Country Culture and Bitcoin Early Adoption

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ABSTRACT:

This paper investigates the relationship between national culture and the early adoption of Bitcoin. Utilizing a dataset comprised of Google Trends data on Bitcoin search interest for 64 countries, we construct measures of early Bitcoin adoption and examine their correlation with Hofstede's cultural dimension scores. Our findings reveal that in developed countries, lower Masculinity and Long-Term Orientation are associated with earlier Bitcoin adoption. In contrast, developing countries with lower Indulgence are found to adopt Bitcoin early. This paper contributes to the literature by highlighting how different cultural traits, moderated by a country's development status, can influence the Bitcoin early adoption.

JEL Classification: O33

Keywords: Bitcoin adoption, country culture, technology acceptance

1. INTRODUCTION

In the landscape of financial innovation, Bitcoin emerges as a revolutionary peer-to-peer electronic payment system, marking a novel era in decentralized digital currencies (Nakamoto 2008). Since its inception, Bitcoin has undergone remarkable growth, establishing itself the top-performing asset over the last decade (Hougan and Lawant 2021). By 2021, Bitcoin became the world's third-largest currency in circulation, a testament to its global impact and widespread recognition (Laboure 2021).

One distinctive attribute of Bitcoin lies in its inclusive adoption, cutting across the conventional boundaries that often differentiate developed and developing nations. This unique characteristic raises intriguing questions about the factors influencing the adoption of this transformative technology in a country. This paper explores the intricate relationship between country culture and the early adoption of Bitcoin, unraveling the cultural nuances that contribute to the -widespread acceptance of this groundbreaking financial technology.

Our study reveals that while global collective attention towards Bitcoin largely mirrored major Bitcoin price rallies, particularly peaking in 2017, the pattern of attention exhibited significant variations at the country level. A notable example is Iceland, which recorded its highest collective attention towards Bitcoin as early as 2013, preceding the widespread global interest in the cryptocurrency. We adopt to the framework of Hofstede's cultural dimensions (Hofstede 2011) to understand these variations. Our analysis suggests a significant correlation between cultural traits and the propensity of countries to adopt Bitcoin at an early stage. Specifically, nations exhibiting lower levels of Masculinity and Indulgence demonstrate a proclivity for early Bitcoin adoption, after controlling economic factors. Notably, Masculinity's effect is more pronounced in developed countries, whereas the impact of Indulgence is more evident in developing countries. Additionally, our study suggests that in developed nations, a lower Long-Term Orientation correlates with earlier adoption of Bitcoin.

This paper contributes to the existing literature in two key aspects. Firstly, while recent research has shed light on various country-level factors influencing Bitcoin adoption, such as online retailer acceptance (Jonker 2019), national development indicators (Bhimani, Sarukkai, & Arif 2022), trust in financial institutions (Saiedi, Broström, & Ruiz 2021), and socio-economic -indices (Parino, Beiró, & Gauvin 2018), a notable gap exists in the exploration of how cultural dimensions shape adoption patterns. This study examines the influence of cultural nuances in the early adoption of Bitcoin, providing a unique perspective on the dynamics of technological assimilation. Additionally, while

most studies concentrate on adoption levels, this paper explores the timing of adoption as an alternative approach of understanding Bitcoin adoption dynamics, thereby seeking to enrich the literature on this subject.

Secondly, a significant body of research has focused on understanding the role of social influence in the adoption of technologies (e.g., Dickinger, Arami, and Meyer 2008; Sykes, Venkatesh, and Gosain 2009; Gokmen, Baskici, and Ercil 2021). These studies predominantly examine fields like information technology and telecommunications, areas that often require considerable technological infrastructure and financial outlay. In contrast, the entry barriers for Bitcoin adoption are notably lower (Wood, Lenskiy, and Khan 2017). The basic prerequisites for engaging in Bitcoin transactions include merely having internet access and possession of a smartphone. Consequently, examining Bitcoin as an innovative technology offers a unique advantage of broader inclusivity, particularly for developing countries, since its adoption faces fewer obstacles related to technological and financial barriers.

This paper is structured as follows: Section 2 provides an overview of the development of Bitcoin search interest over time. Section 3 discusses the methodology employed to measure early adoption of Bitcoin. Section 4 examines the relationship between early adoption measures and cultural and socio-economic factors. Finally, Section 5 summarizes the main findings and draws conclusions.

2. LITERATURE REVIEW

2.1 Technology Acceptance

The Theory of Reasoned Action (TRA) from Ajzen and Fishbein (1975) is a psychological model developed to explain and predict human behavior, particularly regarding social behaviors. TRA posits that an individual's behavior is determined by their intention to perform that behavior, and this intention is influenced by two main factors: their attitude toward the behavior and the subjective norm associated with the behavior. Attitude toward behavior reflects an individual's positive or negative evaluation of performing a particular behavior, while subjective norm represents the perceived social pressure or normative expectations regarding the behavior. The combination of these factors helps predict an individual's intention to engage in a specific behavior.

Building upon TRA, Davis (1989) introduced the Technology Acceptance Model (TAM). TAM focuses specifically on technology adoption and suggests that users' intention to use a technology is determined by two key factors:

perceived usefulness and perceived ease of use. Perceived usefulness is the belief that using a technology will enhance one's job performance, while perceived ease of use refers to the perception that using the technology is straightforward and uncomplicated.

TAM2, developed by Venkatesh and Davis (2000), extends TAM by incorporating additional variables, including social influence processes. TAM2 acknowledges that social factors, such as subjective norms and social influence, play a crucial role in shaping individuals' attitudes and intentions toward technology adoption. It recognizes that external influences, such as the opinions of peers, colleagues, and social networks, can impact an individual's decision to accept or reject a technology. Cultural norms and values play an important role in shaping how individuals perceive and respond to external opinions (Markus and Kitayama 1991). Consequently, the integration of cultural factors is imperative for a comprehensive understanding of the technology acceptance process.

The relationship between culture and technology adoption becomes evident through various empirical research findings. For instance, Bagchi et al. (2003) showed the pivotal role of national culture in IT adoption, laying the groundwork for understanding cultural impacts on technology use. Kovačić (2005) identified a positive link between individualistic cultures and higher rates of technology adoption, suggesting that cultures valuing autonomy and efficiency are more inclined towards embracing new technologies. Venkatesh, Thong and Xu (2012) expanded upon these findings and examined the moderating effects of cultural values on technology acceptance, revealing significant influence of cultural contexts on technology adoption processes. These studies collectively highlight the importance of considering cultural factors in the study of technology acceptance, suggesting that cultural predispositions significantly shape technology adoption behaviors.

2.2 Hofstede Cultural Dimensions

Hofstede's Cultural Dimensions Theory (2011) is the most referenced framework in the realm of cultural analysis. This theory provides a comprehensive method for identifying and quantifying cultural attributes that characterize societies worldwide. According to Hofstede, culture can be succinctly defined as the collective programming of the mind, encompassing shared values, beliefs, norms, and behaviors. This programming, transmitted across generations, profoundly shapes the cognitive frameworks and behavioral patterns of individuals within a given society. This

foundational understanding serves as the basis for the Cultural Dimensions Theory, facilitating a structured exploration of cultural disparities.

Hofstede's original framework is based on a survey conducted among 116,000 respondents in 53 countries and regions in 1968 and 1972. This survey was conducted exclusively among IBM employees to control the corporate culture. From the data collected, Hofstede derived six distinct cultural dimensions: Power Distance, Individualism vs. Collectivism, Masculinity vs. Femininity, Uncertainty Avoidance, Long-Term Orientation vs. Short-Term Normative Orientation, and Indulgence vs. Restraint. Each dimension is assigned a score for each country, representing the cultural inclinations of a nation. The following are brief descriptions of Hofstede's Cultural Dimensions:

Power Distance: Power Distance reflects the extent to which less powerful members of a society accept and expect that power is distributed unequally. It refers to the degree of social inequality and hierarchical acceptance within a culture. In societies with a high power distance, there is a greater acceptance of hierarchical order, and individuals expect and tolerate significant differences in power. Conversely, in cultures with low power distance, there is an emphasis on equality, and people tend to question and challenge authority. Lower power distance cultures often exhibit a higher tolerance for innovation and risk-taking. Individuals feel more empowered to suggest and experiment with new ideas to challenge existing norms (Shane 1993). This cultural trait fosters an environment where early adoption of technology is embraced rather than resisted.

Hypothesis H1: Countries characterized by lower power distance are more likely to adopt technology early.

Individualism vs. Collectivism: This dimension explores the balance between individual interests and group harmony within a society. Individualistic cultures prioritize personal autonomy and achievement, while collectivist cultures emphasize group cohesion and interdependence. Consequently, individuals in individualistic culture are more likely to explore and embrace alternative financial systems, recognizing them as empowering avenues that offer greater control over their assets. In addition, individualistic cultures tend to have open communication channels and value the free flow of information (Kim, Pan and Park 1998). Bitcoin operates in a digital and information-intensive environment. Individuals in countries with higher individualism are more likely to actively seek information about new technologies and share this knowledge within their networks. This contributes to the awareness and early adoption of Bitcoin.

Hypothesis H2: Countries characterized by higher individualism are more likely to adopt technology early.

Masculinity vs. Femininity: This dimension examines the distribution of roles and values within a society based on traditional gender expectations. Societies with high masculinity tend to value qualities associated with stereotypical male gender roles and therefore have a strong emphasis on assertive leadership, competition, and the pursuit of individual success. Conversely, in cultures characterized by high femininity, there is often a greater emphasis on collaboration, community, and the overall welfare of individuals (Kaasa and Vadi 2010). Bitcoin, as a decentralized and community-driven digital currency, aligns with these values. Countries with a higher emphasis on femininity may be more open to collaborative financial systems, leading to earlier adoption.

Hypothesis H3: Countries characterized by higher femininity are more likely to adopt technology early.

Uncertainty Avoidance: This dimension refers to the extent to which members of a society feel uncomfortable with uncertainty and ambiguity. Cultures with low uncertainty avoidance are more comfortable with ambiguity and unpredictability. Individuals in these cultures are generally more open to change, experimentation, and risk-taking, and more adaptable to change (Jones and Davis 2000, Lim and Park 2013). Bitcoin represents a significant departure from traditional financial systems, and societies that embrace change may exhibit greater willingness to experiment with and adopt disruptive technologies like cryptocurrencies.

Hypothesis H4: Countries characterized by lower uncertainty avoidance are more likely to adopt technology early.

Long-Term Orientation: It reflects a society's time horizon and the extent to which its members prioritize long-term goals and values over short-term gains. This dimension is particularly relevant in understanding how cultures approach planning, perseverance, and the balance between short-term and long-term gratification. In cultures characterized by a high long-term orientation, future planning takes precedence. These societies are inclined to invest in innovative technologies that promise sustained benefits over an extended period (Yoo, Donthu and Lenartowicz 2011). They exhibit a greater tolerance for innovation and a willingness to experiment with novel ideas. Bitcoin, as a decentralized and transformative financial technology, may be perceived as a strategic investment that resonates with the forward-thinking approach inherent in these cultures.

Hypothesis H5: Countries characterized by greater long-term orientation are more likely to adopt technology early.

Indulgence vs. Restraint: This dimension focuses on how societies approach gratification and the regulation of desires and impulses. It reflects the extent to which a culture allows free expression of human nature versus the control and regulation of such indulgences. Bitcoin, as a decentralized and individually oriented financial system, aligns well with the values of personal freedom. Individuals in indulgent cultures may be more inclined to adopt a financial system that empowers them with greater control over their assets.

Hypothesis H6: Countries characterized by indulgence are more likely to adopt technology early.

3. BITCOIN EARLY ADOPTION MEASURES

3.1 Collective Interest Towards Bitcoin

Our measures of early Bitcoin adoption are constructed using the data from Google Trends. Google Trends is a -widely employed tool in empirical research in measuring the collective interest towards a specific search term on the Internet (e.g. Jun, Yoo and Choi 2018; Preis, Moat and Stanley 2013; Puri 2016; Segev and Boudana 2022). It operates as a monitoring system based on Google searches and provides a relative search frequency (RSF) for a given region and time. RSF is a normalized value, typically ranging from 0 to 100. It compares the search proportion of a particular week to the week with the highest search proportion (RSF=100). A higher RSF indicates stronger collective interest in a specific search term within a given region.

（Insert Figure 1 here）

Figure 1 illustrates the time series of the weekly RSF for the term “Bitcoin” worldwide, spanning from its inception in 2009 to 2019 (Balutel et al. 2023; Blockchain Research Lab 2019). Notably, two distinct periods show elevated search intensity: the year 2013 (peak RSF of 13) and the timeframe from 2017 to 2019 (peak RSF of 100). We also included a time series of Bitcoin price, represented by the dashed line, as a benchmark. It shows that these two search peaks are coincident with the two major Bitcoin price rallies: the late 2013 rally, which pushed the Bitcoin price above $1,000, and the late 2017 rally, which brought the price to almost $20,000. The Bitcoin RSF line closely tracks the trend of the Bitcoin price line, exhibiting a Pearson correlation of 0.73 overall and 0.93 pre-2018. This alignment supports existing literature findings that the global collective interest in Bitcoin is highly correlated with its price movements (Kristoufek 2015, Panagiotidis, Stengos and Vravosinos 2019).

Country-level collective interest is determined by calculating the weekly Relative Search Frequency (RSF) at the country level, utilizing each country's primary language, spanning from December 30, 2012, to December 29, 2019. This timeframe is selected because it encapsulates Bitcoin's evolution from an entity associated with the black market to a recognized form of payment, commerce, and service, transpiring before the onset of the Covid-19 pandemic (Tasca, Hayes, and Liu 2018). To be included in our sample, a country must meet two criteria: firstly, it must have at least 50 percent of its population as Internet users in 2016[2], and secondly, Google Search must not be banned or disabled in the country. Our sample comprises 64 qualified countries, evenly divided between 32 developed countries and 32 developing countries.

（Insert Figure 2 here）

Our country-level data unveils noticeable disparities in the timing of Bitcoin search interest. As depicted in Figure 2, Brazil reached an initial search peak in 2013 with a maximum RSF of only 5, whereas Iceland exhibited the maximum RSF during the same year.

3.2 Variable Constructions

Our Bitcoin early adoption measures are constructed based on the time series of country-level RSFs. Literature shows that time series of RSFs from Google Trends are strongly correlated with direct measure of Bitcoin adoption, such as the number of Bitcoin software client downloads and the IP addresses of relay nodes (Parino, Beiró, and Gauvin 2018, Puri 2016).

The first variable, ***Bitcoin_pctg***, is calculated by the sum of the RSF of the first 183 weeks in our sample divided by the sum of the RSF of all weeks in our sample. This variable indicates the percentage of total collective interest towards Bitcoin in the first half of the sample period, thus higher values of *Bitcoin_pctg* would be expected in countries which were early adopters.

$$Bitcoin\_pctg_j = \frac{\sum_{i=1}^{183} RSF_{i,j}}{\sum_{i=1}^{366} RSF_{i,j}} \quad (1)$$

where i denotes week ID, for example, the week ID of the first week (the week of Dec 30, 2012) is 1, and the week ID of the last week (the week of Dec 29, 2019) is 366. j denotes countries.

The second variable, ***Bitcoin_avg***, is computed using a weighted average of week IDs, where the weight of each week is determined by its respective RSF divided by the total RSF of all 366 weeks. This variable represents the average number of weeks it would take for early adopters to search Bitcoin in a specific country throughout the sample period. Therefore, countries that adopted Bitcoin earlier would be expected to have lower values of *Bitcoin_avg*.

$$Bitcoin\_avg_j = \sum_{i=1}^{366} i \times \frac{RSF_{i,j}}{\sum_{i=1}^{366} RSF_{i,j}} \quad (2)$$

（Insert Table 1 and Figure 3 here）

We ranked the 64 countries according to their *Bitcoin_pctg* value and summarized the results in Table 1 and Figure 3. Generally, developed countries in North America, Europe, and Oceania had higher *Bitcoin_pctg* values (lower *Bitcoin_avg* values) while developing countries in the Middle East and Africa had lower *Bitcoin_pctg* values (higher *Bitcoin_avg* values). Iceland was the nation with the highest *Bitcoin_pctg*, followed by Moldova, Finland, Greece, and Czech Republic, suggesting that these countries are Bitcoin early adoption countries. Conversely, South Africa, Brazil, South Korea, Colombia, and Turkey were among the 5 countries with the lowest *Bitcoin_pctg*. We observed that the *Bitcoin_avg* distribution followed an inverse pattern, with Iceland having the lowest *Bitcoin_avg* and Turkey having the highest, reaffirming the applications based on *Bitcoin_pctg*.

4. EMPIRICAL MODELS AND RESULTS

In this section, we explore the relationship between national culture and the early adoption of Bitcoin, to understand how collective cultural orientations may influence this digital innovation's acceptance.

4.1 Univariate Analysis

We collected data on Hofstede's six cultural dimensions, including *Power Distance*, *Individualism*, *Masculinity*, *Uncertainty Avoidance*, *Long-term Orientation*, and *Indulgence*, for each country from Hofstede Insights. Each dimension is measured on a scale of 0 to 100. The countries were then divided into two groups of equal size based on *Bitcoin_pctg* values. Countries with Bitcoin_pctg equal to or above 18.27% were categorized as early adopters, while the remaining countries were classified as later adopters.

We calculated the average scores for each of the six cultural dimensions for both groups, along with the differences between them, which are presented in Table 2. Our findings revealed noteworthy cultural distinctions. Countries identified as early adopters of Bitcoin demonstrated significantly higher scores in *Individualism*, indicating a cultural inclination towards autonomy and personal freedom in decision-making. This was evidenced by an average difference of 9.18 in the *Individualism* scores between the early and later adopter countries. The difference is statistically significant at the 10% level. In addition, these early adopter countries tended to have significantly lower levels of *Masculinity* and *Indulgence*.

4.2 Basic Empirical Model

Next, we proceed with empirical analysis using regression models to examine the relationship between cultural dimensions and Bitcoin early adoption. The model we employed is presented as follows:

$$Bitcoin_{pctg} = \alpha_i + \beta \times Cultural\ Dimension + \delta Z_i + \varepsilon_i \quad (3)$$

where i indexes different countries; $Cultural\ Dimension$ refers to one of the Hofstede cultural dimensions; and Z_i is a vector of economic variables to control each country's economic conditions. The economic variables incorporated in our analysis include GDP per capita (*GDP*), inflation rate (*Inflation*), a dummy variable representing whether a country is developed (*Developed*), and the degree of Investment Freedom (*Freedom*), with the latter obtained from the Heritage Foundation and all other economic data sourced from The World Bank, specific to the year 2016[3].

（Insert Table 3 here）

The empirical results from this model are presented in Table 3, with Panel A focusing on Bitcoin_pctg as the dependent variable. Our results show a negative and statistically significant correlation between the *Masculinity* cultural dimension and *Bitcoin_pctg*, which is consistent with Hypothesis 3. This suggests that societies with lower *Masculinity* scores, which emphasize values such as equity, communal solidarity, and a minimized focus on competitive achievements, tend to adopt Bitcoin early. Such cultural settings seem to foster a greater openness to embracing technological innovations that offer alternatives to traditional financial systems.

Interestingly, we find a negative and statistically significant relationship between the level of *Indulgence* and *Bitcoin_pctg*. This result directly contradicts Hypothesis 6. It suggests that cultures with lower levels of *Indulgence*,

characterized by a more restrained approach to life and a skeptical view of gratification, tend to adopt a more thoughtful and discerning stance towards new technologies like Bitcoin. Instead of succumbing to the temptations of quick financial gains or speculative opportunities, these societies are likely to engage in a thorough evaluation of Bitcoin's practical utility and its potential for delivering long-term benefits. They carefully align their adoption practices with broader societal objectives and ethical considerations.

However, the remaining four cultural dimensions did not demonstrate significant empirical support to our hypotheses in the study. To ensure the robustness of these findings, we conducted additional checks using *Bitcoin_avg* as an alternative dependent variable in Panel B. Our main results remain -consistent. In an unreported test, we replaced the Investment Freedom variable with economic and financial freedom and found that our results remained robust.

4.3 Developed Countries vs. Developing Countries

The motivations behind Bitcoin adoption likely vary between developed and developing nations. While developed countries might regard Bitcoin as a technological innovation or a speculation opportunity, developing nations could consider it a key to addressing financial inclusion issues. To investigate how variations in a country's development status may affect the impact of culture factors on Bitcoin early adoption, we further explore the interactions between cultural dimensions and a country's development status. The modelis defined as follows:

$$Bitcoin_{pctg} = \alpha_i + \beta \times Cultural\ Dimension + \gamma \times Cultural\ Dimension \times Developed + \delta Z_i + \varepsilon_i \quad (4)$$

where i denotes a country; $Cultural\ Dimension$ refers to one of the Hofstede cultural dimensions; $Developed$ is a dummy variable representing whether a country is developed country; Z_i is a vector of economic variables to control each country's economic conditions, which includes GDP per capita (*GDP*), inflation rate (*Inflation*), and the degree of Investment Freedom (*Freedom*).

（Insert Table 4 here）

Table 4 presents the empirical results of this model. In Panel A, we use *Bitcoin_pctg* as the dependent variable. In addition to the control variables, we only include one cultural dimension as an independent variable from Regression (1) to Regression (6). Regression (2) shows a marginally significant coefficient of 0.112 for Individualism, implying

that countries with higher levels of *Individualism* are associated with earlier Bitcoin adoption. In Regression (5), we observe that the interaction term between Long-Term Orientation and the Developed dummy is -0.178, which is statistically significant at the 5% level. This finding indicates that the negative relationship between long-term orientation and Bitcoin early adoption is predominantly observed in developed countries. suggests that the adoption of Bitcoin in developed countries is not largely driven by long-term orientation. Instead, Bitcoin is likely sought after for its speculative appeal and the allure of technological advancement.

In Regression (6), the *Indulgence* variable is significantly negative with a coefficient of -0.159, indicating that countries with higher indulgence scores are less likely to adopt Bitcoin early. Yet, this relationship appears to be less robust in developed countries, as shown by the positive interaction term of 0.153, which is significant at the 10% level. This indicates a unique dynamic in developing countries where indulgence is negatively related to earlier Bitcoin adoption.

When employing *Bitcoin_avg* as an alternative dependent variable in Panel B, the results are consistent, further validating our findings. Moreover, the coefficient of the interaction term between *Masculinity* and the Developed dummy is 0.303 and marginally significant, suggesting that the negative association between Masculinity and early Bitcoin adoption is predominantly observed in developed countries.

Overall, the empirical results suggest that cultural traits interact differently with economic development status in influencing Bitcoin early adoption. Specifically, the effects of long-term orientation, indulgence, and masculinity are contingent upon whether a country is classified as developed or developing.

5. CONCLUSION AND DISCUSSION

National culture, defined as the collective mental programming of individuals within a country (Hofstede 2011), plays a pivotal role in shaping collective behaviors, beliefs, and values globally (Chiang 2005; Gokmen, Baskici, and Ercil 2021). This paper explores the complex ties between national cultural dimensions and the early adoption of Bitcoin. By utilizing Google Trends' Relative Search Frequency (RSF) to construct two distinct measures of Bitcoin's early adoption, our findings reveal that countries with a predilection for earlier Bitcoin adoption exhibit not only lower levels of Masculinity and Indulgence but also that these effects are nuanced by the country's development status. Specifically, our results indicate that the lower Long-term Orientation and lower Masculinity correlates with earlier adoption in developed countries. Moreover, lower Indulgence correlates with earlier adoption in developing countries.

These findings underscore the significant role of cultural dimensions in shaping the adoption patterns of emerging financial technologies such as Bitcoin. They highlight the importance of considering the interaction between cultural traits and economic development in understanding the diffusion of innovations.

Our results suggest that educational campaigns about cryptocurrencies can be more effective when tailed to match the cultural context of the target audience. For nations predisposed to early technological adoption, regulatory frameworks should prioritize stimulating innovation and establishing comprehensive guidelines for secure usage. This approach aims to amplify the beneficial aspects of such technologies. Conversely, in nations where cultural characteristics tend to hinder the swift adoption of new technologies, it is imperative to design policies emphasizing educational initiatives and risk management. This strategy is essential to mitigate skepticism and promote a well-informed participation in cryptocurrency markets.

While RSF utilized in our analysis does not directly quantify search interest, the Bitcoin early adoption measues derived from RSF should be interpreted as reflective of the search behavior primarily among early adopters or the early majority within each country, rather than indicative of widespread public interest. There is a need for increased transparency from Google Trends to facilitate more precise assessments of public engagement with emerging technologies on a country-specific basis.

[1] Google search has a global market share of 85% from 2010 onward (StatCounter 2021).

[2] Our results are robust if we require a country to have at least 50% percentage of the population as Internet users in 2013 or 2019.

[3] We have also used data from 2013, 2019, and the yearly average from 2013 to 2019. The results still hold.

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Figure 1: Bitcoin Price and Search Index (2009-2019)

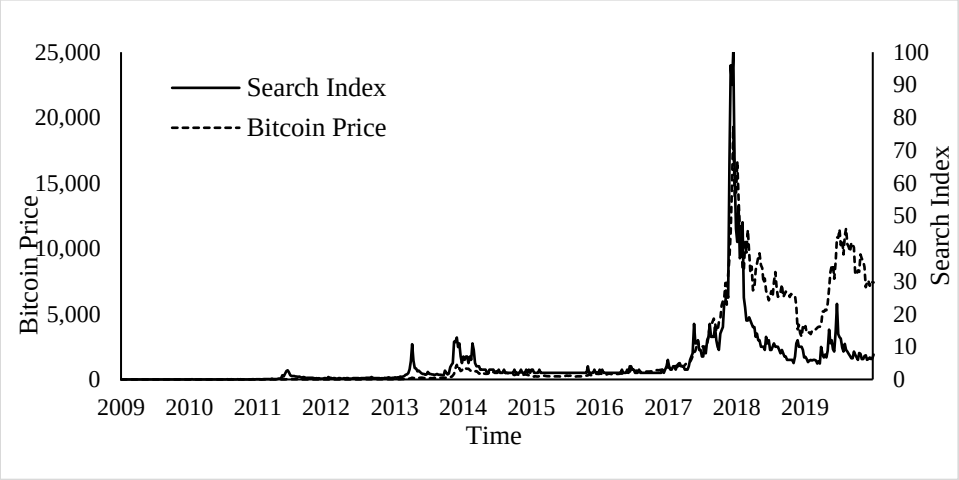
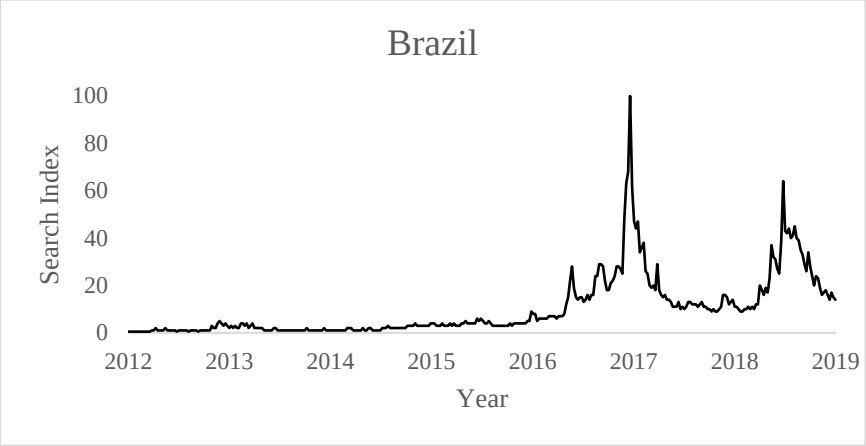


Figure 2: Bitcoin RSF in Brazil and Iceland



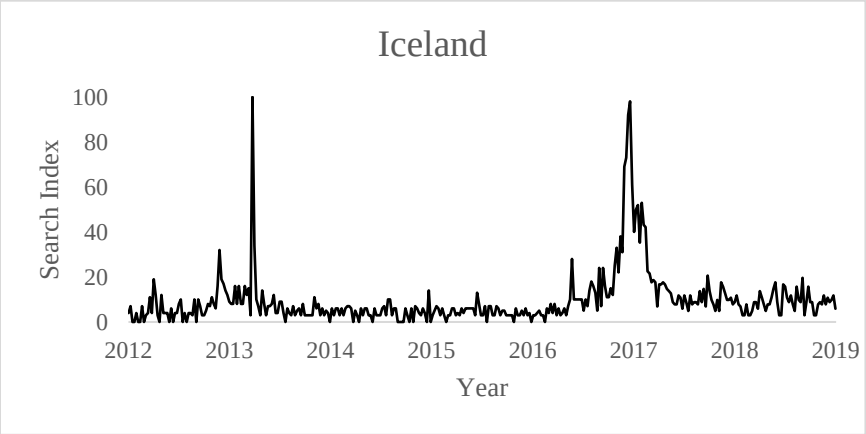


Table 1: Countries Ranked by Bitcoin_pctg

Rank	Country	Bitcoin_pctg	Bitcoin_avg	Rank	Country	Bitcoin_pctg	Bitcoin_avg
1	Iceland	33.13%	212.1	33	New Zealand	18.21%	240.8
2	Moldova	31.88%	217.2	34	Georgia	18.00%	235.3
3	Finland	29.36%	217.2	35	Belgium	17.81%	245.5
4	Greece	27.85%	226.4	36	Singapore	17.43%	242.4
5	Czech Republic	27.33%	221.5	37	Chile	17.32%	252.2
6	Estonia	27.00%	225.3	38	Netherlands	17.28%	245.6
7	Latvia	26.42%	224.6	39	Israel	16.72%	240.4
8	Bulgaria	26.23%	223.9	40	Italy	16.28%	252.1
9	Sweden	26.01%	226.0	41	Trinidad & Tobago	16.07%	254.0
10	Poland	25.39%	228.4	42	Croatia	15.97%	253.4
11	Hungary	24.29%	228.6	43	Lithuania	15.75%	263.1
12	Luxembourg	23.36%	233.8	44	Malta	15.72%	249.4
13	Morocco	22.90%	235.9	45	Germany	15.69%	254.5
14	Hong Kong	22.57%	232.5	46	Australia	15.54%	246.3
15	Uruguay	22.57%	238.5	47	Oman	14.89%	254.0
16	Costa Rica	22.49%	235.7	48	Jordan	14.33%	260.3
17	Romania	22.11%	234.0	49	Switzerland	14.32%	255.9
18	Cyprus	21.41%	239.8	50	Mexico	13.69%	255.9
19	Argentina	21.08%	243.8	51	United Arab Emirates	13.66%	254.6
20	Bosnia	21.07%	238.2	52	Austria	13.10%	256.3
21	Norway	20.85%	233.6	53	Kazakhstan	12.72%	255.9
22	Denmark	20.49%	234.1	54	Malaysia	12.11%	254.4
23	United States	20.41%	237.6	55	Vietnam	12.06%	252.4
24	France	20.24%	243.0	56	Japan	12.00%	256.6
25	Portugal	20.17%	246.8	57	Azerbaijan	11.59%	253.7
26	Canada	19.74%	238.4	58	Saudi Arabia	11.55%	259.8
27	Slovenia	19.71%	236.5	59	Kuwait	10.50%	272.5
28	Albania	19.55%	245.4	60	South Africa	10.45%	260.7

29	Dominican	18.73%	240.4	61	Brazil	9.68%	273.1
30	Ireland	18.71%	244.2	62	South Korea	7.94%	265.1
31	United Kingdom	18.53%	242.9	63	Colombia	7.40%	262.4
32	Spain	18.27%	250.3	64	Turkey	6.64%	273.8

Figure 3: Countries Ranked by Bitcoin_pctg

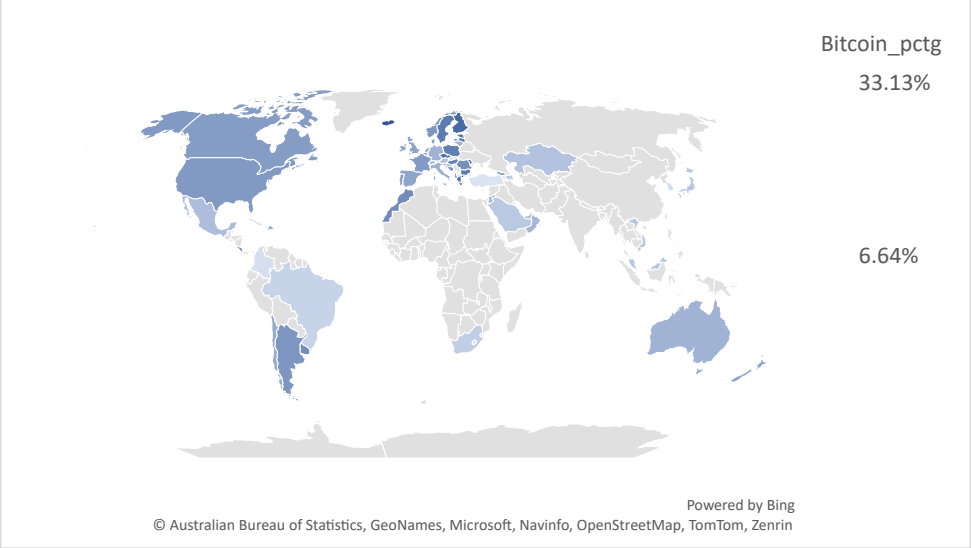


Table 2: Average Values of Cultural Factors Between Early and Later Adopters

Cultural Factor	Early adopters	Later adopters	Difference
Power Distance	51.62	57.93	-6.31
Individualism	53.93	44.75	9.18*
Masculinity	43.28	52.43	-9.15**
Uncertainty Avoidance	66.69	68.07	-1.38
Long Term Orientation	44.86	50.81	-5.95
Indulgence	44.86	55.52	-10.66**

***, ** and * indicate significance at 1%, 5% and 10% respectively.

Table 3: Relationship Between Country Culture and Bitcoin Early Adoption

Panel A:

VARIABLES	Dependent Variable: Bitcoin_pctg					
	(1)	(2)	(3)	(4)	(5)	(6)
Power Distance	-0.031					
	(-0.668)					
Individualism		0.048				
		(1.228)				
Masculinity			-0.086**			
			(-2.439)			
Uncertainty Avoidance				-0.001		
				(-0.027)		
Long-Term Orientation					-0.026	
					(-0.664)	
Indulgence						-0.094**
						(-2.377)
GDP	-0.630	-0.896	-0.786	-0.676	-0.078	0.391
	(-0.339)	(-0.486)	(-0.446)	(-0.362)	(-0.035)	(0.183)
Inflation	0.072	0.077	0.101	0.097	0.065	0.144
	(0.536)	(0.590)	(0.821)	(0.737)	(0.456)	(1.053)
Developed	1.252	1.147	1.943	1.867	1.840	2.262
	(0.513)	(0.496)	(0.905)	(0.818)	(0.729)	(0.930)
Freedom	0.112	0.108	0.117*	0.129*	0.116	0.105
	(1.467)	(1.470)	(1.695)	(1.774)	(1.405)	(1.335)
Constant	18.991	17.953	22.306	16.411	12.261	11.079
	(1.011)	(0.986)	(1.266)	(0.875)	(0.592)	(0.558)
Observations	57	57	57	57	54	53
R-squared	0.129	0.146	0.213	0.121	0.103	0.195

t-statistics in parentheses

***, **, *: significance at 1%, 5% and 10% respectively.

Panel B:

VARIABLES	Dependent Variable: Bitcoin_avg					
	(1)	(2)	(3)	(4)	(5)	(6)
Power Distance	0.096					
	(0.851)					
Individualism		-0.119				
		(-1.254)				
Masculinity			0.187**			
			(2.156)			
Uncertainty Avoidance				0.062		
				(0.722)		
Long-Term Orientation					0.086	
					(0.929)	
Indulgence						0.178*
						(1.851)
GDP	2.289	2.972	2.667	2.585	-0.130	-0.914
	(0.512)	(0.667)	(0.619)	(0.577)	(-0.025)	(-0.175)
Inflation	-0.055	-0.080	-0.140	-0.156	0.019	-0.152
	(-0.168)	(-0.254)	(-0.462)	(-0.492)	(0.057)	(-0.456)
Developed	-5.721	-5.835	-7.779	-7.202	-6.623	-6.904
	(-0.971)	(-1.044)	(-1.481)	(-1.311)	(-1.107)	(-1.163)
Freedom	-0.207	-0.207	-0.232	-0.258	-0.200	-0.179
	(-1.121)	(-1.162)	(-1.374)	(-1.476)	(-1.023)	(-0.933)
Constant	231.271***	235.443***	226.535***	233.470***	257.267***	259.999***
	(5.107)	(5.350)	(5.259)	(5.176)	(5.242)	(5.364)
Observations	57	57	57	57	54	53
R-squared	0.151	0.165	0.211	0.148	0.124	0.168

t-statistics in parentheses

***, **, *: significance at 1%, 5% and 10% respectively.

Table 4: Developed vs. Developing Countries

Panel A:

VARIABLES	Dependent Variable: Bitcoin_pctg					
	(1)	(2)	(3)	(4)	(5)	(6)
Power Distance	-0.082					
	(-1.165)					
Power Distance * Developed	0.088					
	(0.966)					
Individualism		0.112*				
		(1.888)				
Individualism * Developed		-0.108				
		(-1.424)				
Masculinity			-0.027			
			(-0.450)			
Masculinity * Developed			-0.091			
			(-1.232)			
Uncertainty Avoidance				0.098		
				(1.234)		
Uncertainty Avoidance * Developed				-0.140		
				(-1.392)		
Long-Term Orientation					0.084	
					(1.379)	

Long-Term Orientation * Developed					-0.178**	
					(-2.285)	
Indulgence						-0.159***
						(-3.148)
Indulgence * Developed						0.153*
						(1.980)
Developed	-4.040	6.192	6.068	13.372	10.775**	-4.693
	(-0.673)	(1.467)	(1.528)	(1.561)	(2.344)	(-1.109)
GDP	-0.351	-0.952	-0.600	-2.130	-1.037	-0.024
	(-0.187)	(-0.522)	(-0.341)	(-1.004)	(-0.477)	(-0.011)
Inflation	0.040	0.055	0.101	0.026	0.144	0.192
	(0.286)	(0.429)	(0.821)	(0.184)	(1.028)	(1.428)
Freedom	0.105	0.106	0.126*	0.079	0.135*	0.095
	(1.371)	(1.448)	(1.829)	(0.987)	(1.697)	(1.241)
Constant	20.169	16.414	17.037	26.597	15.939	18.486
	(1.071)	(0.909)	(0.944)	(1.332)	(0.801)	(0.942)
Observations	57	57	57	57	54	53
R-squared	0.145	0.180	0.236	0.154	0.193	0.258

t-statistics in parentheses

***, **, *: significance at 1%, 5% and 10% respectively.

Panel B:

VARIABLES	Dependent Variable: Bitcoin_avg					
	(1)	(2)	(3)	(4)	(5)	(6)
Power Distance	0.164					
	(0.954)					
Power Distance * Developed	-0.116					
	(-0.525)					
Individualism		-0.253*				
		(-1.760)				
Individualism * Developed		0.229				
		(1.237)				
Masculinity			-0.010			
			(-0.070)			
Masculinity * Developed			0.303*			
			(1.689)			
Uncertainty Avoidance				-0.187		
				(-0.986)		
Uncertainty Avoidance * Developed				0.355		
				(1.467)		
Long-Term Orientation					-0.152	
					(-1.040)	
Long-Term Orientation * Developed					0.385**	
					(2.064)	

Indulgence						0.339***
						(2.754)
Indulgence * Developed						-0.378*
						(-2.003)
Developed	1.255	-16.474	-21.434**	-36.298*	-25.943**	10.255
	(0.086)	(-1.608)	(-2.234)	(-1.765)	(-2.358)	(0.994)
GDP	1.923	3.092	2.051	6.264	1.945	0.110
	(0.422)	(0.698)	(0.483)	(1.230)	(0.374)	(0.022)
Inflation	-0.012	-0.035	-0.138	0.024	-0.153	-0.272
	(-0.035)	(-0.112)	(-0.465)	(0.072)	(-0.456)	(-0.828)
Freedom	-0.198	-0.201	-0.263	-0.133	-0.240	-0.155
	(-1.059)	(-1.137)	(-1.577)	(-0.688)	(-1.268)	(-0.827)
Constant	229.719***	238.690***	243.978***	207.711***	249.316***	241.725***
	(5.026)	(5.443)	(5.601)	(4.333)	(5.233)	(5.050)
Observations	57	57	57	57	54	53
R-squared	0.156	0.189	0.253	0.183	0.197	0.235

t-statistics in parentheses

***, **, *: significance at 1%, 5% and 10% respectively.