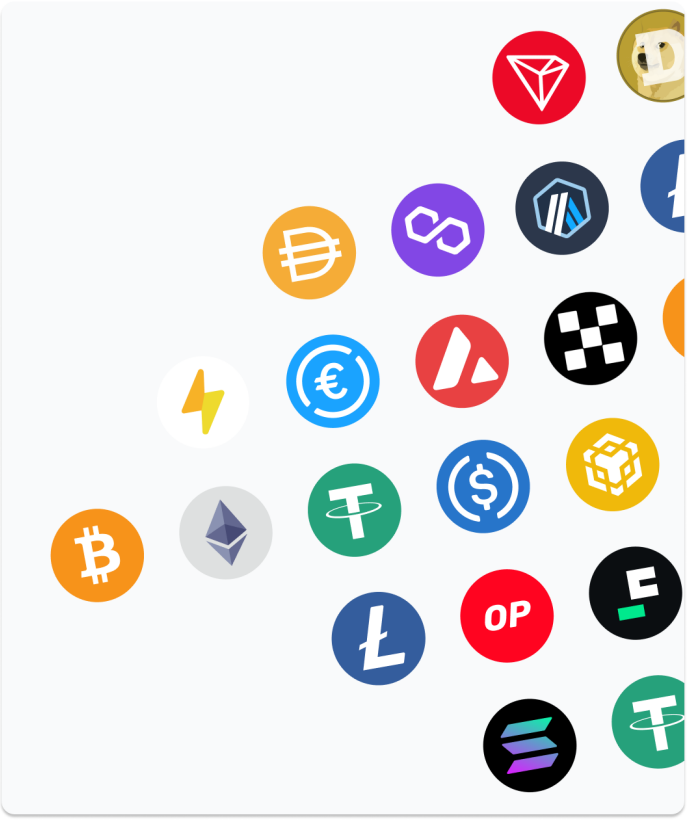
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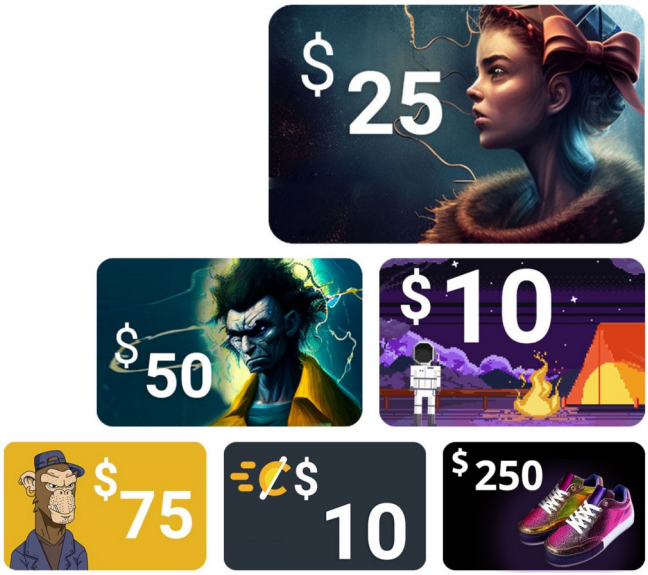
- Global market leader in crypto-shopping
- Strong visibility for thousands of users purchasing everyday from our platform
- Reach millions of users that access our platform via our partners (e.g. Binance)
- Accepting all top cryptocurrencies
- Accepting Lightning Network payments
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Eliminate the prepaid float accounts model. Leverage the atomicrails smart contract to enable real time settlement of all parties in the distribution chain.

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The merchant or the authorized program manager can easily detect and block frauds, scams or other illicit uses of Gift Cards that could harm partners and/ or end users.



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All Fees payable hereunder to BDV are exclusive of all goods and services, sales, use or other taxes, customs, duties and similar levies, if any, payable in or to any jurisdiction or authority whatsoever, which taxes, duties and levies will be your responsibility, excluding taxes levied on the income of BDV.

2.3 No refunds

No refunds or credits will be issued for: (a) non-use or partial use of any Product(s), (b) upgrade/downgrade refunds, or (c) refunds for months unused with an Annual Subscription.

2.4 Compliance and change of scope

BDV shall have the right to verify your compliance with these License Terms, through any method available, or preferred by, BDV to perform such verification and the choice of such method shall be in the sole discretion of BDV. In the event BDV detects non-compliance on your part with these License Terms in connection with any Product(s) purchased, BDV may, in its sole discretion, without limitation to any other rights of BDV under these License Terms, without prior notice to you: (a) modify the scope of or upgrade the relevant license to bring it into compliance with the actual usage of the Product(s) by you, (b) invoice you with such additional fees to reflect the change of the scope of license, (c) take any further steps that BDV deems necessary to correct such non-compliance.

3. Ownership

All copyrights, patents, utility models, trade-marks, service marks, design rights (whether registered or unregistered), database rights, proprietary information rights and all other proprietary rights that may exist relating to the Product(s) (“Intellectual Property Rights”) are the sole property of BDV. You shall not obtain any Intellectual Property Rights in the Product(s) pursuant to or arising out of their use of the Product(s), except for the license granted by BDV to use the Product(s) as set forth herein.

4. Third party claims

You shall fully indemnify BDV in respect of any infringement of any Intellectual Property Rights arising as a result of your use of the Product(s) in breach of these License Terms. You shall allow BDV (or its licensors) to control any proceedings arising as a result of any infringement, threatened infringement or claim relating thereto. You shall make no admission as to liability nor accept any settlement. You shall also, at the request of BDV, offer reasonable assistance and cooperation in relation to any such proceedings. Any recovery obtained from such proceedings shall accrue solely for the benefit of BDV.

5. Disclaimer of warranties; limitation of liability

5.1 Disclaimer

All Product(s) are provided on an “as is”, “as available” basis and BDV expressly disclaims all warranties, including the warranties of merchantability and fitness for a particular purpose.

5.2 No warranty

BDV, its affiliates, and any officer, director, employee, subcontractor, agent, successor, or assign of BDV or its affiliates do not warrant that any Product(s): (a) will meet any specific requirements; (b) will be uninterrupted, timely, secure, or error-free; or (c) will contain accurate or reliable results. Except as expressly set out in these License Terms, all such warranties are excluded to the maximum extent permissible by law. You assume sole responsibility for the selection, suitability and use of the Product(s) and acknowledge that, as stated above, BDV does not provide any additional warranties or guarantees relating to the Product(s).

5.3 No liability

BDV, its affiliates, and any officer, director, employee, subcontractor, agent, successor, or assign of BDV or its affiliates, shall not be liable for any direct, indirect, incidental, special, consequential or exemplary damages, including but not limited to, damages for loss of profits, goodwill, use, data or other intangible losses (even if BDV has been advised of the possibility of such damages), resulting from: (a) the use or the inability to use any Product(s); (b) the cost of procurement of a substitute goods and services resulting from any goods, data, information or services purchased or obtained or messages received or transactions entered into through or from any Product(s); (c) any unauthorized access to or alteration of any Product(s); (d) any price change, suspension or discontinuance of any Product(s); or (e) any other matter relating to any Product(s).

6. Term and termination

These License Terms shall be deemed to be effective as of the date of acceptance of BDV of an Order from You (the “Effective Date”) and shall continue in full force and effect until terminated in accordance with its terms. Notwithstanding anything contained in this Section 9, BDV may, in its sole discretion, terminate any license granted to you hereunder without notice in the event of non-compliance by you with these License Terms.

7. Miscellaneous

7.1 Assignment

You shall not have the right to assign your rights or obligations under these License Terms to another party without the prior written consent of BDV.

7.2 No waiver

Failure of BDV at any time to enforce any of these terms and conditions or to require performance by you of any such term or condition shall not be construed as a waiver of such provision or affect the right of BDV to enforce the same.

7.3 Severability

If any provision of these License Terms, or an Order, is held to be invalid or unenforceable by any court or administrative body of competent jurisdiction, the invalidity or unenforceability of such provision shall not affect the other provisions of these License Terms, and all provisions not so affected by such invalidity or unenforceability shall remain in full force and effect. The parties agree to attempt to substitute for any invalid or unenforceable provision a valid or enforceable provision which achieves to the greatest extent possible the economic objectives of the invalid or unenforceable provision.

7.4 Survival

Sections 2 through 8 and 10 shall survive the expiration of termination of these License Terms.

7.5 Governing law and jurisdiction

These License Terms shall be governed by the laws of The Netherlands. Any disputes arising in connection with these License Terms (including non-contractual disputes) shall be subject to the exclusive jurisdiction of the courts of The Netherlands.

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