VIRTUAL PROPERTY AND GOVERNANCE STRUCTURES WITH BLOCKCHAIN

Antoon Spithoven*

Abstract: I combine Thorstein Veblen's "diagnostic" approach with John R. Commons' "remedial" approach to analyze virtual property. I focus my analysis on public blockchain based discreet assets. I conclude that the failure to fulfill two of the libertarian promises (namely, decentralized and trustless finance) does not discredit blockchain technology as such. Permissioned blockchain has promising applications. However, virtual property that is based on public blockchain facilitates extraction of value that must be politically and juridically regulated together with empowering citizens.

Keywords: Institutional Economics (Commons and Veblen), Property rights, cryptocurrency, NFTs, blockchain

JEL Classification Codes: B52, E42, O3

Thorstein Veblen and John R. Commons developed their institutional approach facing a world in turmoil and rising *intangible* property. Now, with going concerns in turmoil again and a rise of *virtual* property, institutional economists are challenged to analyze socio-economic governance. Contemporary concerns include, inter alia: geopolitical tenses, climate change, environmental pollution, biodiversity loss, violation of human rights, and spreading of unproven conspiracy theories.

At first sight, virtual property has characteristics of intangible property as defined by Commons, namely of a phenomenon "which harmonises opposing interests in market exchange" (Endres 1985, 643). However, virtual property might be classified as a new type of property because of an unequal relation between market parties which relation enables extraction of value.

Virtual property has two manifestations. First, it appears in the form of digital data. Virtual property in the form of grabbed and exploited digital data is mainly controlled by "self-regulating" big corporations like Meta and Google (Zuboff (2019, 102, 108). Second, virtual property appears in the

form of easy to hide (that is, discreet) assets based on blockchain—that is, a chain of secured digital information through encryption and decentral/distributed recorded time stamped updates.

Public blockchain based discreet assets (abbreviated as discreet assets) might be analyzed by applying Veblen's and Commons' conflicting approaches. Veblen's approach is diagnostic in character[1] and does not theoretically convergence Commons' "remedial" approach (see Table 1). Nevertheless, both approaches are applicable to analyze discreet assets by assuming that humans not only differ[2] and evolve in inclinations (for example, regarding adopting new institutions), attitudes, knowledge, and behavior, all fashioned by society, but that one and the same person also may exhibit different behaviors at performing different roles.

From the perspective of Veblen, discreet assets are discredited due to negative externalities (carbon footprint, facilitating predatory behavior, and big income differentials). Additionally, public blockchains do not meet two of the libertarian promises (namely, decentralized and trustless finance (meaning, there are no third parties involved)). The other libertarian promises are that governance with public blockchain is: transparent; permissionless; pseudonymous, and; censorship resistant (https://www.bitcoin.com/get-started/what-is-bitcoin/).

Negative externalities of public blockchains and failures to fulfill libertarian promises do not invalidate other applications of blockchain technologies. From the perspective of Commons, public blockchain deficiencies might become mitigated by regulation to fight fraudulent actors, strong supervision and enforcement, while permissioned blockchain might have promising applications in relational contracts. Relational contracts with blockchain are a governance structure (Davidson, de Filippi, and Potts 2018, 654)—which is, in terms of the American Institutional Economics a going concern (Spithoven 2019a, 442)—complementary to commons, markets, firms, and the government.

Finally, in addition to rising permissioned blockchain applications, blockchain evangelists propagate blockchain not only for governance of finance but also for transforming the internet into Web3,[3] that is, an internet of Decentralized Autonomous Organizations (DAOs), and/or the metaverse

where users digitally interact and participate through apps in immersive worlds composed by Artificial Intelligence, Augmented Reality, and Virtual Reality.

Negative externalities, the falling short of libertarian promises, and the prospected applications of permissioned and public blockchain urge for a closer look at realized applications, in casu, discreet assets.

Virtual property

Virtual property is comprised of 1) one's digital twin (in the form of one's history on the Internet (of things), 2) data derived from gadgets such as smartwatches and smartphone, 3) personally added online data or digital artefacts such as fashion-items that avatars wear in games, and 4) discreet assets in the form of cryptocurrency and non-fungible tokens (nfts)—that is, unique codes stored on blockchains and optionally combined with a smart contracts, providing access to digital representations of real assets. Smart contracts are digital contracts with codified terms of arrangements regarding nfts or other applications (such as, supply chain documentation and governance of DAOs).

Regarding internet platforms, "socio-economic relations between providers and users of economic platforms reflect a situation of an unequal reciprocity between liberty and exposure: the provider of digital access is in reality immune while the user is disabled because of social-network dependence" (Spithoven 2022, 541). Providers of digital access are able to extract and exploit data, and "nudge" individuals (as became known by the scandal of Cambridge Analytica and Facebook (Zuboff 2019, 272-281)).

Regarding discreet assets, relations of providers and buyers/users reflect also unequal reciprocity between liberty and exposure. Validators of crypto transactions (miners) and intermediaries (exchanges) may make money through speculation and transaction fees, respectively payments for computational power and payments for a discount and for transfers of cryptos or smart contracts. Within games, unequal reciprocity exists in the form of gamers becoming socially "pressed" to buy nfts to impress fellow gamers.

Providers of (play-and-earn) games may monetize games by extracting income from selling nfts that fits the game or flatters an avatar.

Because cryptocurrency lack the purchasing power of gold and because cryptocurrency are not collateralized, cryptocurrency do not reflect any value: there is no underlying asset to anchor the safety of cryptocurrency. The value of virtual property in the form of cryptocurrency represents extracted value from buyers through transaction fee-skimming and speculation, and cryptocurrency demand (value) boosting activities such as extortion through ransomware, Initial Coin Offering (ICO) scams, blackmail scams, pumps and dumps, and money laundering. However, notwithstanding that "cryptocurrency-based crime hit a new all-time high in 2021 … the yearly trends suggest that … crime is becoming a smaller and smaller part of the cryptocurrency system … [while] money laundering accounted for just 0.05% of all cryptocurrency transaction volume in 2021" (Grauer, Kueshner, Updegrave 2022, 3-5).

Virtual property in the form of an nft is nothing more than a link to a digital asset which is exchanged with cryptocurrency as a means of payment. The licenses provided by several nft platforms, as they are described in the terms of service, provide the owner buyer the right to display the asset or piece of art, while copies of the digital asset are costless accessible for everyone, and the right to sell the tokenized piece.

Nfts are likely to become included in games. An nft of digital art or a digital representation of a physical asset, might be combined with services such as access to exclusive chatrooms and online parties. The services contribute to: 1) the aesthetical value of nfts, and 2) "the pleasure of collecting, of exhibiting, of ownership and display" (Dewey 1934, 10). Consequently, additional nft-services and nft-gadgets (such as, hologram-nft crystal display cases) facilitate bradding on twitter over being the owner of particular digital assets, and of speculating on rising prices of nfts.

Nfts resemble art as is approached by Veblen. According to Veblen (1934, 129), the utility of art "to the possessor is commonly due less to their intrinsic beauty than to the honor which their possession and consumption confers, or to the obloquy which it wards off [… and] gratifies the possessor's sense of

pecuniary superiority." From this perspective, virtual property in the form of nfts represents extracted value from buyers who may brag over ownership and may signal pecuniary superiority.

Evolving blockchain ecosystems

A wide range of developments strengthen the ecosystems of cryptocurrency (Spithoven 2019a). For example, two new uses of cryptocurrency (namely for nfts, which hyped in 2021, and in Decentralized Finance (DeFi)) strengthen the ecosystems of cryptocurrency. The DeFi ecosystem is based on blockchain technology, uses governance tokens, and aims to provide cryptocurrency based financial products and services (such as lending, borrowing, asset management, swapping currencies, exchange) (see Chainalysis Web3 report June 2022). DeFi establishes a framework for (play-to-earn) gamers in so-called DAOs to earn money through Nfts. DAOs represent governance structures, based on smart contracts using token governance rules. The tokens (cryptocurrency) within a DAO give right to vote on governance proposals. Finally, Defi includes cross-chain bridging, that is, the exchange of discreet assets from one blockchain network to another.

Other developments that strengthen cryptocurrency ecosystems are: the rise of several new currencies; cryptos deepening ties to banks and institutional investors such as pension funds; the use of cryptos for pseudonymous transactions; approval of Bitcoin Futures and Bitcoin spot Exchange Trading Funds; technical improvements such as that of the specifications for Ethereum applications (ERC-standards) and improvements resulting in for example the Lightning Network (an added layer to Bitcoin to speed up transactions); crypto-advertisements in traditional media and through sponsoring of sports teams and venues; the trade of nfts by respectable auction houses such as Sotheby's and Christies; the issuance of crypto stamps in Austria (2019) and the Netherlands (2022); the embedment of cryptos and nfts in a blockchain based version of internet (Web3) and different metaverses under construction (among others, by the strategic partnership between Google cloud and Coinbase), and; last but not least, regulation by governments.

All above mentioned developments might ingrain cryptocurrency in our minds as a "normal" currency and consequently turn cryptocurrency in a keeper,[4] notwithstanding: their (and nfts) volatility in prices; the discrediting of DAOs in 2017 due to dubious Initial Coin Offerings; negative externalities such as the carbon footprint of mining, and; lack of serviceability of discreet assets for commoners. With rising public blockchain applications and crypto ecosystem's survival of several scandals and criticism, neoliberal ideology and policies are gradually creeping into society and economy.

Governance of virtual property

Decentralized and trustless finance is promised by libertarian crypto evangelists. However, despite a forteen year experience with discreet assets, both characteristics are far from being realized.

Decentralization

The blockchain system of Bitcoin expunges coordination processes that build open democratic societies such as social trust or loyalty in favor of markets, while tendences of concentration and centralization of crypto businesses are antithetical to libertarian ideals. There exists several examples of centralization and concentration tendencies in the crypto world:

- 1) the Hash power (that is, the computational speed of a computer's graphics card) with which validators add a blockchain is highly concentrated (O'Hanlon 2020);
- 2) ownership of cryptocurrency is highly concentrated (see Table 2);
- 3) large centralized exchanges, for example OpenSea (nfts), Coinbase and Binance (cryptocurrencies and nfts), fulfill a central role in the selling and buying of nfts;
- 4) gateways to cryptos are dominated by centralized finance organizations such as BlockFi and Celsius Network;
- 5) "bigger cryptocurrency businesses are growing and surviving at a higher rate than smaller ones (Chainalysis 2021,10);

- 5a) Defi activities eclipse "activity on centralized services." (Chainalysis 2021,8);
- 6) though DAOs operate on blockchains with the help of multiple complex smart contracts that encode the operating rules of DAOs, decision making in DAOs is based on size of stakes. This implies that the biggest stakes have the strongest voice;
- 6a) not only DAOs are based on the Proof of Service verification protocol but also the platform Solana, with projects spanning DeFi, NFTs and Web3, and (since September 2022, Chainalysis Team 2022) crypto Ethereum through which several nfts are traded;
- 7) the likelihood is quite high that a blockchain based internet (Web3) will once again lead to the formation of a limited number of mega-corporations that will grab the bulk of the profits and power; the Metaverses under construction by the big corporations such as Meta and Microsoft are likely far from the libertarian ideal of decentralized entities (Marr 2022).
- 8) stablecoins based on the Proof of Reserve (PoR) protocol are neither decentralized nor transparent: namely, the PoR protocol implies that one company mints and or (algorithmically) manages the supply.

Trustless finance

Trustless finance is far from realized because of the role of stablecoins for cross-chain bridging, and because of the necessity to regulate the crypto world.

Stablecoins

With thousands of different currencies and volatile prices, swapping or exchanging discreet assets is impractical. Therefore, swapping is lubricated with so called stablecoins—that is, cryptocoins whose exchange rates are pegged to fiat money, and/or gold and silver, collateralized by other cryptocurrencies, or collateralized by an algorithmic ecosystem. One of the stablecoins to trade in Bitcoin is Tether, launched in 2014 and pegged to the dollar. Indirectly, the Bitcoin is dependent on a currency that is

centrally issued, namely the US$. An example of an "algorithmic" stablecoin is Terra (Luna). Price stability of Terra comes from an algorithm. If the value of Terra drop, her sistercoin Luna is swapped for Terra tokens to stabilize the price again. Notwithstanding all governance arrangements, with the crash of the stablecoin Terra in May 2022 stablecoins have proven to be unstable and a risk for financial systems. The pegging of stablecoins to fiat money implies that discreet assets are indirectly dependent on trusted institutions.

Regulation

The presence of big companies, concentration of businesses, and unequal distribution of discreet assets erode the libertarian promise of decentralized governance with blockchain and require further regulation, strong supervision and enforcement to ward off fraudulent actors. Also, other negative externalities require intervention by third parties.

1) Crime and money laundering are already mentioned; Defi specialized autonomous programs or protocols "have accounted for an ever-growing share of all funds stolen from cryptocurrency platforms since the beginning of 2020, and lost the vast majority of stolen funds in 2021. As of May 1, DeFi protocols account for 97% of the $1.68 billion worth of cryptocurrency stolen in 2022." (See Chainalysis Web3 report June 2022);
2) The bankruptcy of the Three Arrow Capital hedge fund, the collapse of the Exchange FTX, and ICO-scams (Reiff 2022; Sharma 2022) such as the crypto Ponzi schemes Onecoin[8], Bitconnect, Plus Token, Gain Bitcoin, Mining Max, and the Celsius Network[7] undermine trust in cryptos.
3) Excessive energy consumption of mining of cryptocurrency and nfts is irresponsible regarding climate conservation (see de Vries 2022);[9]

In order to address negative externalities, cryptocurrency have become subject to different regimes. Cryptocurrency activities are: 1) banned to be served by financial institutions in China; 2) more and

more regulated in the European Union with the proposed Markets in Crypto Assets (MiCA) law and suggested supplementary DeFi regulations; 3) treated as legal property in Japan;[5] 4) legalized in El Salvador and the Central African Republic; 5) regulated in the United States of America in a way that risks are balanced with tapping benefits of blockchain technologies, and; 6) addressed with plans everywhere to create "competitive" Central Bank Digital Currencies.[6]

Also new developments such as metaverses under construction seem to require (preempting) regulations. Metaverses are significant markets with a high potential (Wise 2022a; 2022b) but also with high privacy and value extracting risks. To enter the metaverse one need a digital representation of yourself that "lives" on your digital data and may interact with other avatars or digital characters. You create your own avatar, add data and buy attributes to "dress" your avatar. This raises several issues to be settled: who owns your avatar and data, has your avatar its own rights, does your avatar die when you pass away, and, with different metaverses, how can be arranged that you enter them with the same avatar.

Laws and, in line with this, rules decreed by governments should become updated and applied to better suit modern economies with rising virtual property in general and discreet assets in particular. However, governmental regulation of virtual property, strong supervision and enforcement are not enough to fight fraudulent actors as is recognized by Commons (1934, 695) with his concepts/principles[10] of reasonableness and of analytical and functional jurisprudence. Reasonableness is the consulting all stakeholders and fairly weighing all stakes for the public purpose. Analytical and functional jurisprudence includes authorization and materializing the substantive powers of citizens, law enforcement executives and frontline officers to tackle crypto head on. Empowerment implies that public governance is flanked with ethical business and politics, and with education that addresses the pros and cons of so-called public-blockchain based products. Citizenship education has to become revitalized not only at schools but also in social, political, and religious organizations. Ethical businesses have to be reluctant with accepting advertisements and sponsoring by businesses that want to promote

public-blockchain based products, while politicians should be reluctant to accepts sponsoring by these businesses.

Conclusion and discussion notes

In contrast to the libertarian promise of decentralized and trustless governance, the reality of governance of cryptocurrency and of cryptocurrency's use for nfts and in DeFi reveal that blockchain governance of discreet assets is far from being decentralized and trustless. A ban on trade in discreet assets might harm successful innovation in blockchain governance, platform development (Web3), applications (for example, games), and autonomous protocols (for example providing guidance with Artificial Intelligence to workers as they navigate challenges), while deficiencies of governance protocols and opportunistic exploitation of discreet assets require regulation, strong supervision, enforcement and empowerment of citizens. Adjacent, continuous monitoring, assessment and possibly adjustment is necessary to keep the regulation up to date.

Neither negative externalities nor illegal applications discredit blockchain technology as such but challenge blockchain governance. Promising positive examples concern several (big) software providers which have already developed blockchain applications to manage logistic processes and international supply chains. Supply chain governance with blockchain seems to facilitate efficiency, an ethical and sustainable sourcing, and detecting counterfeit and fraud (European Commission 2021). According to providers of software, governance in permissioned blockchains is already successful in worldwide and within corporations' supply chain governance and interbank financial settlements.

Footnotes

* Antoon Spithoven (a.spithoven@uu.nl) is emeritus research fellow at the Utrecht University School of Economics Rese arch Institute.

1) Veblen only incidentally provided solutions for ails. At the risk of ignoring justifiable interests, Veblen proposed that industries should not be managed by entrepreneurs who are controlled by corporation financiers but should be governed by a board of only technicians (Appiah 2021, 54; Veblen 1921, 166). Anno 2023, the trust in technicians might imply that in a few decades we could find ourselves in an artificial intelligence-based dystopian robot dictatorship.
2) It is a misconception to assume only one motive at work in economics. An economist should include conflicting reasons or purposes and values of people's activities "under all the variable conditions of time and place" (Commons 1934, 719, 723), different characters and age of agents. For example, elderly are more likely than youngsters to stick to "obsolete" institutions.
3) Web3 is the third major change of the Internet after the user-consumer web (web1) and the user-generated or social media web (web2).
4) At least until around the year 2140. Namely, willingness is embedded in the concept/principle (see footnote 10) of cryptocurrency: Namely, all 21.000.000 Bitcoins (each Bitcoin equals 100.000.000 Satoshi) are programmed to be mined all in the year 2140; Bitcoin evangelists, who resemble cult-like brainwashers, are likely to upheld the libertarian promises while addressing occurring problems.
5) And in June 2022, the Upper House of Japan's parliament legalized stablecoins and imposed a mandatory peg to the yen (Lewis and Inagaki 2022).
6) Central Bank Digital Currencies are issued by Central Banks, whereas cashless money is issued by commercial banks and crypto currencies are issued by commercial organizations.
7) The multi-level-marketed Onecoin was a fake-cryptocurrency because Onecoin was not build on blockchain technology.
8) The centralized finance Celsius Network operates as a technically Ponzi scheme by paying investors with investments by other investors. In June 2022, Celsius froze on all assets in its

accounts, following the collapse of Luna/Terra (Oliver, Chipolina and Shubber 2022, 15). It reveals that a problem occurring in one chain of the complex interlinkages of the crypto financial system affects other chains. According to Paul Krugman (2022) "crypto evolved into a sort of postmodern pyramid scheme. The industry lured investors in with a combination of technobabble and libertarian derp; it used some of that cash flow to buy the illusion of respectability, which brought in even more investors."

9) If nfts become popular again, it is also thinkable that, given the unequal wealth distribution of cryptos, expensive famous offline art might become destroyed to manipulate the price of the digital representation to rise. Example is Frida Kahlo's "Fantasmones Siniestros" and Damien Hirst's "De Valuta" (The Currency).

10) "A concept is a similarity of attributes, . . . a principle is a similarity of motions . . . [such as] a cause, a reason" (Commons, 1934, 735).

References

Appiah, Kwame Anthony. January 14, 2021. "The Prophet of Maximum Productivity." *The New York Review of Books*. 68 (1): 51-54.

Broda, Philippe. 1998. "Commons versus Veblen on the Place of the Individual in the Social Process; A Case of Methodological Divergence." Pp 210-230 in Rutherford, Malcolm (editor). *The Economic Mind in America: Essays in the History of American Economics*. New York, London: Routledge.

Chainalysis. 2021 *Cryptocurrency Exchanges in 2021; A Competitive Landscape Analysis November 2021*. www.chainalysis.com. Accessed May 27, 2022.

Chainalysis. 2022. *State of Web3 Report. June 2022*. www.chainalysis.com. Accessed June 30, 2022.

Chainalysis. Team 2022. How The Ethereum Merge May Impact the Crypto Ecosystem: On-chain Indicators to Watch. September 7, 2022. https://blog.chainalysis.com/reports/ethereum-merge/. Accessed September 12, 2022.

Commons, John R. 1934 [1990]. *Institutional Economics. Its Place in Political Economy. With a New Introduction by Malcolm Rutherford*. New Brunswick (U.S.A.) and London (U.K.): Transaction Publishers.

Davidson, Sinclair, Primavera de Filippi, Jason Potts. 2018. "Blockchains and the Economic Institutions of Capitalism." *Journal of Institutional Economics* 14 (4):.639 - 658.

De Vries, Alex. 2022. "Bitcoin ... Ethereum ... Dogecoin Energy Consumption Index." *Digicomist* https://digiconomist.net/. Accessed June 6, 2022.

Dewey, John (1934/1958). *Art as Experience*. Fourteenth Impression. New York: Capricon Books.

Endres, A.M. 1985. "Commons and Veblen on Goodwill: A Case of theoretical Divergence." *History of Political Economy* 17 (4): 637-649.

European Commission. 2021. "European Blockchain Strategy—Brochure" https://digital-strategy.ec.europa.eu/library/european-blockchain-strategy-brochure. Accessed June 24, 2022.

Grauer, Kim, Will Kueshner, Henry Updegrave 2022. *The Crypto Crime Report 2022.* Chainalysis www.chainalysis.com. Accessed February 2, 2022.

Kharif, Olga. 2020. "Bitcoin's Network Operations are Controlled by Five Companies." https://www.bloomberg.com/news/articles/2020-01-31/bitcoin-s-network-operations-are-controlled-by-five-companies. Accessed May 28, 2022.

Krugman, Paul. 2022. "Crypto Is Crashing. Where Were the Regulators?" *The New York Times - International Edition* (July 14)

Lewis, Leo and Kana Inagaki. 2022. "Japan Passes Stablecoin Law Giving Protection to Investors." *Financial Times Weekend* (June 4/5): 11.

Marr, Bernard. February 222, 2022. "The Important Difference Between Web3 and The Metaverse." https://www.forbes.com/sites/bernardmarr/2022/02/22/the-important-difference-between-web3-and-the-metaverse/. Accessed May 20, 2022.

O'Hanlon, Simon. April 14, 2020. "Centralisation in Bitcoin Mining: A Data-Driven Investigation." https://medium.com/tokenanalyst. Accessed May 28, 2022.

Oliver, Joshua, Scott Chipolina and Kadhim Shubber. 2022. "Crypto feels the shockwaves from its own 'credit crisis'." *Financial Times Weekend* (June 25/26): 15.

Reiff, Nathan. 2022. "How to Identify Cryptocurrency and ICO Scams." https://www.investopedia.com/. Accessed June 15, 2022.

Spithoven, Antoon. 2019a. "Theory and Reality of Cryptocurrency Governance." *Journal of Economic Issues* 53 (2): 385-393.

Spithoven, Antoon. 2019b. "Similarities and Dissimilarities between Original Institutional Economics and New Institutional Economics." *Journal of Economic Issues* 53 (2): 440-447.

Sharma, Toshendra Kumar. 2022. "A Comprehensive Guide on ICO Scams and How to Identify Them." https://www.blockchain-council.org/. Accessed June 15, 2022.

Spithoven, Antoon. 2022. "Third Way to Go: An Update of John R. Commons's Approach." *Journal of Economic Issues* 56 (2): 537-545.

Veblen, Thorstein. 1904 [1916]. *The Theory of Business Enterprise*. New York: Charles Scribner's Sons.

Veblen, Thorstein. 1919.*The Vested Interests and the Common Man*. New York: B, W. HUEBSCH, lnc.

Veblen, Thorstein. 1921."A Memorandum on a Practicable Soviet of Technicians." Pp. 138-169 in: *The Engineers and the Price System*. New York: B, W. HUEBSCH, lnc.

Veblen, Thorstein. 1934. *Theory of the Leisure Class, with a Foreword by Stuart Chase*. New York N.Y: Modern Library.

Wise, Jason. 2022a. "How Big is the Metaverse? (Latest 2022 Data." https://earthweb.com/how-big-is-the-metaverse/. Accessed May 25, 2022.

Wise, Jason. 2022b. "Metaverse Statistics 2022: Market Size & Industry Growth Predictions." https://earthweb.com/technology/internet/. Accessed May 25, 2022.

Zingler, Ervin K. 1974. "Veblen vs Commons; A comparative Evaluation." *Kyklos* 27 (2):322-344.

Zuboff, Shoshana. 2019. *The Age of Surveillance Capitalism.* London (UK): Profile Books Ltd.

Table 1: Differences between the approach by Thorstein Veblen and Joh R. Commons

Issue	**Veblen**	**Commons**	**source**
angle of research	social and economic diagnostics	conflict resolution	Appiah 2021, 54; Commons 1934
concept/principle of science	coincides with that of the physicial sciences. It ignores all future in the investigation of facts	reasonable value theory "in its pragmatic application" . . . is "a theory of social progress" ... "harmonises opposing interests in [competititve] market exchange" . . . "under the rule of public purpose which requires equality of treatment"	Commons 1934, 4, 649, 654, 874
time	"could not handle the distinction between a *flow* of time and a *lapse* of tike"	"A 'flow' is a moving point of time, without measurable dimensions, between the incoming future and the outgoing past. But a lapse of time is an interval between two points of time."	Commons 1934, 674
covered fields	economic development and growth	economic development and growth; economic analysis and theory; economies, and systems of organization	Commons

interpretation of pragmatism	followed William James who applied the concept/principle of pragmatism to individual psychology	followed John Dewey who applied the concept/principle of pragmatism to social psychology	Commons 1934, 654
governance	soviet of technicians replace entrepreneurs	analytical and functional jurisprudence (with law and economics intertwined and empowering all stakeholders)	Veblen 1921, 166; Commons 1934, 694-695
evolution	Darwinian natural selection through the forces of the instincts workmanship and idle curiosity (knowledge for its own sake)	artificial selection	Zingler 1974, 326; Commons 1934, 657
individual behavior	ceremonial and instrumental behavior	volitional under the influence of collective action	Broda 1998, 210; Zingler 1974, 324, 327
technology	determines men's habits of thought	it is not technology that determines human will and governance, but human will and governance that determines technology	Veblen 1919, 39, 214; Commons 1934, 634-635
institutional development	institutions evolve in interaction with technology	future oriented institutions and economy coevolve, whereas institutions and individuals continuously mutually interact	Spithoven 2019a, 441-442; Commons 1934, xviii

source of change	instinct of workmanship holds to a purpose in focusing on the adaptation of means and ends to institutions	working rules partly condition individual conduct but it also can be clever—that is, institutions are future oriented	Broda 1998, 215, 216; Commons 1934, 661;
legal-economic nexus	politics is business politics and equals therefore corrupt politics	politics pursues protection	Veblen 1904, 268; Commons 1934
power	acquisitive desire to establish monopoly power at the cost of competition	(bargaining) power may result in protection (of labor)	Zingler 1974, 338
going concern	coincides with shops and plants, at which own pecuniary interests and not the workman and engineers are the going concern of the absentee owners and their hired managers	social custom and law provide a framework to address the disharmony from the clash of interests	Veblen 1904, 18; 1919, 38; Commons 1934, 661
intangible property value	intangible property rights have no usefulness but mainly restrict the usufruct and therefore obstruct competition; intangible property has an exploitative	intangible property is "the whole market value of the stocks and bonds based on the expected earning capacity of the corporation as a going concern"	Endres 1985, 640, 643; Commons 1934, 650, 652

	hold-up value (differential rent)		

Table 2: Wealth distribution of cryptocurrency on May 28, 2022

cryptocurrency	**share of addresses**	**share of coins**	**total market value**
	in % of total	**in % of total**	**in $ at ± 13:30 PM CEST**
Bitcoin	2.01	94.33	550,401,480,423
Litecoin	0.52	89.58	4,451,310,322
Bitcoin cash	1.89	97.94	3,370,140,981
Dogecoin	0.81	94.98	10,797,824,811
Dash	0.64	88.94	600,617,856
Bitcoin gold	0.61	97.65	370,076,092
Reddcoin	1.51	88.75	10,326,541
Vertcoin	1.89	90.23	10,332,979
Feathercoin	1.54	94.32	1,777,201
Blackcoin	1.13	83.91	1,188,222

Source: "Richlist" from https://bitinfocharts.com/ and

https://coinmarketcap.com/