UTILIZATION OF BITCOIN BY SMALL BUSINESSES IN VENTURA COUNTY, CALIFORNIA

Current Word Count: 4702
Abstract

Bitcoin (BTC) is a peer-to-peer electronic payment system that operates as an independent currency uncontrolled by a government or institution. This study attempts to identify its strengths and weaknesses that concern the application and replacement of current payment methods such as Visa, Mastercard and American Express (AMEX). Collection of survey data and interviews with experts in the field of cryptocurrencies and business, bitcoin has shown promise in its application following its recent publicity in the media and the legitimization of cryptocurrency by government agencies. Through bitcoin’s extraordinary transaction rates and fees, it is clear that businesses which adopt the technology would not only save money on transaction fees, but allow the business owners the ability to access their funds much faster than traditional payment cards allow. The results of this study indicated that post-1982 generations are more likely to adopt bitcoin for transactions, it was concluded that with consumers aptability to adopt the technology and businesses flawed payment system, it would allow small businesses in the Ventura County to save hundreds of thousands of dollars annually.
Interest/Intro

Bitcoin is a financial tool with virtually limitless applications. One application that has been going unnoticed is its application and use for small businesses and their low volume of transactions. Bitcoin is an application developed by anonymous cryptographer Satoshi Nakamoto in 2009, who developed the first decentralized ledger and bitcoin as the first use case for the decentralized ledger technology. Bitcoins, which can be broken up into one one millionth are stored in a “digital wallet,” which exists in the cloud, on a user’s computer or on a hardware wallet. The wallet is a kind of virtual bank account that allows users to send or receive bitcoins, pay for goods or save their money. Unlike bank accounts, however, bitcoin wallets are not insured by the Federal Deposit Insurance Corporation (FDIC), and therefore, causes a feeling of distrust for the new technology, as there is no backup plan if your currency gets stolen or becomes obsolete. Though each bitcoin transaction is recorded in a public log, names of buyers and sellers are never revealed – only their wallet IDs. While that keeps bitcoin users’ transactions private, it also allows them to buy or sell anything without the purchase being traced back to them. Because of this, it has become the currency of choice for those online buying drugs or partaking in other illicit activities. However, the number of illicit transactions has decreased below three percent, according to The Department of Economics at Harvard (2017). The lower amount of use of bitcoin for illegal activities has begun to legitimize bitcoin as a legal currency as global economic powers such as China, the United States, and England begin to pass regulations and recognize bitcoin as legitimate currency. The transition of bitcoin into a legitimate market has piqued the interest of many researchers, and created a gap in research for
its use by small businesses to implement the new groundbreaking technology that has changed the financial world.

Small businesses are defined as privately owned corporations that have fewer than one hundred employees and have an annual revenue less than a normal sized business. Many small businesses use traditional point of sale (POS) systems comprised of a payment terminal paired with a cash box. However, payment terminals are becoming outdated with transaction fees ranging from five percent up to seven percent. In small businesses, the average transaction is $13.35 according to the e-commerce bureau (2016). Because of the relatively low average transaction, the implementation of bitcoin within a small business has the potential to add an extra five thousand dollars on average into the local economy from each individual business monthly.

China, for instance, is a country that has seen rapid industrialization and implementation of smart technology as their culture has become much more apt to changes in practices such as transactions. According to iResearch Consulting Group (2018), a professional market research company based in Shanghai, China, the Chinese mobile pay market has skyrocketed to a staggering 5.5 trillion USD as opposed to the United States mere 112 billion USD. In China, you can pay for virtually everything using a cell-phone, from a taxi ride to breakfast, for the unbanked in China, digital currency has become their only currency.

**Literature Review**

As Allen E. Burger a researcher for the Board of Governors of the Federal Reserve system stated in his paper entitled, “The Economics of Small Business Finance: The Roles of
Private Equity and Debt Markets in the Financial Growth Cycle,” small businesses have an increased interest by policy makers, regulators, and academics in the nature and behavior of the financial markets (1998). Small businesses play a massive role in policy and infrastructure changes that occur throughout the business sector as they control a majority market share with small businesses dominating local policies decisions in small and medium sized cities. His explanation on the effect that small businesses have on the global economy as their ability to reshape not only the business sector, but the financial one has made them the primary source of advocates for the implementation of cryptocurrencies in the business world (Burger, 1998).

Burger’s key concepts on small businesses’ ability to reshape the industry has been seen as game-changing, with many contradicting him stating that the only way to reshape and industry is with a top-down solution starting with enterprises. According to the Small Business Administration (2015), America's small business economy is growing alongside the rest of the recession recovery. Although small businesses may be growing at a slower pace due to lending challenges, that disparity has not been enough to tip the scales. As small businesses continue to grow and remain the backbone of the United States economy. Small businesses as much as they may struggle on a smaller scale, employ more Americans than any other industry, making them a prime test subject to transition to the future of currencies, cryptocurrencies.

In an article produced by the The Federal Reserve Bank of Chicago (2013) entitled, “Bitcoin: A primer” written by François R. Velde, a senior economist, elaborated that bitcoin can truly rival or even replace existing currencies. The change from banknotes to an electronically based currency is inevitable as fiat currencies have been the means of transactions since the seventh century. As Velde states, bitcoin has the ability to reshape finance as we know it, and the
move needs to come from an industry with the ability to make change in the corporations and enterprises above it.

Traditional currencies are backed by various governments whether it is the United States Federal Reserve or the People’s Bank of China. However, the problem of actual money systems that seem to realize the ideas of the commodity theory by connecting the value of money to gold or other precious metals is that they ultimately come up against the paradox that gold is priceless (Bjerg, 2014). A common argument against bitcoin technology is that there is no central body giving it value, nothing to stop its fluctuation or stability. However, our current banking system relies on constant trust in governmental bodies that claim to have certain amounts of financial stability to issue a statement of validity on their various fiat currencies.

Ole Bjerg, a professor at the Copenhagen Business School, states in an article titled, “How is Bitcoin Money?” published in 2016 expressed that if gold is the standard against which all other commodities are priced, how do we price gold itself. Perhaps the value of commodity money is not derived from the value of gold but the other way around. The reason why gold is so valuable is not that it incarnates a special form of value but rather because is endowed with the special function in its relationship to money. However, if gold is a commodity that is of such high value, bitcoin resembles similar functions to that of gold, with its degrecation properties mocking that of gold with less and less being introduced into the market year by year, it basically functions as an electronic version of gold. Once humans outgrow the idea of gold as the embodiment of special value that is beyond the symbolic order of money, we can see how bitcoin is perhaps a more honest form of gold money.
The transition for small businesses however may be difficult as some have been using the same practices for decades. As stated by Kalliopi N. Kypriotaki, in his article titled, “From Bitcoin to Decentralized Autonomous Corporations: Extending the Application Scope of Decentralized Peer-to-Peer Networks and Blockchains,” he depicted a scenario in which he put bitcoin in the position of a large-businesses only way to process transactions, and therefore, they had to convert and reap the benefits and drawbacks to the new technology. The benefits they sought however included a significantly lower transaction fee and the lack of a chargeback feature that could be exploited by consumers was seen as a significant benefit to the business. However, the business also saw a few drawbacks such as a longer period in which the transaction sits in a holding pattern waiting for the blockchain to send the funds from one digital wallet to another. Nevertheless, although the money may take ten to fifteen minutes to send, they transactions are verified instantly allowing for the merchant to be confident that they are receiving proper payment for the goods and labor they have distributed. (Kalliopi N. Kypriotaki, 2015)

**New Direction**

In this study, the perceptions, use and application of bitcoin by small businesses throughout Ventura County, California are examined in order to determine its feasibility as an addition to traditional transactional processes. In order to determine its usability, business owners under the age of forty were surveyed and interviewed regarding the cost they spend on credit/debit card transactions through the various transaction fees charged in order for businesses to use Visa, Mastercard, AMEX, etc. Alongside the fees owners pay to transact using credit and
debit cards, owners were questioned regarding the feasibility of bitcoin through the questioning of various aspects such as accessibility to the bitcoin network and the cost or labor attached to the installation of the new technology. Over the past year, cryptocurrencies have shown impressive growth and an ability to disrupt the financial industry as we transition into a world based around technology with e-commerce giants such as Amazon and eBay growing into multi-billion dollar companies and Paypal transactions become a normality. This study has the potential to solve the problem of expensive and outdated credit/debit cards.

For small-businesses in Ventura County however, the usability of bitcoin as a replacement for traditional credit cards are higher than other areas of Southern California. With a large majority of the population of Ventura County being under the age of fifty, the transition would not require a new skill set to be gained.

For an example case study, a Starbucks has an average transaction of $4.75. Instead of accepting payment via a credit card carrying transaction fees of 3-6 percent, the owner could collect an electronic payment with zero cost per transaction using bitcoin. The same store, Starbucks, has an average of 800 credit card transactions daily. In a single day, the business will lose on average $228 in order to pay for various credit card transactions. Through the implementation of bitcoin transactions however, the business would see virtually no cost transactions leading to an extra $228 in a day or $83,220 in a year, a salary amount viable for two full-time employees.

This sample case, could spread across multiple small-business sectors and lead to job creation and a new-era of economic prosperity. As electronic payment technologies such as Venmo process $17.3 billion in payments during the third quarter of 2017, it is apparent that the
next step is a move towards cryptocurrencies, and the implementation is the most difficult and largest step towards the transition into a fully decentralized financial industry.

**Hypothesis**

This study’s predictions are as follows: Many business owners are aware of bitcoin as a technology, but do not understand the underlying architecture, and capabilities that the technology could bring to the business. The majority of business owners have been paying credit and debit card transaction fees since the establishment of payment cards in the 1950s, and the fees have become a normality that most businesses don’t consider another way outside of only accepting paper currency exclusively. Alongside business owners, post-1982 generations will show an increase in aptability to adopt bitcoin as a transaction method. Through the adoption of cryptocurrencies such as bitcoin, small businesses could save on banking and transaction costs and through the savings hire more employers of lower the prices of their goods benefiting the community in which the company resides. In either situation however, an influx of otherwise lost money would be reintroduced into the local economy as opposed to a payment card provider such as Visa’s assets.

**Methods**

This study of small businesses economics contains hybrid research methods containing both qualitative and quantitative studies. The qualitative portion includes a set of interviews with cryptocurrency experts based in Southern California, and the quantitative portion is the analysis
of survey data collected over a three-month period from business owners and consumers throughout Ventura County, California.

Interviews took place with a cryptocurrency and start-up company expert, Bennett Quintard from Sioo, a consulting firm built to help start-ups find capital investors, business growth, and other guidance young company may need. Quintard has been invested in the cryptocurrency space since its inceptions and has seen its growth, struggles and most importantly, the practical use cases for the technology. Furthermore, he is the COO of a consulting firm focused on the development of technology startup companies and is featured on his companies podcast and video series discussing cryptocurrencies, blockchain technology, and their future in the digital space.

The quantitative data however, came from a survey distributed through the utilization of a variety of resources. The utilization of the nearby Chamber of Commerces including the Ventura and Conejo Chambers allowed for the distribution of the survey to twenty-seven small businesses located throughout Ventura County. This was the most suitable method of inquiry for the study due to its feasibility. With the resources available through connections made, the only way to accomplish the goal of the study was through interviews with cryptocurrency and economic forecasting experts alongside survey data collected from a wide variety of businesses. The study attempted to survey as many business owners as the more owners that respond to the survey, the more accurate the results are. The interview data was utilized in order to determine if the utilization of bitcoin was a feasible option and if the money generated by the transition to bitcoin would affect the local economy.
Alongside a survey distributed to business owners, a survey was distributed and to two different groups, consumers born prior to 1982 and consumers born post 1982. This measurement allowed for the analysis of adoptability of new technologies by millennials and younger versus older generations. This survey was distributed to millennials and younger generations through distributions throughout the Conejo Valley Unified School district and via social media. The older generations were reached through distribution on Facebook, LinkedIn, and Twitter.

**Limitations**

The limitations that come along with this study are similar to that of many studies, a struggle to find accessible respondents to survey. Due to the survey being based on a convenience instead of a random survey, participants had the choice whether or not to respond. Typically only a small portion of business owners would be willing to spend their time responding to a survey that has the potential to not benefit them. This is a limitation because only a small amount of businesses would complete the survey, which could leave a majority of businesses unaccounted for. This limitation is almost unavoidable unless the data is collected via a census by a governmental body as they have the resources and prestige needed to get survey participants. Another limitation is that many business owners estimated their average transaction dollar amount or the amount they pay in transaction fees giving a rough estimate instead of exact numbers. An additional limitation is the lack of survey data from businesses outside of the food retail and services sector. Having a majority of data collected from food retail businesses can cause survey results to be skewed in favor of the food sector instead of holistically at all businesses. Another limitation is that the survey distributed to consumers was distributed in a
fiscally conservative area which could affect results when comparing to the United States or world.

**Results and Discussion**

*Results and discussion from Interview with Quintard*

The main objective of this study is to investigate the potential implementation of bitcoin for use by small businesses as an alternative to traditional payment methods. During an interview with Bennett Quintard, he was posed with questions regarding the feasibility of the added stress of an additional twenty-thousand transactions being filled onto the bitcoin network daily and how beneficial the use of bitcoin by small businesses would be. Quintard stated that “It is somewhat risky for an early stage or small business to change to bitcoin. For our company [Sieo] for example, we’ve looked at accepting cryptocurrencies and we looked during December and I’m glad we didn’t because that money would be worth about 40 percent of what it was worth when we originally received it.” Quintard continued by explaining the volatility of the market as a whole, “especially with the volatility of the market currently and I think we will see this for the next few years at least.” Additionally, he stated that there are “added benefits such as cheaper transactions and being able to move money across borders without higher fees.”

Quintard is an extremely strong proponent for cryptocurrency technology with his company recently signing an ICO or initial coin offering, the cryptocurrency equivalent of IPO or initial public offering. However, his hesitation to validate bitcoin as a viable option for small businesses to turn to begs the question of why. Quintard continually came back to the idea of instability in the market and the detriment that the adoption of bitcoin could cause for a small business. However, bitcoin, similar to any other currency, will continue to fluctuate with the changing
economic atmosphere of the world. Towards the end of 2017. Bitcoin was on a bull run, topping $20,000 and Ryan Derks a cryptocurrency investor who runs a federally registered fund called Ryan's Hodl Fund specializing in cryptocurrencies stated that, “what happened with bitcoin over the last three to four months is simple economics where there was just so much buying and the price went up so fast, so high, so quickly that it was unsustainable, it had to come down.” Just like like the United States during the Great Recession in 2008, the American public over speculated the housing market and thought that it would never come down, which in return called for a correction in the market. Quintard however does share a perspective with many technology entrepreneurs who understand how the underlying blockchain architecture that allows for bitcoin and hounders of outer cryptocurrencies to exist.

Results and discussion from Questionnaire distributed to small-business Owners

Based on results from the questionnaire, 14 businesses were located in Ventura, four were located in Thousand Oaks, one was from Westlake Village, one was from Newbury Park, and one was from Camarillo. Although 87 percent of business owners are aware of bitcoin as a technology, only 17 percent of businesses surveyed accept bitcoin as a transactional method. Out of the businesses surveyed, 18 of the 24 businesses are based in the food retail and services sector while there were only 1 entertainment, financial services, gifts and flowers, nonprofits and vehicle services. With a substantial amount of business owners responding positively to being aware of bitcoin technology it begs the question of their knowledge surrounding the asset. Out of the businesses surveyed that responded that they were aware of bitcoin, many referred to bitcoin as a black-market currency while a large portion of them referred to the technology as simply a virtual or only currency.
Business owners throughout Ventura County have displayed a very limited understanding of bitcoin as a technology did not show understanding of what the underlying architecture could bring to their small business. Although many understand that bitcoin is a digital asset that can be used similar to traditional currencies, the business owners do not understand that bitcoin can have sufficiently lower transaction fees and the ability to send money across borders with dramatically lower fees. Businesses throughout Ventura County are composed of dramatically varying average dollar amount per transaction. With certain companies citing under $200 in sales per transaction while some that fall below the $15 mark. Although the varying dollar amounts are scattered across the chart, bitcoin’s transaction fees are based on the amount of times the original 25 bitcoin rewarded from mining has been broken up. A bitcoin can be broken up into 100,000,000 individual units or satoshis so a single satoshi would be worth approximately 0.00000001 BTC. Through appendix I, it can be determined how much BTC it would cost to send a sum of money to any account in the world depending simply on how many times the bitcoin had been split up. Considering appendix O, as the original 25 bitcoin were distributed to the miner that completed the block, those original 25 bitcoin are eventually split up and the amount of satoshis becomes lower and lower while the amount of bytes the bitcoin makes up rises causing each individual who owns a small portion of the original 25 bitcoin to see the transaction fee rise.

Each additional input or transaction from sender to receiver will add 180 (plus or minus 1) bytes to the transaction while each output or transaction when the receiver gains control of the funds, will add 34 bytes into the transaction. Alongside those bytes, there is always an extra 10 bytes which are present. However, the “plus or minus 1” variable is due to the fact that each
input needs a signature to be claimed. The signature contains two 32 byte values, but if either of the values has a first byte of 0x80 or more, it has a 0x00 byte prepended to it. Assuming one of the two is high and the other is low. Therefore one byte must be subtracted per input.

*The Equation*

*If the transaction has in inputs and out outputs, the transaction size will be:*  

\[
in \times 180 + \text{out} \times 34 + 10 \text{ plus or minus in}
\]

With bitcoin transactions not being tied to the amount of currency being moved to and from wallets, there is virtually no cost associated with bitcoin transactions as the average transaction cost as low as 0.00017593186 BTC or $1.42. For business owners such as those of Jessie's Radiator & Automotive, an automotive shop located in Ventura, CA that currently accepts bitcoin and averages a transaction that falls just below $200, they could save a potential $5.58 per transaction as American Express, one of the largest credit card companies charges a 3.5 percent transaction fee. The same repair shop also on average carries out 20 transactions a day. If the company was able to save $5.58 per transaction and saved that much on all 20 transactions daily, the business would receive an extra $111.60 a day which can translate into $40,734 in a year. The money received through the utilization of bitcoin could reenter the local economy through increased wages or the hire of more employees.

Bitcoin transactions are compiled into blocks which average about 1,000 transactions per block depending on the amount of bytes being transferred per transaction. Each block takes roughly ten minutes to be solve by the millions of bitcoin miners around the world. Blocks are solved by a very intricate set of mathematical problems.
Transactions paired with blocks decide cost due to their relationship of byte storage. As the original 25 bitcoin distributed to the miner that compiles the original sequence of the block, is broken up, its transaction fee is raised independently of the rest of the network due to it requiring more space in a block due to its higher byte usage. The maximum block size is 1,000,000 bytes or 1MB however, this causes the amount of transactions filed into a single block to vary dramatically from hour to hour (appendix O).

Among the businesses that were surveyed, the average dollar amount spent in a single transaction across the 23 businesses is $75.87. Taking the average transaction fee of 4.34 percent and multiplying that by the average transaction across the 23 businesses, $3.29 is spent per transaction. Although $3.29 may seem like a neglidgeable expense, if multiply by the average amount of transactions completed by a business and the small-business is losing $610.45 per day. Then multiply that by a year and the small business is losing $222,814.62 annually to transaction fees. Through the implementation of bitcoin however, that expense could be brought down significantly to a neglidgeable $80,336, more than half of what traditional payment methods costs.

Results and Discussion from Consumer Survey

Results from the consumer questionnaire stated a significant relationship between younger generations, and older generations and their exposure to bitcoin as a technology and transaction method (p <.0488). Alongside this correlation, additional results such as the trustworthiness of big banks (i.e. JP Morgan, Goldman Sachs, Bank of America) versus bitcoin show an exponential trend favoring Bitcoin as a more trustworthy option amongst respondents born post-1982 (p <.0478). Younger generations also show a stronger interest in the potential
investment in bitcoin versus that of government bonds ($p < .0460$). Based on these results it is evident that younger generations share a willingness to adopt new technologies, even if that goes against traditions set forth by the United States government or their parents. From generation to generation, 44.18 percent of younger generations are somewhat familiar with bitcoin while only 26.74 percent of people born pre-1982 have the same familiar knowledge of bitcoin technology. Younger generations are more apt to adoption and knowledge of technology due to a wider use of the internet, cell phones and social media in which a majority of young people consume their news from. Millennials and younger generations showing signs of adaptation are a side-effect of being raised in a different era, an era in which smartphones and the internet are accessible and a regularity. The same can be said about generations born in the 1970s where the utilization of a computer seemed foreign to blue-collar adults, but a normality to students, businessmen and researchers alike. As older generations phase out and younger generations take hold of their own financial endeavours, the utilization of newer technologies is inevitable. With 65 percent of millennials already utilizing digital payment methods according to a report released in April 2017 by LendEDU, and two-thirds of the survey group utilizing Venmo, a sub-company of PayPal which allows for peer-to-peer transactions similar to that of bitcoin, but with higher fees and less anonymity. Based on consumer survey responses, the future calls for another step away from big banks and the government and towards a decentralized cryptocurrency.

**Future Directions**

This work has laid a foundation for the investigation of cryptocurrencies and their effect on the economy and it opens up several avenues for future work such as the potential implementation of cryptocurrencies such as that of NEO, ICX and ICON as they show benefits over bitcoin through
faster transactions, cheaper fees and higher accessibility as newer technologies are developed to purchase the currency, but lack the acknowledgement that bitcoin currently receives. Although it is impossible to tell which cryptocurrency will take on the role of serving small business transactions, further research will demonstrate which of the thousands of cryptocurrencies are the best candidates for success.

Conclusion

Fueled by a lack of research completed in the field of cryptocurrencies utilization by small businesses, the results of this study show that the application of cryptocurrencies for small-businesses is a future possibility, and with rapid development and increased acceptance of bitcoin over the past year by governments and younger generations alike, it is apparent that they have a place in the future of the transaction industry. It is apparent that with time, the number of businesses offering cryptocurrency transactions will grow as they continue to make strides in the financial market. Through interviews with Bennett Quintard and survey respondents from a wide variety of small businesses, business owners alongside consumers struggle to understand bitcoin and blockchain technology as a whole. However, the money accumulated through the utilization of bitcoin is a significant benefit to small businesses as for many transactions, it lowers the cost of transacting to 1 percent in comparison to that of Visa and American Express which spread from 3-5 percent. The application of this research on a global scale could reintroduce billions of dollars into local economies as large payment card companies such as Visa would become obsolete as their costly transaction fees would be no longer needed.
References


Saari, B. “Bitcoin as Primary Method of Payment”. Questionnaire. 6 April. 2018.


Saari, B. (2018, April 9). Personal Interview with Quintard


Appendices

Appendix A: Survey responses to the question, “Define the term ‘bitcoin.’”

<table>
<thead>
<tr>
<th>Name of business</th>
<th>Define the term &quot;bitcoin&quot;.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baskin Robbins</td>
<td>Bitcoin at the moment is the most valuable e-currency out there. It is an anonymous and encrypted form of currency.</td>
</tr>
<tr>
<td>Baskin-Robbins</td>
<td>Currency used instead of cash</td>
</tr>
<tr>
<td>The BroBasket</td>
<td>It’s a specific type of crypto currency</td>
</tr>
<tr>
<td>FOOD Share of Ventura County</td>
<td>A way to discreetly exchange money</td>
</tr>
<tr>
<td>Aflac</td>
<td>Black market currency</td>
</tr>
<tr>
<td>Discovery Ventura</td>
<td>Online tender that is untraceable, allowing users privacy when making purchases.</td>
</tr>
<tr>
<td>Natures Grill</td>
<td>Virtual Online Currency</td>
</tr>
<tr>
<td>Greek Medlynn</td>
<td>UNAWARE OF BITCOIN</td>
</tr>
<tr>
<td>Limor Cakes</td>
<td>Digital Currency</td>
</tr>
<tr>
<td>Harvest Café</td>
<td>Online Currency</td>
</tr>
<tr>
<td>Winchesters Grill &amp; Saloon</td>
<td>UNAWARE OF BITCOIN</td>
</tr>
<tr>
<td>Dottie's Sweet Delights</td>
<td>Online Cryptocurrency</td>
</tr>
<tr>
<td>Esther Sweet Sinsation</td>
<td>Digital Currency</td>
</tr>
<tr>
<td>Café Ficelle</td>
<td>Online digital currency used for illegal activities such as drug and human trafficking</td>
</tr>
<tr>
<td>Andria's Seafood</td>
<td>UNAWARE OF BITCOIN</td>
</tr>
<tr>
<td>Rhumb Line</td>
<td>Illegal cryptocurrency</td>
</tr>
<tr>
<td>Aloha Steakhouse</td>
<td>Digital Online Currency</td>
</tr>
<tr>
<td>Main Course California</td>
<td>UNAWARE OF BITCOIN</td>
</tr>
<tr>
<td>Labyrinth Winery</td>
<td>Digital currency used to transfer money anonymously</td>
</tr>
<tr>
<td>Jessie's Radiator &amp; Automotive</td>
<td>Digital currency sent to and from people's wallets through a blockchain</td>
</tr>
<tr>
<td>Subway</td>
<td>Online currency</td>
</tr>
<tr>
<td>Chick-Fil-A</td>
<td>Virtual Currency</td>
</tr>
<tr>
<td>Kona Ice</td>
<td>Virtual Currency</td>
</tr>
</tbody>
</table>
Appendix B: Business Owner Survey Questions

Business Owner Survey Questions

1. Name of business?
2. Type of business?
3. What city is the business located in?
4. Are you aware of what a bitcoin is?
5. Define the term "bitcoin."
6. Explain briefly how the protocol works.
7. Do you currently accept bitcoin payments?
8. How frequently do you accept transactions using bitcoin?
9. Have any patrons attempted a bitcoin transaction?
10. Would you be interested in offering a new alternative to traditional methods of payment that offer lower transaction fees?
11. How many transactions on average does your business complete daily?
12. What is the average amount of money spent in a transaction at your business?
13. How much money does your business spend on transaction fees incurred from Visa, Mastercard, etc.?
14. What is the above transaction fee calculated on?
15. How many transactions on average does your business complete daily using bitcoin?
16. How much money does your business spend on transaction/mining fees incurred from bitcoin?
17. What is the above transaction fee calculated on?
18. How many transactions on average does your business complete daily (excluding bitcoin transactions)?

19. How much money does your business spend on transaction fees incurred from Visa, Mastercard, etc.?

20. What is the above transaction fee calculated on?

Appendix C: Business Survey Results

Appendix D: Bennett Quintard Interview

Bennett Quintard Interview Questions:

1. Would there be a benefit for bitcoin to be used by small businesses?

2. Do you see bitcoin’s scalability issues as a potential pitfall?
3. Outside of bitcoin, is there another crypto that you see fit for the same purpose?

4. Do you see cryptocurrencies replacing the dollar or the dollar becoming a cryptocurrency?

**Appendix E:** Survey responses from Thousand Oaks High School students to the question, “Would you be open to using bitcoin as a primary payment method”

187 Students responded, “Yes”

58 Students responded, “No”

**Appendix F:** Survey questions to consumers responded to the following questions:

1. Age

2. Gender

3. Political Affiliations

4. Employment Status

5. Have you heard of bitcoin?

6. Bitcoin is a positive innovation in financial technology.

7. True or False. Is owning bitcoin in the U.S. illegal?

8. If you had to chose, which would be more trustworthy?

9. Do you currently, or have you in the past, owned bitcoin?

10. Would you be open to the idea of using bitcoin for transactions and purchases?

11. Do you plan on investing in bitcoin as an asset for the future?

12. Prefer to own $1,000 of bitcoin or $1,000 of government bonds

13. Prefer to own $1,000 of bitcoin or $1,000 of stocks

14. Prefer to own $1,000 of bitcoin or $1,000 of real estate
15. Prefer to own $1,000 of bitcoin or $1,000 of gold

16. How much do you agree or disagree with this statement: "It's likely that most people will be using bitcoin in the next 10 years?"

Appendix G:

Appendix H:
Appendix I:

Depiction of bitcoin transaction

Appendix J:

<table>
<thead>
<tr>
<th>Type of business</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food retail and service</td>
<td>15</td>
</tr>
<tr>
<td>Gifts and flowers</td>
<td>8</td>
</tr>
<tr>
<td>Nonprofit</td>
<td>7</td>
</tr>
<tr>
<td>Vehicle service and accessories</td>
<td>4</td>
</tr>
<tr>
<td>Financial services and products</td>
<td>3</td>
</tr>
<tr>
<td>Entertainment and media</td>
<td>2</td>
</tr>
</tbody>
</table>

![Graph showing count of type of businesses]
Appendix K:

![Bar chart showing count of awareness of bitcoin](chart1.png)

Appendix L:

![Graph showing estimated USD transaction value](chart2.png)
Appendix M:

![Bar Chart for Average Dollar Amount of Transactions]

Appendix N:

![Line Chart for Transactions Per Block]
## Appendix O:

<table>
<thead>
<tr>
<th>How much money does your business spend on transaction fees incurred from Visa, Mastercard, etc.?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5%</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

## Appendix P:

- **Bitcoin**
- **Big Banks** (e.g. Wells Fargo, JP Morgan, Goldman Sachs, Bank of America)

![Bar chart showing the preference of pre-1982 and post-1982 generations for Bitcoin versus big banks](chart.png)
Appendix Q:

Pre-1982

Appendix R:

Post-1982
Appendix S: Pre-1982 Generations responses to “How much do you agree or disagree with this statement: ‘It's likely that most people will be using bitcoin in the next 10 years?’”

Appendix T: Post-1982 Generations responses to “How much do you agree or disagree with this statement: ‘It's likely that most people will be using bitcoin in the next 10 years?’”