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Where cryptocurrency is most frequently used in the US?

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Cryptocurrency in the US – November 2019

Introduction

The goal of this research paper is to determine which states have the highest percentage of the crypto-owning population on a state by state level in the US.

Crypto enthusiasm has continued to grow in the US and the expanding interest in cryptocurrencies leads us to believe that crypto will go mainstream in America.

This analysis also intends to help readers to better understand the adoption trends related to crypto in the US (1), the fact that Crypto is becoming an increasingly important aspect of local economies (2) and the increasing number of states where legislatures have enacted proactive regulations around cryptocurrency and blockchain as a response to local demand and interest in the technology.

According to Coinbase's last publication released on the matter, currently 58 percent of Americans say they' have heard of Bitcoin and to date, more than 70 percent of US States have enacted legislation that addresses cryptocurrency or blockchain.

We challenged their findings and checked the veracity of their calculations of the top 15 States with the highest crypto activity:

- 10 States with highest percentage of population that owns Crypto: California, New Jersey, Washington, New York, Colorado, Utah, Florida, Alaska, Nevada, Massachusetts;
- 5 States with largest average value of cryptocurrency owned per Crypto owner: Delaware, Wyoming, Connecticut, Illinois, New Hampshire.

States with the highest crypto activity assessed

Since it is considered impossible to track any specific transaction other than the currency flow, we had to develop two separate modules with different methodologies for each. The focal point of the first module was to find data for the number of people interested in cryptocurrencies and the level of infrastructural development presented by numbers of crypto ATMs in each state. Both variables interact directly with a population in each state and its penetration rate.

Methodology

Before defining our entire methodology and all sets of data that our team has used, it is essential to identify some key components. Based on our estimates, we have found that the current market penetration rate in the USA is equivalent to 5.5%. This rate was originally calculated in one of our previous articles *"How many crypto traders are there across the globe"* in June 2019. We then applied this rate to our population numbers for each state, which were initially calculated by "World Atlas." All numbers come from the July 2018 estimate of the US Census.

To develop a clear understanding of the current market situation, we found the total number of crypto traders (17.24 million). This finding is fundamental for this research article, given that this number was revamped within each state by applying the additional parameters of crypto atm quantity per state and interest in crypto. Our final step was to use this specific variable to calculate more accurate values to answer our overall research question.

The first set of variables was provided by "Coinatmradar," which creates a linear dependency between a geographical location and bitcoin ATMs. It gave us the latest number of ATMs per state.

For our first methodology, we found a relation of the number of crypto ATMs in one state over the total number of these machines multiplied by a population in each specific state. The population of each state was previously multiplied by a penetration rate of 5.5%. This calculation thus gave us an estimate of US infrastructural development for crypto exchange machines with regards to the target market size population for each state.

The second set of variables was analyzed with the help of "RewardExpert" through Google Trends search engine traffic data for five keywords: "cryptocurrency", "bitcoin", "ethereum", "ripple", and "litecoin", over the 90 day period from January 15, 2018 to April 15, 2018 at the state level. We computed a weighted average of these terms for each state and ranked the states accordingly. We then found a relation of people interested in each state over the total number and multiplied it by the population for the same state. Our data for the population was also affected by the same penetration rate of 5.5%.

To get a full picture and to define what states have the highest percentage of the population that own cryptocurrency, we found the average of those two methodologies which gave each state a rating. Our findings for the top 10 states are:

The ambiguity of regulatory friendliness towards cryptocurrency

As explained in module 1, interest in Crypto increases. Hence, states are increasingly enacting legislation to address crypto and blockchain. As of June 2019, more than 70 percent of U.S. States have enacted regulations that account for cryptocurrency or blockchain technology.

2 recent illustrations: in April, Ohio announced it would accept tax payments in Bitcoin and, earlier this year, Wyoming passed a set of thirteen laws that, among other things, recognize crypto as money and allow banks to “provide custodial services for digital assets.” It is our understanding that with these recent regulations in place, some states are willing to become the legal home to banks that could offer asset management and other crypto services to customers nationwide.

Rank	CH&Co. x CoinChange Results	Coinbase Results
1	California	California
2	Florida	New Jersey
3	Texas	Washington
4	New York	New York
5	Illinois	Colorado
6	Pennsylvania	Utah
7	New Jersey	Florida
8	Georgia	Alaska
9	Michigan	Nevada
10	Ohio	Massachusetts

Figure 1: CH&Co. and CoinChange vs. Coinbase results for highest cryptocurrency ownership by state

There is growing realization that regulation is good because it establishes rules and order. It also signals an intent to engage in dialogue with businesses in the crypto ecosystem. For instance, the asset-management Fidelity Investments announced that 22 percent of its institutional investors already own digital assets, that almost half would consider adding crypto to their portfolios.

This second module of research led us to highlight 2 hot topics: the use of cryptocurrencies as legal tender in business transactions (including taxation) and the necessity of imposing authority on operations of cryptocurrency exchanges as money transmitters.

Heatmap presentation

The heatmap has been colored in 9 different colors, which have been derived from 9 points on the gradient of 3 colors: Green, Yellow and Red.

These 9 segments correspond to 9 equally distributed ranges of our "Crypto-friendliness scores", which have been derived through dividing the range of our data into 9 equal segments, as opposed to dividing the count of our data. By doing so, data quality is enhanced, and allows the presentation of not only the rank but also the magnitude of relative "crypto-friendliness" of one state over another. Specifically, Figure 2 outlines the precise range of "crypto-friendliness" given each color segment.

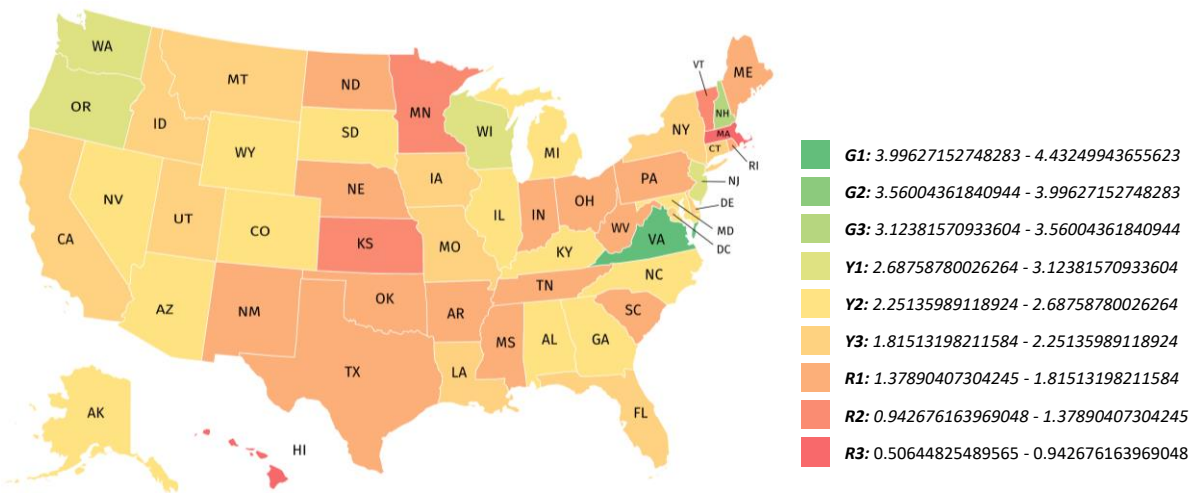

Figure 2: Range of crypto-friendliness score for each color segment

Criterion #1: Medium of Exchange

The first criterion was whether the state recognizes cryptocurrency as a medium of exchange. Although the term "medium of exchange" can be interpreted in many ways, we have kept a strict focus on regulatory recognition.

Henceforth, we focused on the most fundamental question of whether the state's Money Transmitter Act explicitly applies to the sale and exchange of virtual currencies.

Rank	Fees for obtaining money transmitter license (application and license fee) (USD)	Bitcoin Mining Cost per State (electricity cost per coin in USD)	Number of bitcoin establishments	Number of Crypto ATMs
1	Idaho (28)	Louisiana (27)	Virginia (1)	Virginia (1)
2	Missouri (26)	Idaho (28)	New Hampshire (2)	Wisconsin (3)
3	Illinois (14)	Washington (6)	Wisconsin (3)	Nevada (11)
4	Tennessee (32)	Tennessee (32)	Kansas (47)	Delaware (24)
5	Utah (30)	Arkansas (45)	Nevada (11)	New Jersey (4)
6	New Mexico (36)	Oklahoma (39)	*Colorado (19)	Illinois (14)
7	Delaware (24)	Utah (30)	Montana (25)	Georgia (16)
8	Florida (22)	Oregon (5)	Oregon (5)	Florida (22)
9	Alabama (9)	Mississippi (44)	California (29)	Michigan* (12)
10	New Hampshire (2)	Texas (41)	Florida (22)	California (29)

*The number in the brackets is the total ranking of given state

Figure 3: Top 10 States with Crypto-Friendly Regulations by Criteria

Criterion #2: Fees for Obtaining Money Transmitter License

The second criterion used to assess regulatory crypto friendliness was the total fees charged for obtaining a money transmitter license. Money transmitter licenses are required for all entities that seek to transfer funds or provide payment services.

Thus, our aim in comparing the costs associated with obtaining licensing in each state was to assess the barriers to entry for cryptocurrency traders or firms seeking to conduct business in a given state..

Data for money transmitter licensing fees was sourced from a 50-State Survey published by the UC Berkeley Law School. This source includes application fees, annual license fees, annual license renewal fees, and other miscellaneous fees associated with licensing. Our calculation for the total fee in each state follows the assumption that an applicant is paying for each listed fee once. For example, recurring fees, such as Annual Licensing Fees, were only added to the total once, despite being charged annually in practice. This assumption was applied in order to standardize the comparison of fees across states, and to account for both fixed and recurring fees. In summary, the value of total fees for each state is a sum of one payment of each fee.

The results of our analysis show that Idaho charges the lowest total fees for obtaining a money transmitter license, at $100. In contrast, the most expensive state for obtaining licensing is California, with $7,650 for total fees.

Criterion #3: Bitcoin Mining Cost per State

Bitcoin Mining Cost per State was the third criterion used to assess relative levels of crypto friendliness between states. Bitcoin mining is the process of solving complex computational mathematical problems to produce a new bitcoin, verify its transaction information and add the coin to the blockchain network. Specifically, computers must try to find a target 64-digit hexadecimal number through brute force. The process of mining is very energy-intense: one bitcoin mining transaction requires an estimated 215 kilowatt-hours of energy.

Given the blockchain network's reliance on energy, paired with the rising popularity of mining in the United States due to increasing bitcoin prices, the cost of mining serves as a meaningful criterion to assess the ease of entry into this industry.

Raw data for Bitcoin Mining Cost per State was acquired from a heatmap produced by "MarketWatch". The cost of mining one bitcoin was derived from the average electricity rate per state. Based on these findings, Louisiana emerged as the cheapest state to mine bitcoin in, with $3,224 per coin, while Hawaii was the most expensive with $9,483 per coin.

Criterion #4: Number of Bitcoin Establishments per Capita

The Number of Bitcoin Establishments per Capita serves as the fourth criterion to gauge the crypto friendliness level of each state. While not explicitly regulatory, this criterion is included to illustrate the existing crypto infrastructure. This criterion relies on the assumption that a more established crypto infrastructure will effectively support the activity of crypto users and businesses, thus promoting crypto friendliness.

Raw data for the number of bitcoin establishments was provided in a crypto research report published by "RewardExpert". As previously mentioned, RewardExpert isolated traffic data for five key crypto terms using the Google Trends Search Engine to capture the raw data. Based on their findings, California hosts the largest number of bitcoin establishments, with 525 in total, while South Dakota hosts zero establishments, the lowest number for any state. From here, our methodology was to divide each state by its population to find the number of bitcoin establishments per capita.

Applying these changes to our findings produced new results: Virginia hosts the highest number of bitcoin establishments per capita, while South Dakota remains at zero bitcoin establishments per capita.

Criterion #5: Number of Crypto ATMs per Capita

The final criterion used to determine crypto friendliness was the number of Crypto ATMs servicing each state. Similar to the number of bitcoin establishments, this criterion was used to construct an understanding of the existing infrastructure supporting crypto users in each state. Crypto ATM data was acquired using the same source and methodology as Criterion #4. The results of this data correspond to the results found for the number of bitcoin establishments. California ranked at the top of this criterion, with 696 total crypto ATMs, while Wyoming, Alaska, West Virginia and Vermont all host zero crypto ATM machines.

Our results alter slightly when applying the per capita methodology. Similar to Criterion #4, Virginia rose to the top of the ranking with the highest number of crypto ATMs per capita. Wyoming, Alaska, West Virginia and Vermont remained at the bottom of the list, with zero crypto ATMs per capita each.

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