Why We Use a New Currency:
The Role of Trust and Control in Explaining the Perception and Usage of Bitcoin

Dissertation Presentation

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Introduction – Recent Events

- Bitcoin burst on scene in 2008 at height of Great Recession & because of Great Recession

- Everyone grasping for (de)justification
  - Heretic interests love it, hegemonic interests hate it, general public isn't sure
  - No one can explain why currency systems succeed or fail, supplement, or supplant existing systems
  - Advances in technology and disruptions in hegemonies makes central currency a final frontier (viz., eBay, Uber, p2p tech)

Introduction – Universal Equivalent

Innes (1914) developed the State Theory of Money that has become a touchstone for the universal equivalent theory of money.

Since then most economists have treated currency as growing convergence, if they have considered its nature at all.

Introduction – Many Currencies

Many currencies unaccounted for by the State Theory of Money have persisted since before or come to coexist with state money, and within a broad spectrum differing trust and governance regimes.

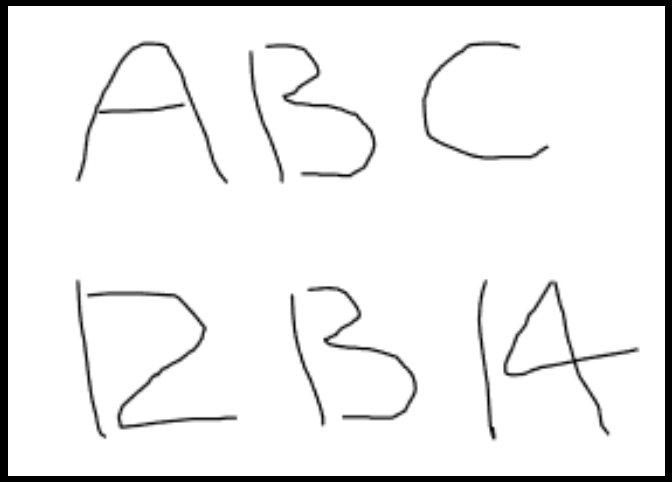
Latent social structures have sought their own currency and begun to take hold. Multiple currencies have flourished.

Introduction – Non-Rational

But, in fact, if Bounded Rationality is true, a single type of money could neither be designed nor chosen for use.

There is no way to converge all socio-economics into one currency as if everyone behaves in rational manner.

Introduction – Behavioral Science



Introduction - Sociologics

"Object of eminent possession" (Marx) or "claim upon society" (Simmel)

"[Money has value] once many agree to treat something as money. The trick is achieving that consensus" (Selgin, 2019)

"Developing a sociological model of multiple monies is part of a broader challenge to neoclassical economic theory…" (Zelizer, 1989)

Statement of the Problem

- No societal framing of currency systems, only histories of types and macro-economic and monetary policy conjecture - nothing explains *all* currencies

- No clear understanding for how societal and public policy factors are related to a new currency's use and adoption - Bitcoin and cryptocurrency usage and popular perceptions of its viability

- If these don't exist, how can you assess the viability of a new currency?

Argument

- Theorize:
  - Trust and control provide two fundamental vectors for understanding socio-economic value and exchange; they can be set as a matrix into which extant and emerging currencies can be placed
- Propose:
  - Fundamental societal and policy factors provide a strong basis for understanding viability for historical, existing, and new socio-economic value and exchange systems
  - Societal, trust, and policy factors point to when a new currency system will fail, supplement or supplant other currency systems
- Test:
  - Quantitatively analyze trust factors (societal, trust in government) control factors (economic development, policy) to predict Bitcoin and cryptocurrency perceptions and usage

Literature Overview

- Nature and theories of money, currency
- Bitcoin, cryptocurrency, and digital currency
- Trust, game theory, behavioral economics
- Social and information control
- Trust in fellow citizens, economics, and government

Literature - Nature of Money

- Prehistory to early modern – merchant money
  - Aristotle, W.S. Jevons, Adam Smith, Menger – gold
  - Emergence of fiat, 17th, 18th c. tension of commodity/mint and fiat/(de-)bases
- 19th Century – social money
  - Marx – "object of eminent possession"; Simmel – "claim upon society", Peirce/Saussure – semiotics of society
- 20th Century – state/political money
  - Innes, Knapp, Keynes – state theory of money and "universal equivalent"
  - John K. Galbraith – gold standard, absurdities of fiat money
  - Frankel – claim and controlled sociologic assertion resulting in tension
- 21st Century – self-aware/personal money
  - Lietaer, Dodd, Goodhart, Jones/Wray, Zelizer – "missing link" in econ. theory
  - Graeber – solely debt, anthropological value from prehistory
  - Satoshi – political money is bad, 'digital gold' universal cryptography is good

Literature – Trust

- From earliest eastern and western philosophies
- Two dimensions: trusting and trustworthiness
- “the most generally acknowledged [aspect] of social capital” (Tan & Tambyah 2010)
- "Доверяй, но проверяй"

Literature – Game Theory & Behavioral Economics

- Measures of personal gain, altruism, intuition (Berg, et al. 1995) (Gintis 2009)
- Game theory
- Intuition & deliberation
- Transaction costs versus trust -> control
- Limits of trust

Literature – “Control Revolution”

Developmental Control -> Domestication, Exploration

Industrial Control -> Machines, Institutions

Technology Control -> Microchip, Consolidation

Information Control -> Data, Concentrated Value

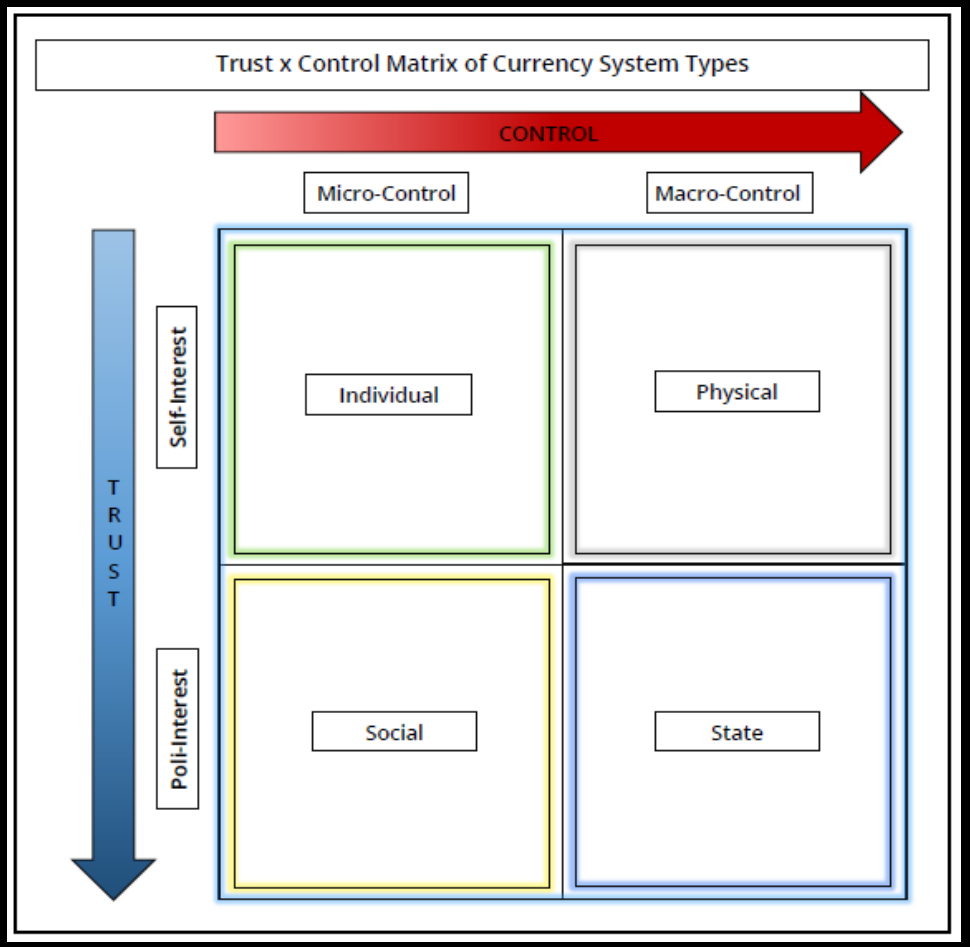
(Beniger 1986)

But information overload, need signal from noise

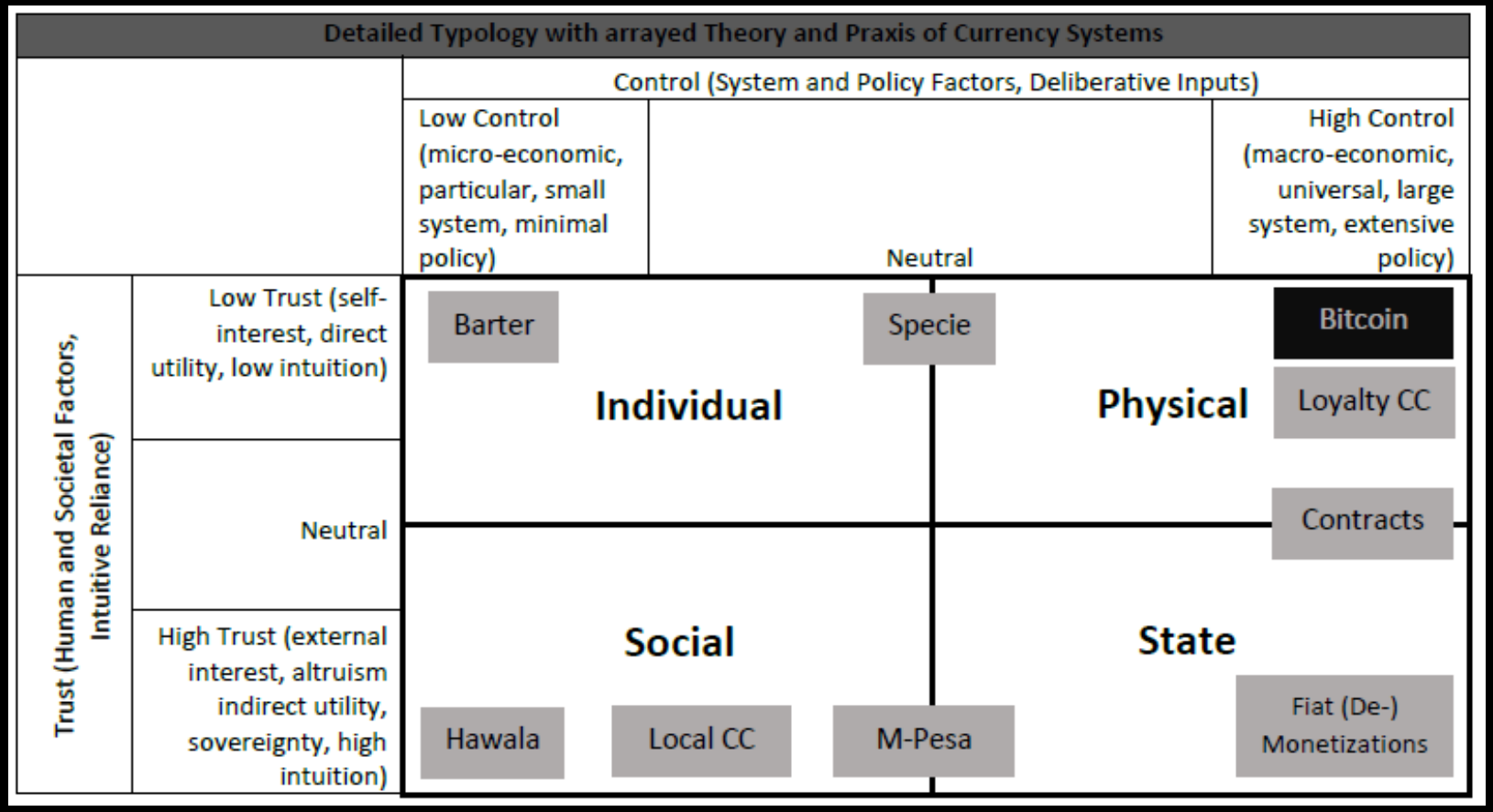
Literature – Other Theories

- Monetization, de-monetization, colonization, globalization
- Gresham's Law – political substitution
- Mundell – Optimal Currency Area (OCA)
- Aschheim & Park – Artificial Currency Units (ACU)
- Cohen – Currency Pyramid

Theory – Trust and Control



Theory – Trust and Control



Research Question

What social, economic, and political factors may account for why people may express approval of or choose to use Bitcoin and cryptocurrencies?

Hypotheses

Control: Public Policy

H1a: Countries with more restrictive policies regarding the use of cryptocurrencies will have more negative perceptions of cryptocurrencies.

H1b: Countries with more restrictive policies regarding the use of cryptocurrencies will have lower usage of cryptocurrencies.

Culture: Socio-economic Development

H2a: Countries with more developed economies will have more positive perceptions of cryptocurrencies.

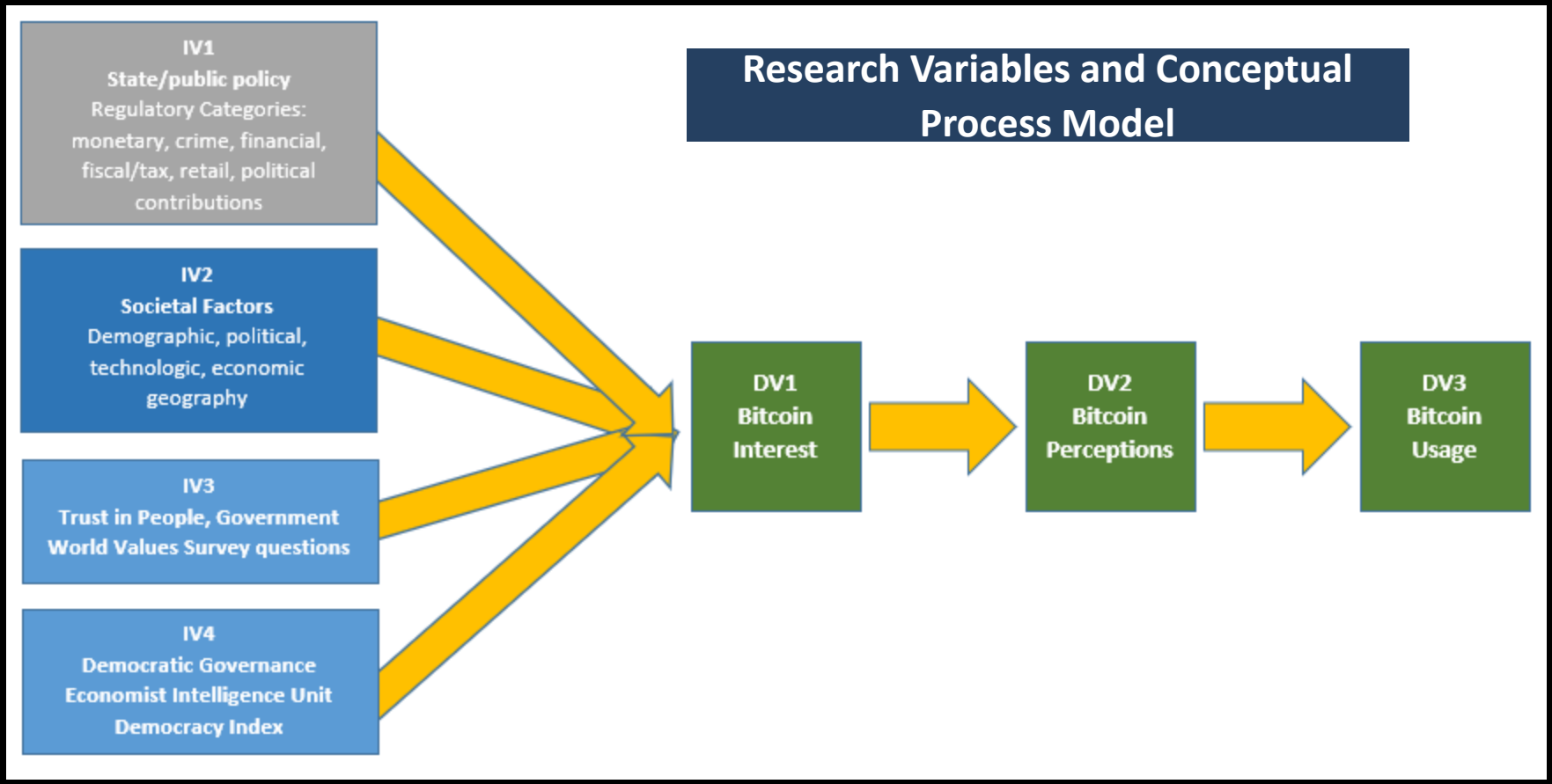
H2b: Countries with more developed economies will have higher usage of cryptocurrencies.

Trust: Attitudes of Trust in Society and Government

H3a: Countries with lower levels of trust in society and government will have more positive perceptions of cryptocurrencies.

H3b: Countries with lower levels of trust in society and government will have higher usage of cryptocurrencies.

Research Variable Interaction Model



Methodology – Dependent Variables

- Measures of interest, perceptions, and usage of Bitcoin and cryptocurrencies
  - Dependent variable #1 – individual perception of Bitcoin (n=14,828)
    - ING/Ipsos survey response data, spring 2018
    - 15 country x 1,000 respondents' perceptions Bitcoin as store of value and medium of exchange
  - Dependent variable #2 – national interest & usage of Bitcoin (n=28)
    - In-country ATMs via coinradar.com
    - Google Trends search statistics
    - In-country mining and transaction nodes
  - Other usage measures for Bitcoin
    - Per country: market cap, transaction volume, fiat exchange rate, coin creation, extant exchanges – NOT USED

Methodology – Independent Variables

- Measures of societal, economic, and policy factors (n=28)
  - Independent variable #1 – state/public policy composite
    - Monetary, fiscal, financial, law enforcement policy metrics
  - Independent variable #2 – societal factors
    - Demographic, economic, human development, technology, monetary
  - Independent variable #3 – trust, governance factors
    - Individual – World Values Survey questions related to trust in others & respective national governments
    - National – Economist Intelligence Unit Democracy Index
- Statistical Analysis – descriptive, correlation, multivariate factor and regression of the variables

Research Design

- Design type – cross-sectional
- Time dimension – on or about 5/31/2018
- Type of experiment – non-experimental relations
- Sample – all countries
- Sampling technique – G20 and convenience
- Data collection – summer-fall 2018
- Limitations – novelty and taboo, small sample, triangulated datasets

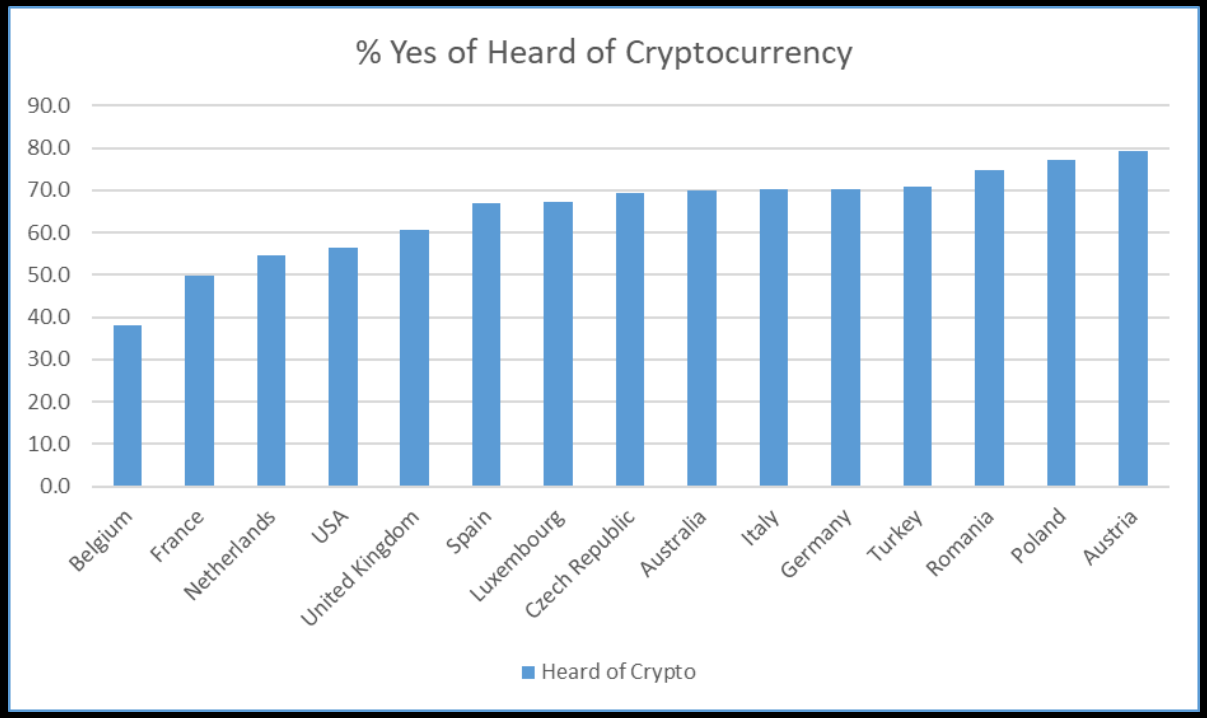
Statistical Analysis

- Review of dozens of WVS/EVS articles since 2016 (Wave 6)
  - Single wave, cross-sectional, composites & indices
  - Descriptives, correlations, and multivariate factor
  - Welzel and Tausch – inter-partner violence
  - Florida & Gates; Das, et al.; Zanakis, et al. – creative and social tolerance indices
- For this research
  - Descriptives – averages and comparisons of metrics and composites
  - Factors – Principle Component Analysis (PCA)
  - Regression – Ordinary Least Squares (OLS)

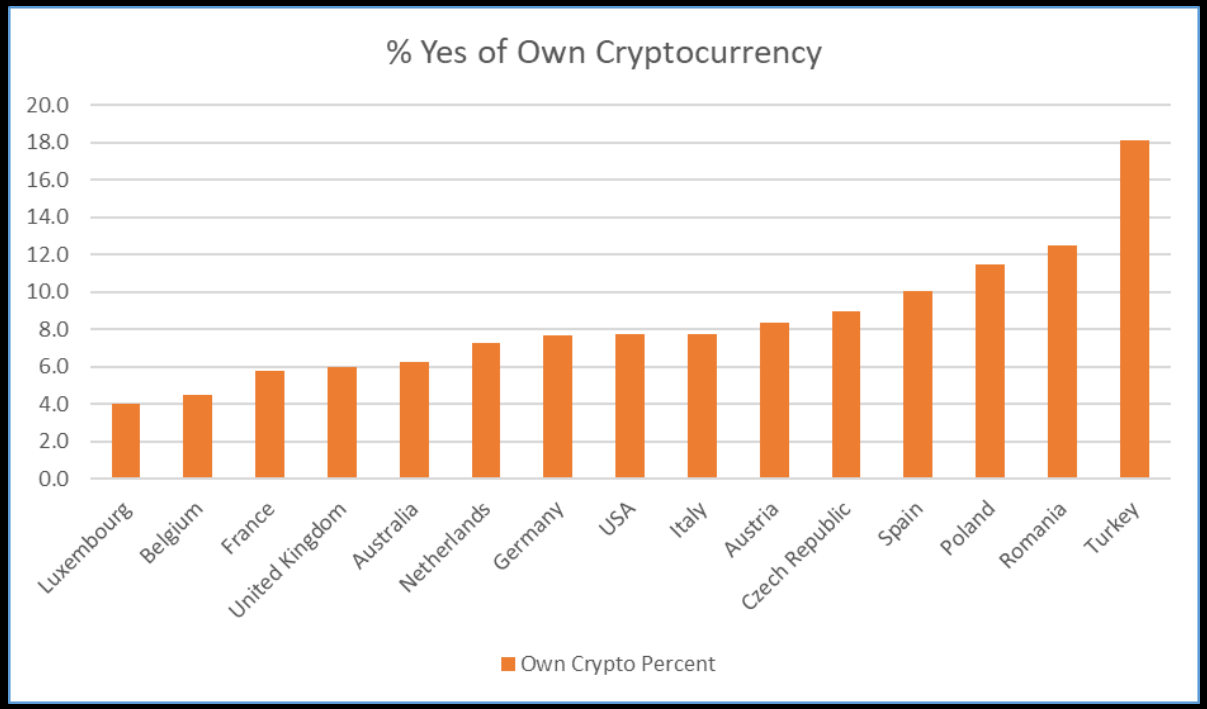
Ipsos Overall Summary

Ipsos Country Responses			
	N	Percent	Cumulative Percent
Austria	1009	6.8	6.8
Belgium	1008	6.8	13.6
France	1060	7.1	20.8
Germany	1005	6.8	27.5
Italy	1018	6.9	34.4
Luxembourg	553	3.7	38.1
Netherlands	1029	6.9	45.1
Poland	1023	6.9	52.0
Romania	1007	6.8	58.8
Spain	1019	6.9	65.6
Turkey	1021	6.9	72.5
United Kingdom	1016	6.9	79.4
Czech Rep.	1031	7.0	86.3
USA	1008	6.8	93.1
Australia	1021	6.9	100.0
Total	14828	100.0	

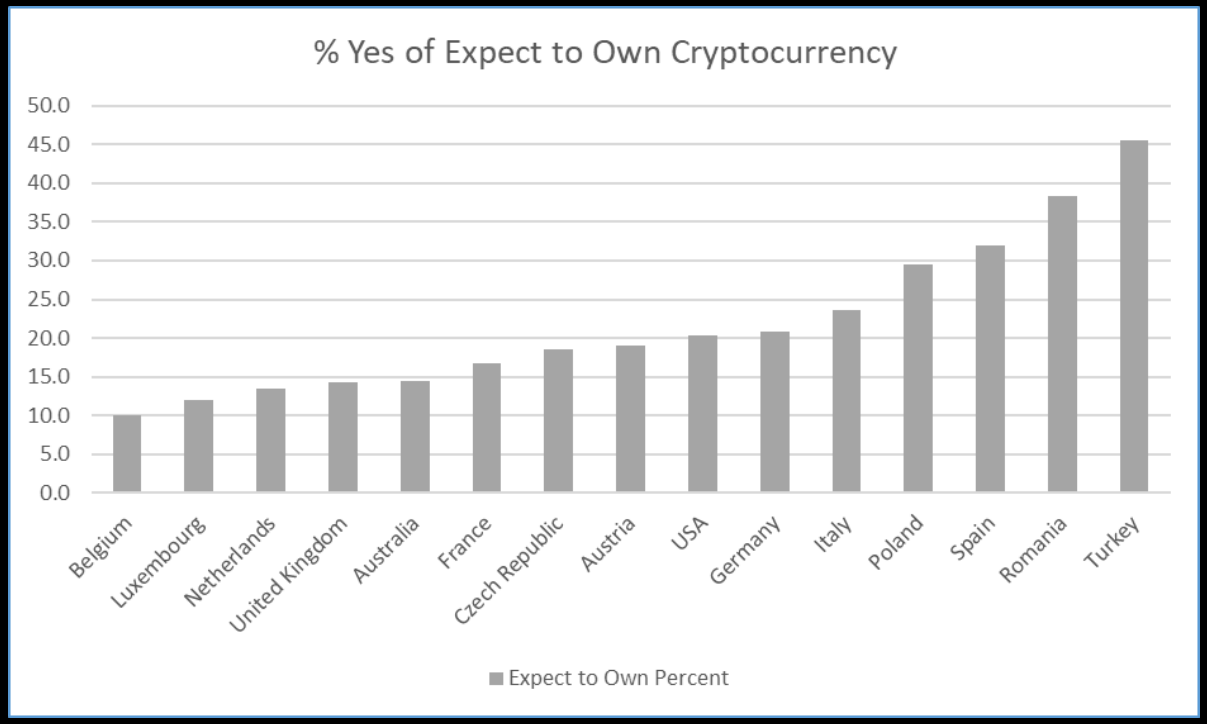
Per-country % Who Have Heard of Cryptocurrencies



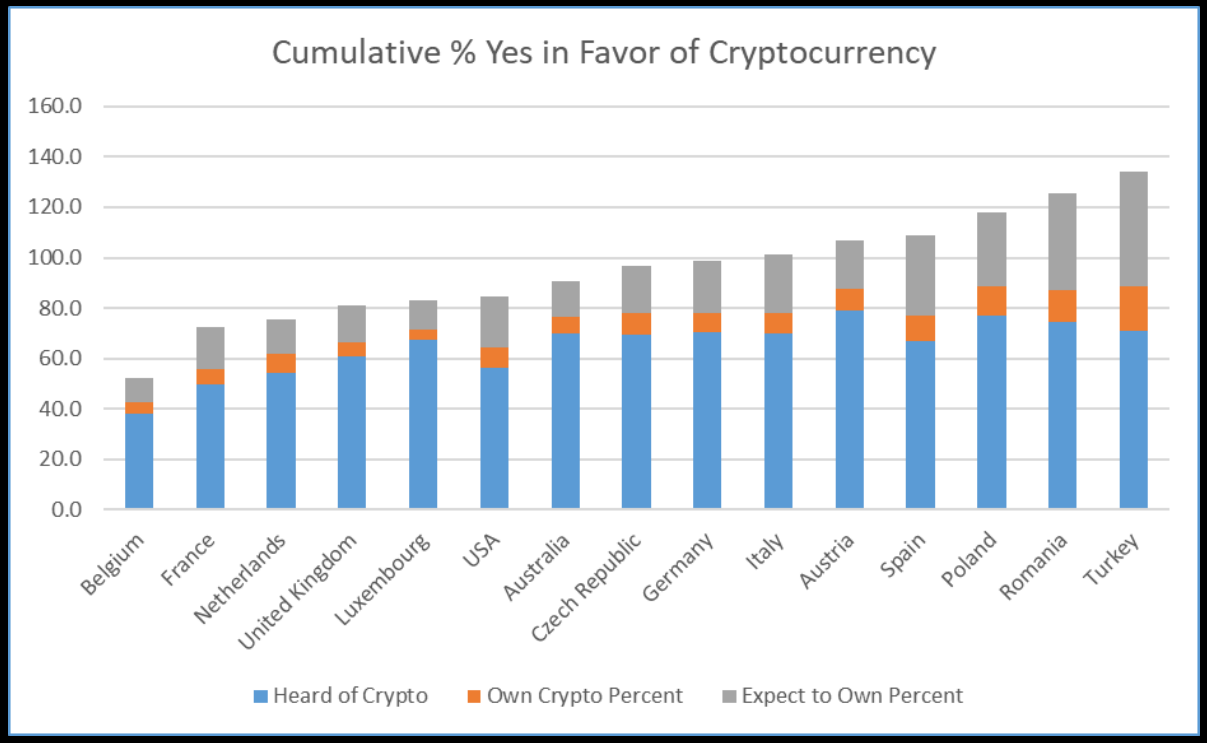
Per-country % Who Own Cryptocurrency



Per-country % Who Expect to Own Cryptocurrency



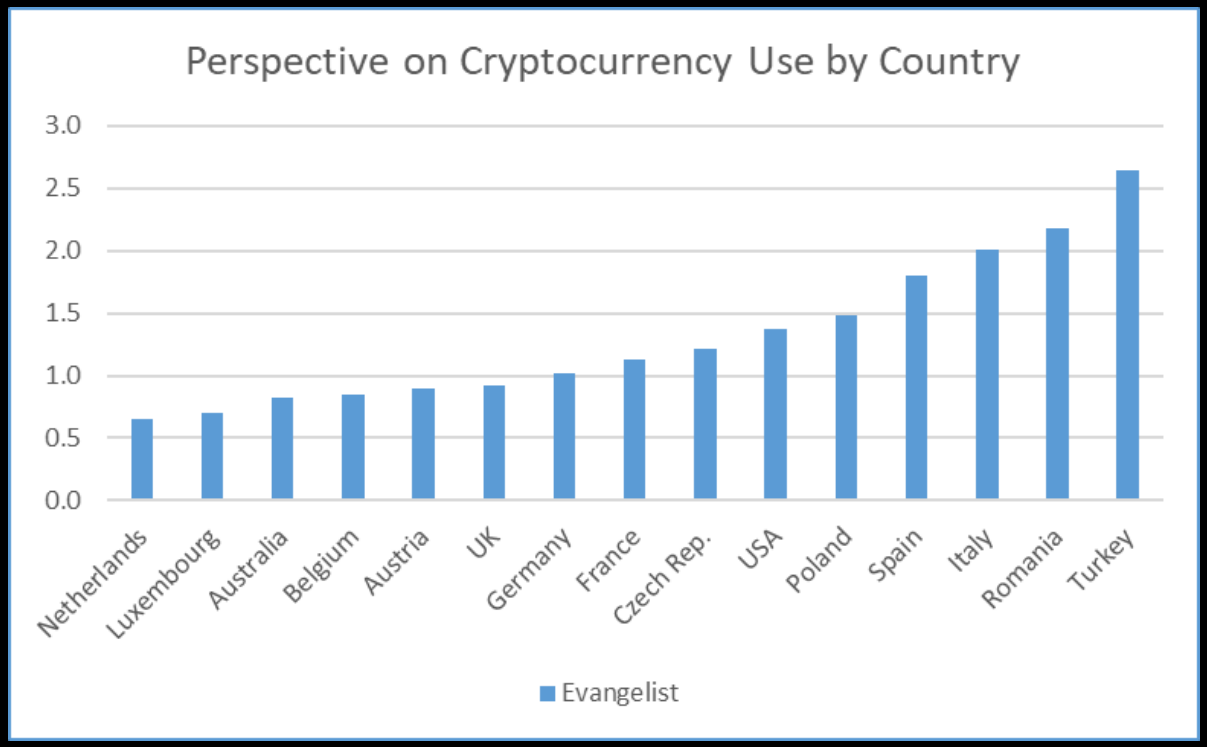
Per-country Total % Heard of, Own, or Expect to Own Cryptocurrency



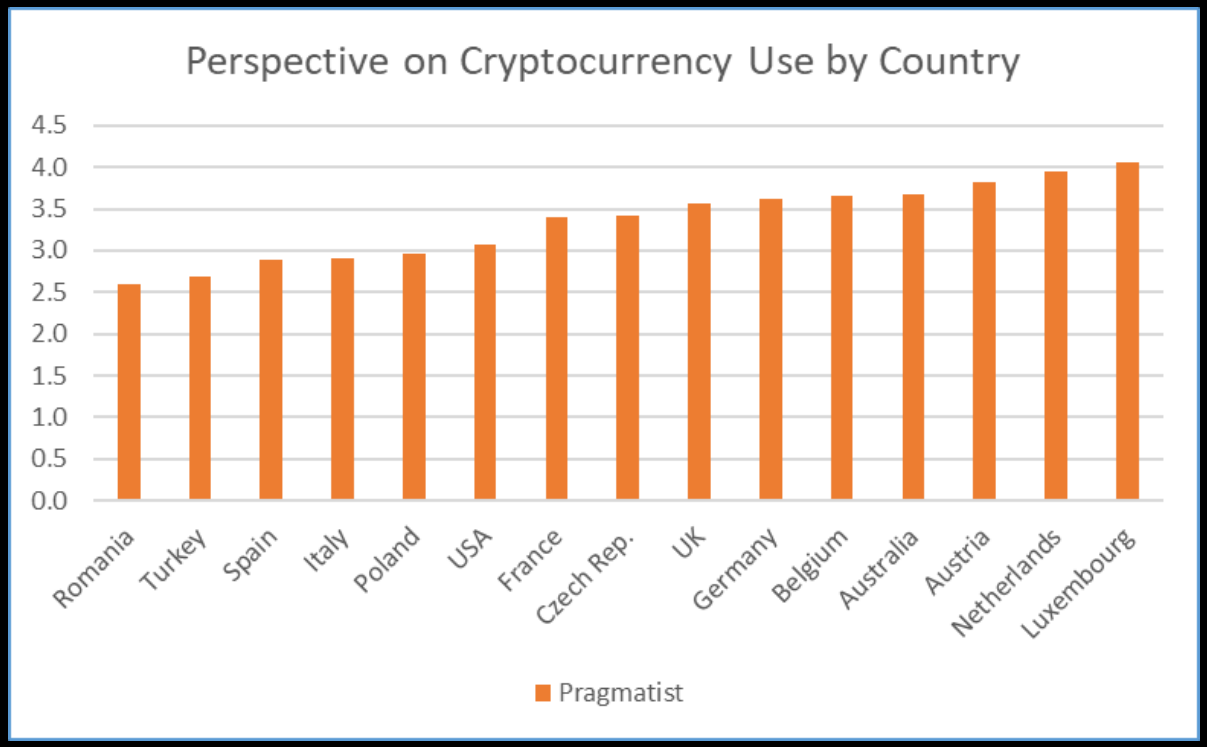
Principle Component Analysis – Promax rotation
Factor Loadings of Bitcoin for Common Currency Purposes

Factor Analysis Pattern Matrix – Promax rotation			
	Component		
	1	2	3
Buy Coffee w BTC, yes		0.832	
Take-home pay w BTC, yes		0.785	
Pay taxes w BTC, yes		0.903	
Pay elec bill w BTC, yes		0.931	
Buy plane fare w BTC, yes		0.913	
Internat. payment to buy product online w BTC, yes		0.866	
Save for child's tuition w BTC, yes		0.817	
Buy Coffee w BTC, no, don't want to change	-0.397	-0.437	-0.322
Take-home pay w BTC, no, don't want to change	-0.395	-0.352	-0.395
Pay taxes w BTC, no, don't want to change	-0.388	-0.452	-0.361
Pay elec bill w BTC, no, don't want to change	-0.387	-0.472	-0.344
Buy plane fare w BTC, no, don't want to change	-0.365	-0.499	-0.334
Internat. pymt to buy product online w BTC, no, don't want to change	-0.342	-0.490	-0.322
Save for child's tuition w BTC, no, don't want to change	-0.365	-0.420	-0.367
Buy Coffee w BTC, no, too risky			0.874
Take-home pay w BTC, no, too risky			0.853
Pay taxes w BTC, no, too risky			0.919
Pay elec bill w BTC, no, too risky			0.933
Buy plane fare w BTC, no, too risky			0.921
Internat. payment to buy product online w BTC, no, too risky			0.893
Save for child's tuition w BTC, no, too risky			0.839
Buy coffee w BTC, no, BTC only an investment	0.951		
Take-home pay w BTC, no, BTC only an investment	0.928		
Pay taxes w BTC, no, BTC only an investment	0.970		
Pay elec bill w BTC, no, BTC only an investment	0.984		
Buy plane fare w BTC, no, BTC only an investment	0.973		
Internat. pymt to buy product online w BTC, no, BTC only an invest.	0.943		
Save for child's tuition w BTC, no, BTC only an investment	0.918		
Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization.			
a. Rotation converged in 6 iterations.			

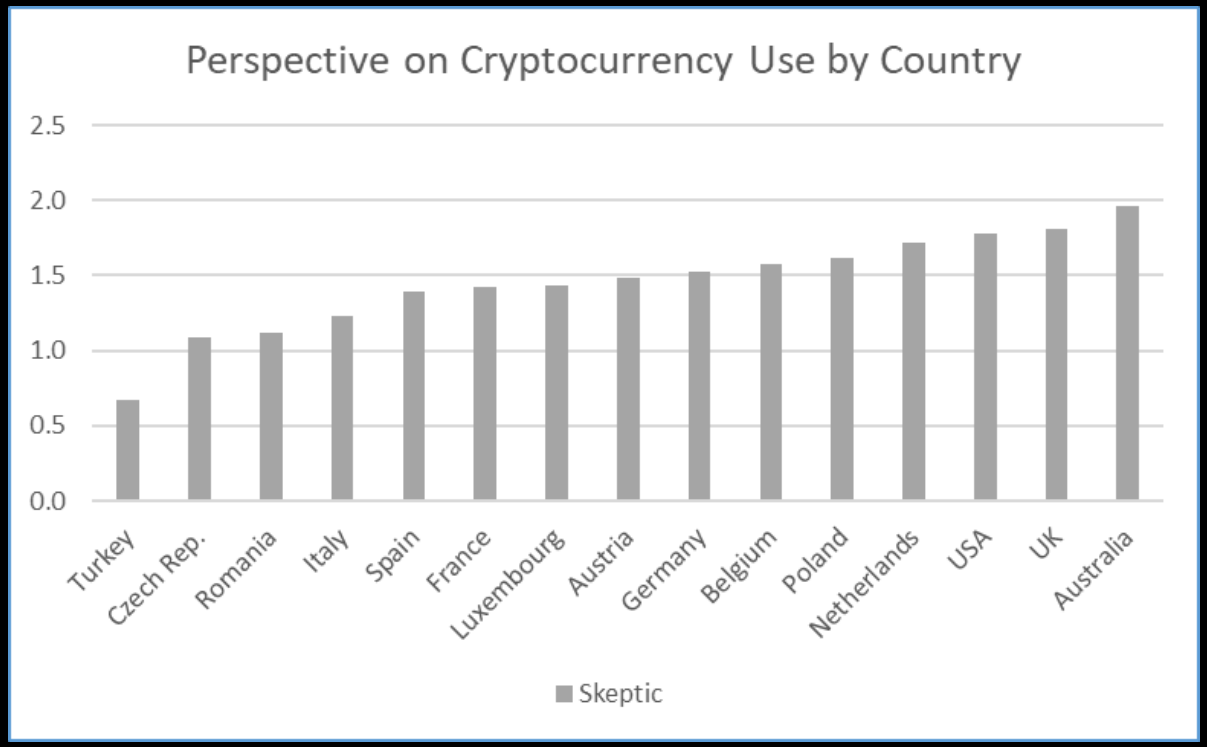
Average Evangelist Perspective Per Country



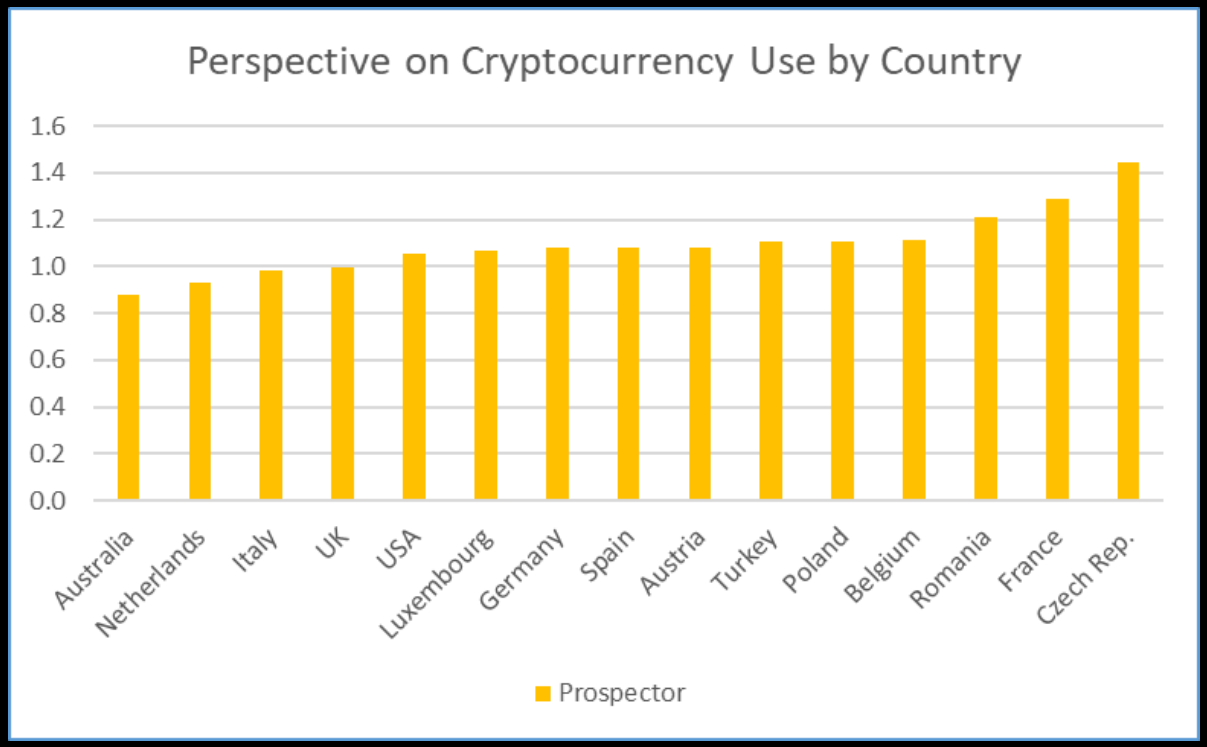
Average Pragmatist Perspective Per Country



Average Skeptic Perspective Per Country



Average Prospector Perspective Per Country



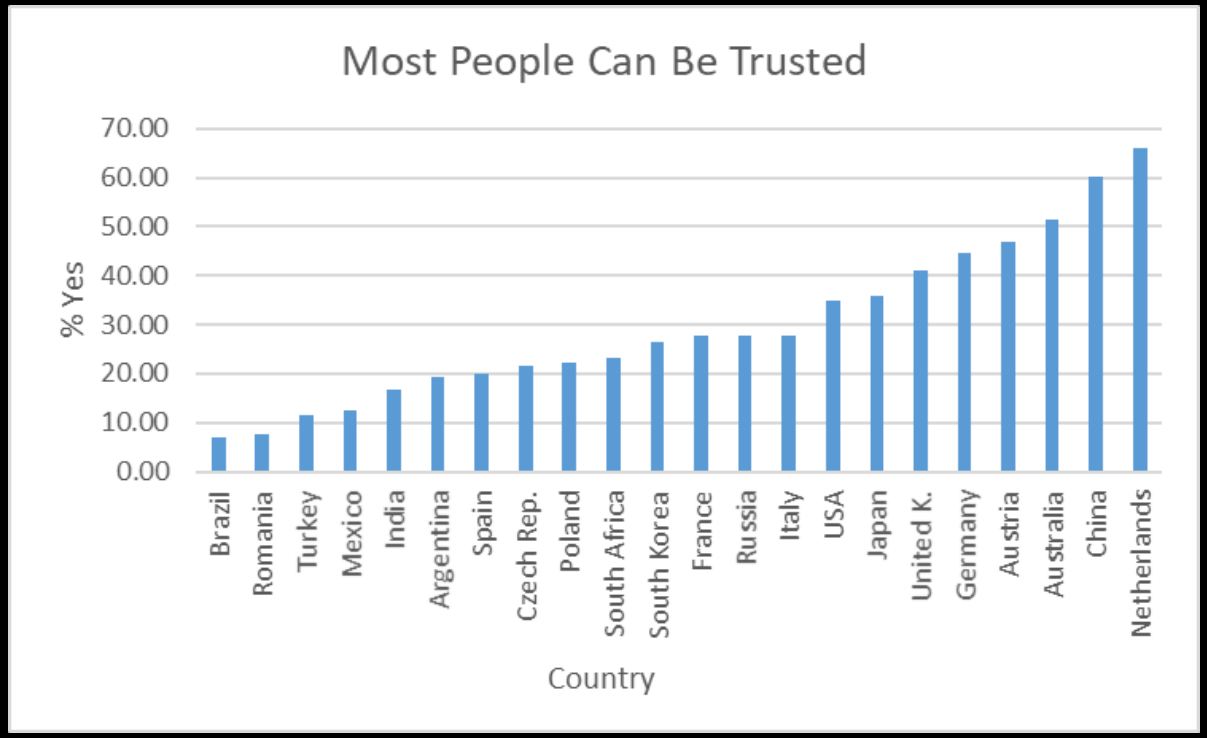
Usage of Bitcoin per Country

Google Trends, ATMs, Bitcoin Nodes in All Sample Countries						
Country	Google Trnd	ATMs	Nodes	Population(M)	ATMs/Cap(M)	Nodes/Cap(M)
Indonesia	14	1	3	267.671	0.0037	0.0112
India	5	1	26	1352.642	0.0007	0.0192
Mexico	17	11	8	126.191	0.0872	0.0634
Saudi Arabia	10	2	3	33.703	0.0593	0.0890
Venezuela	24	1	3	28.887	0.0346	0.1039
Turkey*	11	25	13	82.34	0.3036	0.1579
Brazil	29	0	38	209.469	0.0000	0.1814
China	15	0	353	1427.648	0.0000	0.2473
South Africa	9	6	20	57.793	0.1038	0.3461
Argentina	23	11	21	44.361	0.2480	0.4734
Italy*	13	54	70	60.627	0.8907	1.1546
Spain*	19	94	59	46.693	2.0131	1.2636
Poland*	10	48	50	37.922	1.2658	1.3185
Japan	8	3	190	127.202	0.0236	1.4937
Russia	12	59	248	145.734	0.4048	1.7017
Romania*	9	38	41	19.506	1.9481	2.1019
South Korea	8	1	144	51.172	0.0195	2.8140
Belgium*	8	14	40	11.482	1.2193	3.4837
United K.*	8	273	301	67.142	4.0660	4.4830
Australia*	7	25	132	24.898	1.0041	5.3016
Austria*	12	251	52	8.891	28.2308	5.8486
USA*	6	3702	2363	327.096	11.3178	7.2242
Czech Rep.*	8	69	82	10.666	6.4692	7.6880
Canada	7	701	328	37.075	18.9076	8.8469
France*	11	2	606	64.991	0.0308	9.3244
Luxembourg*	9	0	10	0.604	0.0000	16.5563
Germany*	14	36	1891	83.124	0.4331	22.7491
Netherlands*	8	42	496	17.06	2.4619	29.0739

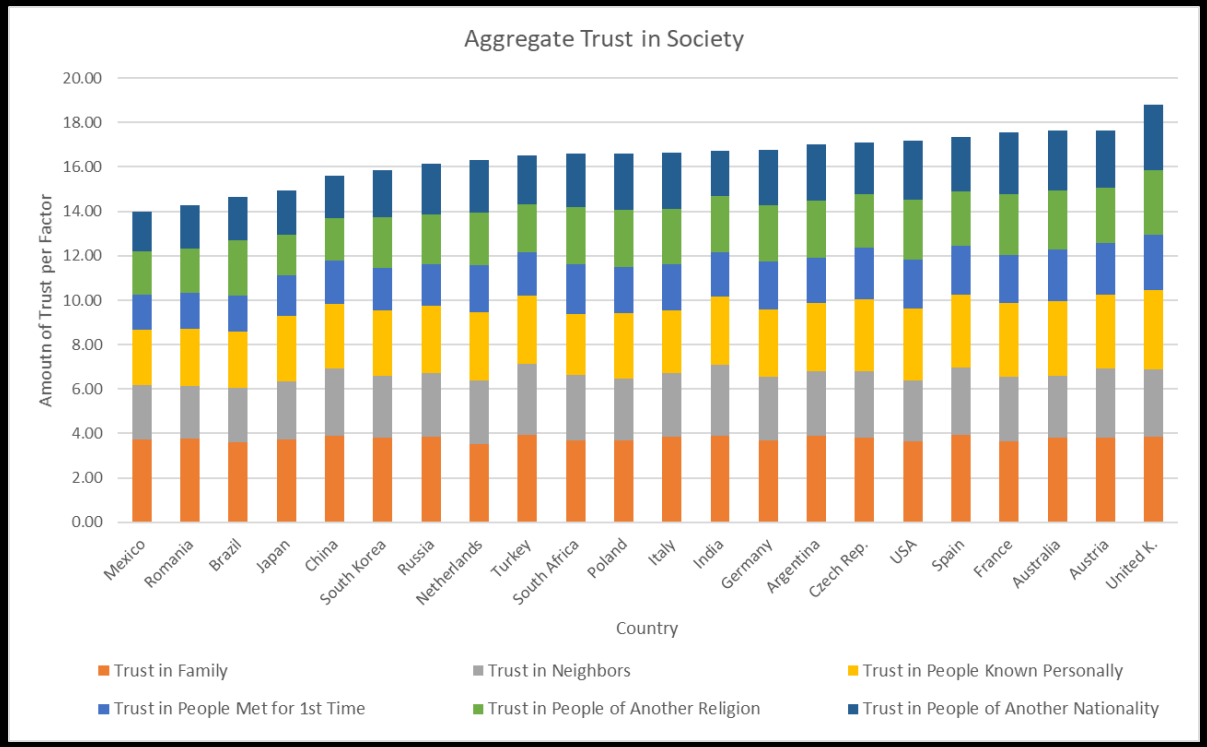
State/Public Policy Dim. and Composite of All Sample Countries

State/Public Policy Dimensions and Composite of All Sample Countries										
Country	Comp.	Legality	Class.	Exch.	ICO	Politic.	Pymnts	Fiat Cv.	Legis.	Warn.
India	2	0	0	0	0	0	0	0	1	1
China	3	0	2	0	0	0	0	0	0	1
Indonesia	3	0	2	0	0	0	0	0	0	1
Argentina	7	1	1	2	2	0	0	0	0	1
Romania*	8	1	3	1	1	0	0	1	0	1
Saudi Ar.	8	2	0	2	2	0	0	0	1	1
Belgium*	9	2	0	2	2	0	1	1	0	1
Brazil	9	2	0	2	2	0	1	1	0	1
Italy*	10	2	0	2	2	1	1	1	1	0
Czech Rep.*	10	2	2	2	2	0	1	1	0	0
S. Africa	10	2	0	2	2	0	1	1	1	1
Australia*	11	2	1	2	2	0	1	1	1	1
United K.*	11	2	2	2	2	0	1	1	1	0
France*	11	2	0	2	2	1	1	1	1	1
Poland*	12	1	3	2	2	1	0	1	1	1
Spain*	14	2	3	2	2	1	1	1	1	1
Austria*	14	2	2	2	3	1	1	1	1	1
Turkey*	14	3	2	3	3	0	0	1	1	1
Canada	15	3	1	3	3	1	1	1	1	1
Japan	15	3	3	3	3	0	1	1	1	0
Mexico	15	3	3	3	3	0	1	1	1	0
Venezuela	15	3	3	3	3	0	0	1	1	1
Netherld.*	16	3	2	3	3	1	1	1	1	1
Luxemb.*	16	2	4	3	3	0	1	1	1	1
Germany*	16	3	2	2	3	2	1	1	1	1
S. Korea	16	3	4	3	3	0	1	1	1	0
Russia	20	3	3	3	3	4	1	1	1	1
USA*	21.5	2	2.5	2	2	9	1	1	1	1

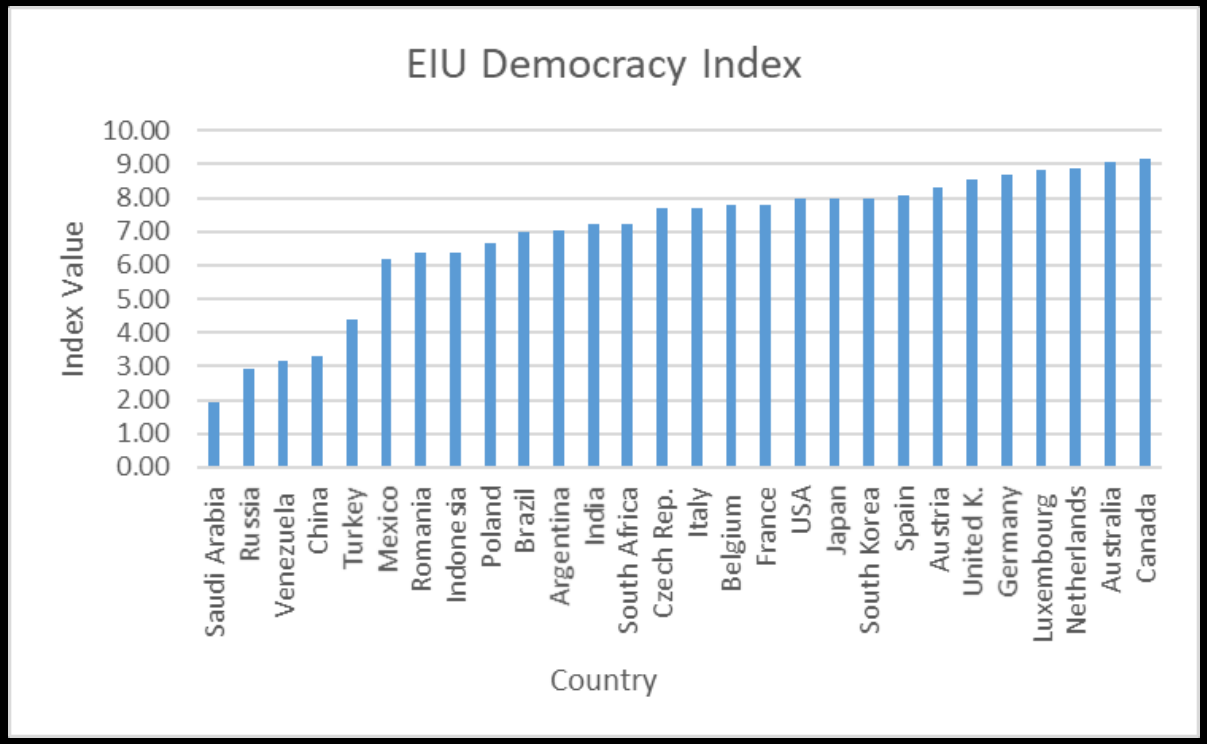
WVS/EVS % Yes to Most People Can be Trusted



WVS/EVS % Yes Aggregate Trust (in-group/out-group)



Economist Democracy Index



OLS Regression – Control Factors

- H1a: Countries with more restrictive policies regarding the use of cryptocurrencies will have more negative perceptions of cryptocurrencies
- H1b: Countries with more restrictive policies regarding the use of cryptocurrencies will have lower usage of cryptocurrencies
- No correlations, no further analysis

Pearson Correlations of Cryptocurrency Perceptions and Usage to Public Policy											
	policy	heard	own	expect	evangel	pragmat	skeptic	prospec	ATM	interest	nodes
Pears.	1.000	-0.020	-0.038	-0.076	-0.257	0.198	0.250	-0.305	.429*	-0.112	.454*
Signif.		0.944	0.892	0.788	0.376	0.479	0.369	0.269	0.023	0.570	0.015
N	28	15	15	15	14	15	15	15	28	28	28
*. Correlation is significant at the 0.05 level (2-tailed).											
**. Correlation is significant at the 0.01 level (2-tailed).											

OLS Regression – Culture Factors

- H2a: Countries with more developed economies will have more positive perceptions of cryptocurrencies.
- H2b: Countries with more developed economies will have higher usage of cryptocurrencies
- Determined strong correlations and then regression models

Correlations of Cryptocurrency Perceptions and Usage to Cultural and Economic Metrics

Pearson Correlations of Cryptocurrency Perceptions and Usage to Happiness

		happiness	heard	own	expect	evangelist	pragmatist	skeptic	prospector	ATM	interest	nodes
happiness	Pearson Corr.	1	-0.288	-.810**	-.890**	-.945**	.891**	.754**	-0.281	0.223	-0.190	0.300
	Sig. (2-tailed)		0.298	0.000	0.000	0.000	0.000	0.001	0.311	0.253	0.333	0.121
	N	28	15	15	15	15	15	15	15	28	28	28

Pearson Correlations of Cryptocurrency Perceptions and Usage to GDP

		GDP	heard	own	expect	evangelist	pragmatist	skeptic	prospector	ATM	interest	nodes
GDP	Pearson Corr.	1	-0.239	-0.107	-0.077	0.001	-0.147	0.328	-0.119	.783**	-0.136	.729**
	Sig. (2-tailed)		0.391	0.705	0.786	0.997	0.601	0.233	0.674	0.000	0.490	0.000
	N	28	15	15	15	15	15	15	15	28	28	28

Pearson Correlations of Cryptocurrency Perceptions and Usage to Gini

		Gini	heard	own	expect	evangelist	pragmatist	skeptic	prospector	ATM	interest	nodes
Gini	Pearson Corr.	1	0.210	0.470	.579*	.622*	-.590*	-0.192	-0.297	0.064	.485*	-0.096
	Sig. (2-tailed)		0.453	0.077	0.024	0.013	0.021	0.494	0.282	0.752	0.010	0.634
	N	27	15	15	15	15	15	15	15	27	27	27

Pearson Correlations of Cryptocurrency Perceptions and Usage to Population

		population	heard	own	expect	evangelist	pragmatist	skeptic	prospector	ATM	interest	nodes
population	Pearson Corr.	1	-0.185	0.071	0.100	0.181	-0.300	0.184	-0.104	0.053	-0.048	0.067
	Sig. (2-tailed)		0.509	0.801	0.724	0.519	0.277	0.511	0.712	0.788	0.808	0.736
	N	28	15	15	15	15	15	15	15	28	28	28

Pearson Correlations of Cryptocurrency Perceptions and Usage to Reserve Tonnes of Gold

		resvs tonnes	heard	own	expect	evangelist	pragmatist	skeptic	prospector	ATM	interest	nodes
resvs tonnes	Pearson Corr.	1	-0.237	-0.136	-0.079	0.031	-0.146	0.232	-0.071	.811**	-0.161	.890**
	Sig. (2-tailed)		0.396	0.628	0.780	0.913	0.605	0.406	0.800	0.000	0.413	0.000
	N	28	15	15	15	15	15	15	15	28	28	28

Pearson Correlations of Cryptocurrency Perceptions and Usage to Reserve Gold %

		resvs gold %	heard	own	expect	evangelist	pragmatist	skeptic	prospector	ATM	interest	nodes
resvs gold % of total	Pearson Corr.	1	-0.345	-0.254	-0.237	-0.143	0.148	0.185	-0.218	.386*	-0.025	.621**
	Sig. (2-tailed)		0.208	0.361	0.395	0.612	0.600	0.510	0.435	0.043	0.900	0.000
	N	28	15	15	15	15	15	15	15	28	28	28

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Regressions of Cryptocurrency Perceptions and Usage to Cultural and Economic Metrics – HDI/Skeptic

HDI/Skeptic Regression Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.837[a]	0.700	0.677	0.18804	0.700	30.344	1	13	0.000	1.961

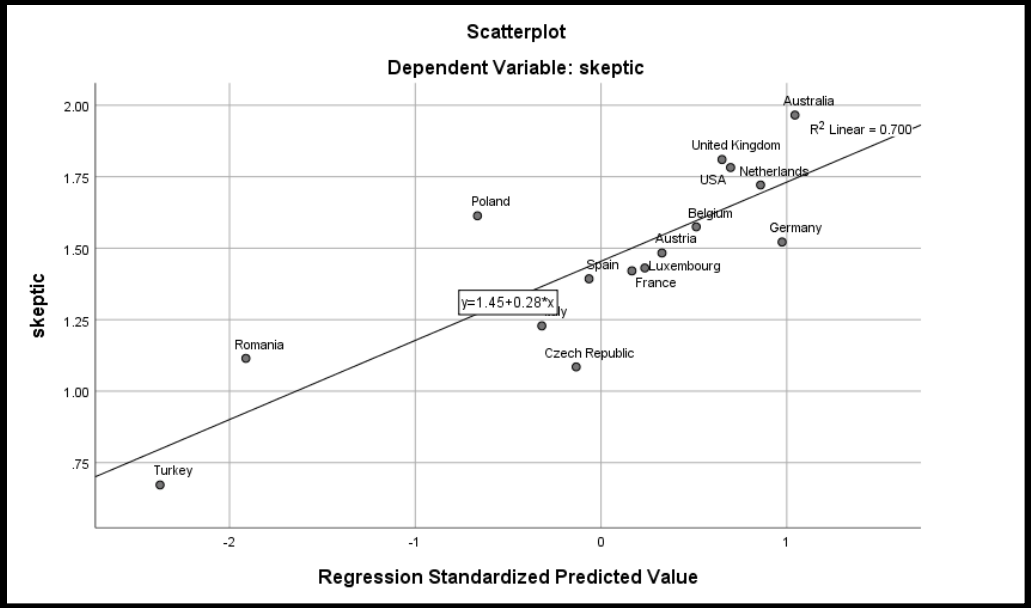
a. Predictors: (Constant), HDI

b. Dependent Variable: skeptic

HDI/Skeptic Regression Model Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-4.260	1.038		-4.102	0.001	-6.503	-2.016
	HDI	6.393	1.161	0.837	5.509	0.000	3.886	8.900

a. Dependent Variable: skeptic



Regressions of Cryptocurrency Perceptions and Usage to Cultural and Economic Metrics – Happiness/Evangelist

Happiness/Evangelist Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.945[a]	0.894	0.886	0.20172	0.894	109.363	1	13	0.000	2.500

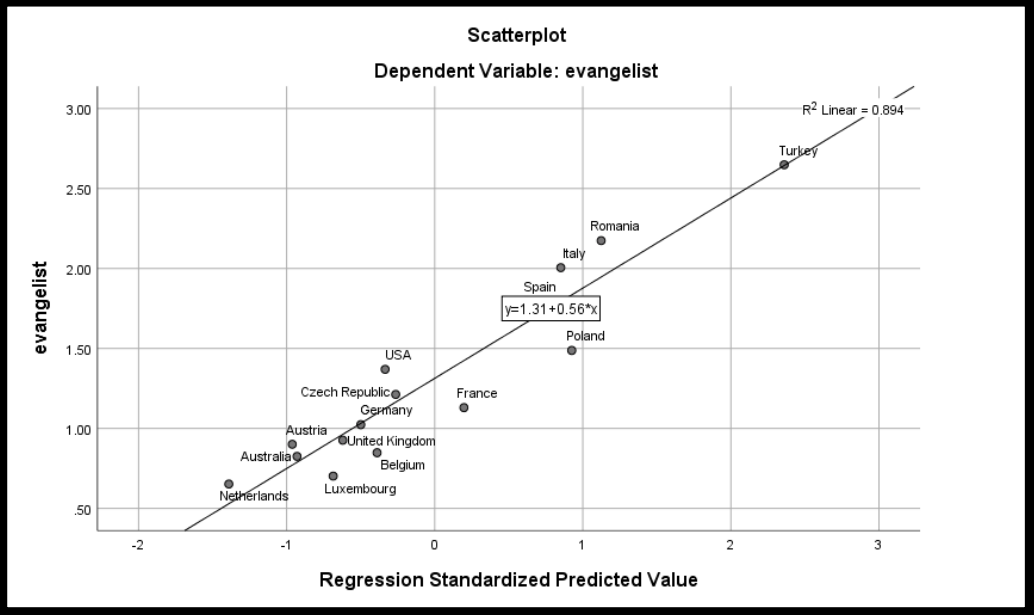
a. Predictors: (Constant), happiness

b. Dependent Variable: evangelist

Happiness/Evangelist Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	8.016	0.643		12.466	0.000	6.626	9.405
	happiness	-1.000	0.096	-0.945	-10.458	0.000	-1.206	-0.793

a. Dependent Variable: evangelist



Regressions of Cryptocurrency Perceptions and Usage to Cultural and Economic Metrics – Gini/Evangelist

Gini/Evangelist Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.622[a]	0.387	0.340	0.48438	0.387	8.222	1	13	0.013	2.010

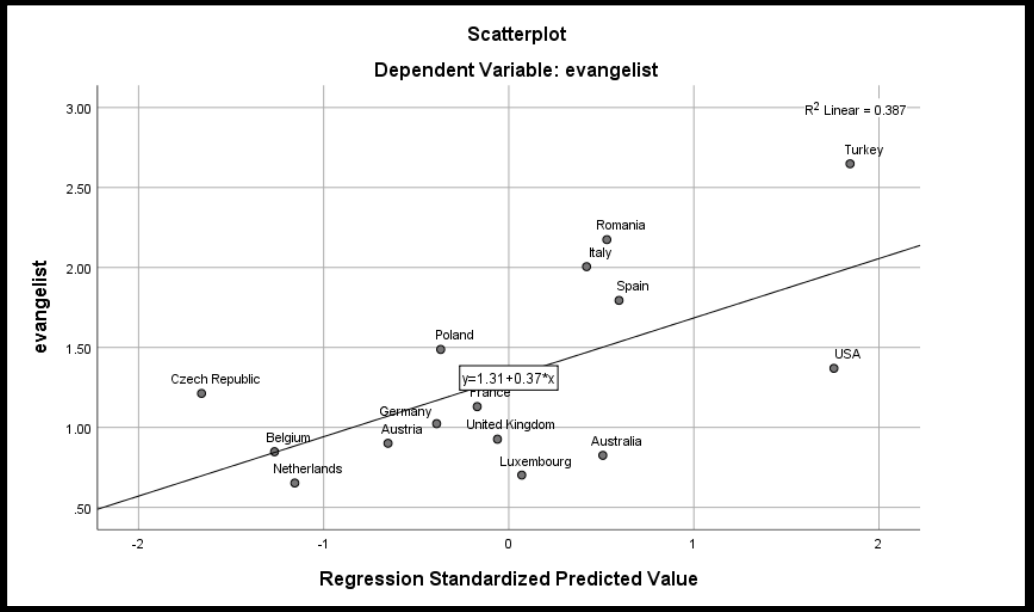
a. Predictors: (Constant), Gini

b. Dependent Variable: evangelist

Gini/Evangelist Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	-1.408	0.957		-1.471	0.165	-3.476	0.660
	Gini	0.081	0.028	0.622	2.867	0.013	0.020	0.143

a. Dependent Variable: evangelist



OLS Regression – Trust Factors

- H3a: Countries with lower levels of trust in government will have more positive perceptions of cryptocurrencies.
- H3b: Countries with lower levels of trust in government will have higher usage of cryptocurrencies.
- Determined strong correlations and then regression models

Correlations of Cryptocurrency Perceptions and Usage to Trust Metrics

Pearson Correlations of Cryptocurrency Perceptions and Usage to Generalized Trust												
		gen trst	heard	own	expect	evangelist	pragmatist	skeptic	prospector	ATM	interest	nodes
gen trust	Pearson Co	1	-0.305	-.669*	-.799**	-.848**	.901**	.735**	-.601*	0.094	-0.317	0.339
	Sig. (2-tld)		0.310	0.012	0.001	0.000	0.000	0.004	0.030	0.676	0.151	0.123
	N	22	13	13	13	13	13	13	13	22	22	22
Pearson Correlations of Cryptocurrency Perceptions and Usage to In-group Trust												
		in-grp	heard	own	expect	evangelist	pragmatist	skeptic	prospector	ATM	interest	nodes
in-group	Pearson Co	1	-0.081	-0.094	-0.205	-0.200	0.321	0.037	-0.045	0.029	-0.311	0.016
	Sig. (2-tld)		0.792	0.761	0.502	0.513	0.285	0.903	0.883	0.897	0.159	0.945
	N	22	13	13	13	13	13	13	13	22	22	22
Pearson Correlations of Cryptocurrency Perceptions and Usage to Out-group Trust												
		out-grp	heard	own	expect	evangelist	pragmatist	skeptic	prospector	ATM	interest	nodes
out-group	Pearson Co	1	-0.387	-.739**	-.751**	-.661*	.569*	.685**	-0.260	0.266	-0.236	0.295
	Sig. (2-tld)		0.191	0.004	0.003	0.014	0.042	0.010	0.391	0.232	0.290	0.182
	N	22	13	13	13	13	13	13	13	22	22	22
Pearson Correlations of Cryptocurrency Perceptions and Usage to Importance of Living in a Democracy												
		livedem	heard	own	expect	evangelist	pragmatist	skeptic	prospector	ATM	interest	nodes
livedem	Pearson Co	1	0.150	-0.323	-0.257	-0.220	0.339	0.276	-.634*	0.006	0.024	0.157
	Sig. (2-tld)		0.625	0.282	0.397	0.470	0.258	0.361	0.020	0.980	0.916	0.484
	N	22	13	13	13	13	13	13	13	22	22	22
Pearson Correlations of Cryptocurrency Perceptions and Usage to Belief in Current Country as a Democracy												
		govdem	heard	own	expect	evangelist	pragmatist	skeptic	prospector	ATM	interest	nodes
govdem	Pearson Co	1	-0.224	-0.391	-0.505	-.612*	.755**	0.452	-0.504	0.065	-0.146	0.257
	Sig. (2-tld)		0.463	0.187	0.079	0.026	0.003	0.121	0.079	0.774	0.515	0.249
	N	22	13	13	13	13	13	13	13	22	22	22
Pearson Correlations of Cryptocurrency Perceptions and Usage to Confidence in Current Government												
		con govt	heard	own	expect	evangelist	pragmatist	skeptic	prospector	ATM	interest	nodes
confid in govt	Pearson Co	1	-0.037	0.314	0.137	0.065	0.188	-0.153	-0.335	-0.033	-0.023	0.089
	Sig. (2-tld)		0.905	0.295	0.656	0.833	0.539	0.617	0.263	0.882	0.921	0.693
	N	22	13	13	13	13	13	13	13	22	22	22
Pearson Correlations of Cryptocurrency Perceptions and Usage to EIU Democracy Index												
		EIUDI	heard	own	expect	evangelist	pragmatist	skeptic	prospector	ATM	interest	nodes
EIUDI	Pearson Co	1	-0.225	-.876**	-.844**	-.850**	.764**	.772**	-0.351	0.163	-0.315	0.235
	Sig. (2-tld)		0.421	0.000	0.000	0.000	0.001	0.001	0.199	0.407	0.102	0.228
	N	28	15	15	15	15	15	15	15	28	28	28
*. Correlation is significant at the 0.05 level (2-tailed).												
**. Correlation is significant at the 0.01 level (2-tailed).												

Regressions of Cryptocurrency Perceptions and Usage to Trust Metrics – Generalized Trust/Evangelist

Generalized Trust/Evangelist Regression Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Sq Chg	F Chg	df1	df2	Sig F Chg	
1	.848[a]	0.719	0.694	0.33117	0.719	28.208	1	11	0.000	1.711

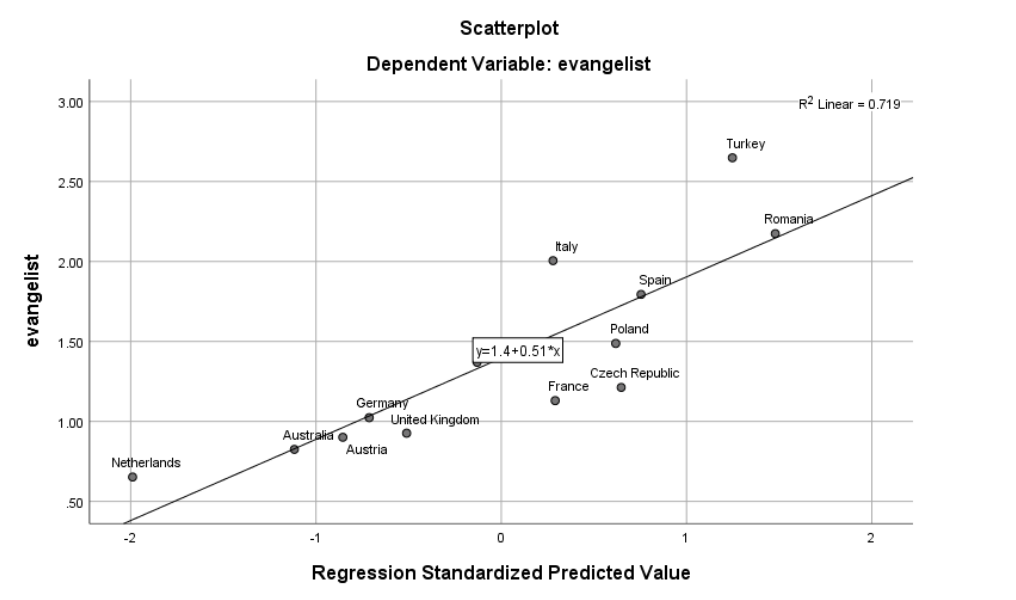
a. Predictors: (Constant), gen trust

b. Dependent Variable: evangelist

Generalized Trust/Evangelist Regression Model Coefficients[a]

Model		Unstnd Coeff.		Stnd Coeff		
		B	Std. Err.	Beta	t	Sig.
1	(Constant)	2.379	0.207		11.514	0.000
	gen trust	-0.030	0.006	-0.848	-5.311	0.000

a. Dependent Variable: evangelist



Regressions of Cryptocurrency Perceptions and Usage to Trust Metrics – Out-group Trust/Evangelist

Out-group Trust\Evangelist Regression Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Sq Chg	F Chg	df1	df2	Sig F Chg	
1	.661[a]	0.437	0.385	0.46933	0.437	8.522	1	11	0.014	2.169

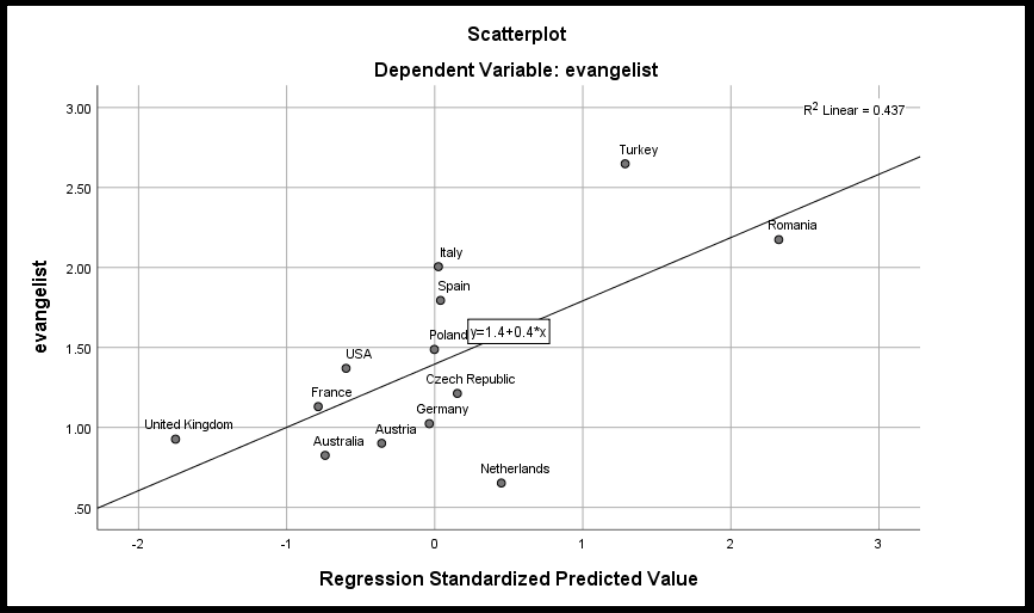
a. Predictors: (Constant), out-group

b. Dependent Variable: evangelist

Out-group Trust\Evangelist Regression Model Coefficients[a]

Model		Unstnd Coeff		Stnd Coeff		
		B	Std. Err	Beta	t	Sig.
1	(Constant)	5.516	1.417		3.892	0.003
	out-group	-0.576	0.197	-0.661	-2.919	0.014

a. Dependent Variable: evangelist



Regressions of Cryptocurrency Perceptions and Usage to Trust Metrics – Democracy Index/Evangelist

EIUDI/Evangelist Regression Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Err. of the Est	Change Statistics					Durbin-Watson
					R Sq Chg	F Chg	df1	df2	Sig F Chg	
1	.850[a]	0.722	0.700	0.32648	0.722	33.713	1	13	0.000	1.675

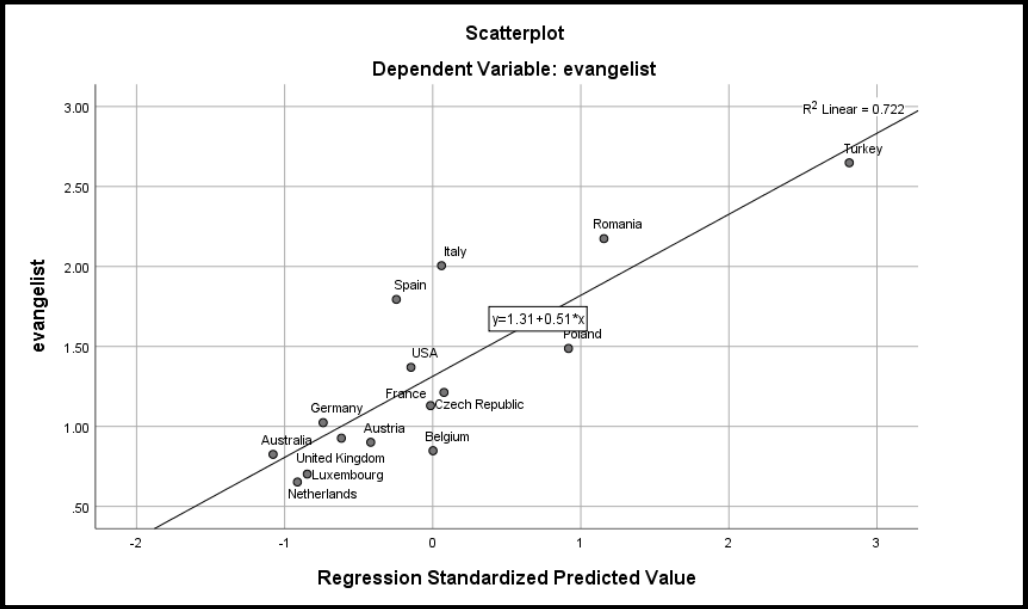
a. Predictors: (Constant), EIUDI

b. Dependent Variable: evangelist

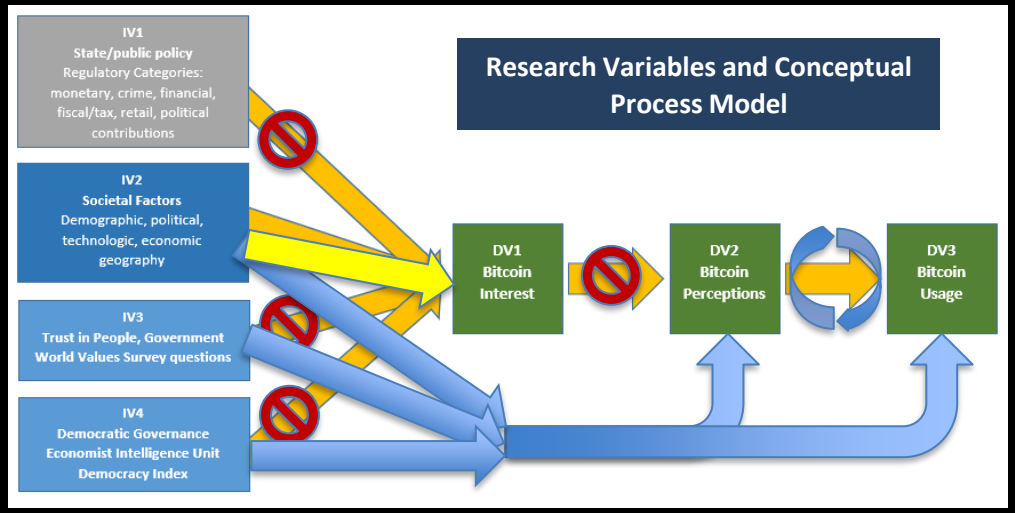
EIUDI/Evangelist Regression Model Coefficients[a]

Model		Unstd Coeff		Std Coeff		
		B	Std. Err.	Beta	t	Sig.
1	(Constant)	4.564	0.566		8.062	0.000
	EIUDI	-0.418	0.072	-0.850	-5.806	0.000

a. Dependent Variable: evangelist



Resultant Interaction Model



Strong and Statistically Significant Pearson Correlations Between Selected Independent Variables and Google Search Interest in Bitcoin

		Int.	Gini	Online Readi.	Crime Homi.	Crime Feel Sfe	Net Mig. Rt	Dens.	Con arm frc	Confid. police	Confid. courts
Int.	Pearson Co	1	.485*	-.536**	.756**	-.618**	-.451*	-.410*	-.473*	-.448*	-.431*
	Sig. (2-tld)		0.010	0.003	0.000	0.004	0.016	0.030	0.026	0.036	0.045
	N	28	27	28	20	20	28	28	22	22	22

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Conclusion

- Bitcoin and other cryptocurrencies complex but technologically sound
- Challenged the “universal equivalent” theories of state currency systems
- New life to currency systems as social constructs
- What are the contours of currencies as social constructs, how can we know?

Conclusion

- A matrix of trust and control can explain all currencies
- Tested with interest, perceptions, and usage of Bitcoin and cryptocurrencies and policy, trust, and socio-economic variables in 28 countries
  - Low generalized and out-group trust predicts Bitcoin perceptions and usage
  - Belief in and existence of democracy predicts Bitcoin perceptions and usage
  - Mutually exclusive categories of currency perceptions and usage: Evangelist, Skeptic, Pragmatist, Speculator
  - Policy does not predict Bitcoin and cryptocurrency perceptions and usage – but what is policy? Lead or lag? Enabling or controlling?

Other Findings

- U.S. political support for Bitcoin and cryptocurrency appears to be more significant than all other countries
- Bitcoin nodes and ATMs are unusually uncorrelated to other perceptions and usage but correlated to GDP and gold reserves
- Comparisons among generalized, in-, and out-group trust is only recently available for research, Bitcoin and cryptocurrency are appearing concurrent with these, is that a coincidence?

Broader Implications

- Begin to understand the phenomena of digital currencies and thereby help inform future public policy decisions
- Contextual model for non-national, perhaps digital, or central bank digital currencies' potential to supplement or supplant existing socio-economic values and exchanges
- Predictive power for potential for disruption in currency systems similar to other P2P platforms (eBay, retail, Uber, Etsy)

Areas and methods of future study

- Overcome limitations of this initial research
- Broaden sample countries, include more regions of the world (Latin America, Africa, Asia)

- Unify datasets and variables, include more interest and awareness for exploring the interaction model

- Partner with trade- and industry-focused companies for continued, rigorous social science research on socio-economic value and exchange, to include digital currencies

Questions & Feedback