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Abstract

The growing importance of the cryptocurrency phenomenon has raised concerns about the ethical implications of a hypothetical widespread use of these new forms of digital money. In this paper, we undertake an ethical assessment of cryptocurrencies drawing upon two specific ethical theories: private property ethics and utilitarianism. Particularly, we focus on three distinctive aspects. First, we examine the advantages and disadvantages of cryptocurrencies vis-à-vis central-bank fiat money. Second, we analyze cryptocurrencies as facilitators of tax evasion and the ethical implications arising therefrom. Finally, we explore the use of cryptocurrencies for nefarious consumption. We conclude that, were cryptocurrencies to become widespread media of exchange, government capacity to undertake monetary, fiscal, and drug policy would be undermined. We argue that this would be an ethically desirable outcome from both a private-property rights and a utilitarian perspective since it would force governments to reduce their size and scope in these three areas.

Keywords**:** cryptocurrencies; tax evasion; illegal drugs; ethical implications; government; private property.

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1. Introduction

What are the ethical implications of a hypothetical large-scale use of cryptocurrencies? Despite having attracted much attention from academics since the emergence of blockchain technology a decade ago (Nakamoto, 2008), the analysis of cryptocurrencies from an ethical perspective had largely been neglected until the publication of Dierksmeier and Seele (2018), where the authors examine the *pros* and *cons* of cryptocurrencies from a business ethics point of view. In this paper, we expand on their analysis and undertake an ethical assessment of the cryptocurrency phenomenon, focusing on three aspects related to a potential widespread use of cryptocurrencies. First, we analyze the suitability of cryptocurrencies as currencies, emphasizing the advantages and disadvantages of cryptocurrencies over central-bank fiat money. Second, we examine cryptocurrencies as facilitators of tax evasion, and the ethical aspects arising from this. Finally, we explore the relationship between cryptocurrencies and nefarious consumption.

In order to carry out this task, we draw upon two different, although complementary ethical theories: private-property ethics and utilitarianism. We conclude that cryptocurrencies could limit the size and scope of governments in relation to monetary policy, tax and drug policy, which according to our analysis, should be considered an ethically desirable outcome. We contribute to the literature in two ways. First, we undertake a thorough ethical analysis of three key aspects related to cryptocurrencies, namely monetary policy, tax evasion, and nefarious consumption. Second, we resort to two complementary ethical frameworks in order to provide a deeper understanding of the moral dilemmas arising from large-scale use of cryptocurrencies as a means of payment.

The remainder of the paper is structured as follows. Section 2 briefly reviews the literature on cryptocurrencies. Section 3 presents the two ethical frameworks we resort to in order to analyze the ethical aspects of cryptocurrencies. Section 4 explores the ethical aspects of a potential widespread use of cryptocurrencies by focusing on three different dimensions: cryptocurrencies as money, tax evasion, and nefarious consumption. Section 5 explores the policy implications of our analysis. Finally, section 6 concludes the paper.

2. Literature review

The literature on cryptocurrencies has experienced substantial growth over the last decade. Numerous disciplines have focused their research efforts on analyzing these new forms of digital money. In the field of economics, numerous papers have been published. Yermack (2013) questions Bitcoin's capacity to become a widespread medium of exchange. Selgin (2015) and White (2015) examine the characteristics and implications of cryptocurrencies from a macroeconomic perspective. Dwyer (2015) provides a general overview of the economics of Bitcoin, the pioneering cryptocurrency. The empirical literature has focused on four main themes: the existence of bubbles in cryptocurrency markets (Cheah & Fry, 2015; Corbet, Lucey, & Yarovaya, 2018; Fry, 2018), the risk-return characteristics of cryptocurrencies (Brière, Oosterlinck, & Szafarz, 2015; Corbet, Meegan, Larkin, Lucey, & Yarovaya, 2018; Platanakis & Urquhart, 2019), price formation (Bouoiyour & Selmi, 2015; Ciaian, Rajcaniova, & Kancs, 2016; Kristoufek, 2015; Takaishi & Adachi, 2018; Urquhart, 2016), and the financial nature of cryptocurrencies as safe-haven commodities, speculative assets, or as currencies (Baur, Hong, & Lee, 2018; Blau, 2018; Bouri, Molnár, Azzi, Roubaud, & Hagfors, 2017; de la Horra, de la Fuente, & Perote, 2019; Glaser, Zimmermann, Haferkorn, Weber, & Siering, 2014).

Blockchain, the core technology of cryptocurrencies, has also been analyzed in the literature. Morisse (2015) reviews forty-two papers dealing with different aspects of blockchain from an IT perspective. The studies reviewed delve into a wide array of topics, ranging from protocol development and privacy to anonymity, profitability of mining, and energy footprint. More recently, Trautman (2016) explored both the current and the potential applications of this nascent technology to the financial industry.

Regulation is perhaps the aspect that has attracted most attention from the research community. Various papers have addressed the need to develop clear regulatory frameworks that incentivize the use of cryptocurrencies. Luther (2016) critically discusses three different justifications for regulating Bitcoin: protecting consumers against exchange volatility and security failures, tackling illegal transactions, and preventing governments and central banks from losing control over fiscal and monetary policy. Ducas and Wilner (2017) propose a *sandbox* regulatory framework for Canada that encourages the development of new innovations in this field. Rather than focusing on externally-enforced regulation, Filippi (2014) points out that market-based mechanisms could emerge as valid alternatives to government regulation.

Despite the spectacular growth in cryptocurrency research, the academic literature on the related ethics remains scarce. One pioneering study is that of Angel and McCabe (2015), who examine the ethical issues arising from the use of different payment methods, including Bitcoin. They conclude that ethical judgements cannot be applied to payment tools, but to the use people make of them. Bergstra and de Leeuw (2013) outline the main ethical concerns related to Bitcoin, some of which prove particularly relevant nowadays. The increasing resources needed for mining, the threat to privacy posed by its pseudonymity, or the risk that a few miners might monopolize the system are just some of them. The history of computer ethics in Vacura (2015) includes a brief section where

the author reviews the main academic papers dealing with the ethicality of cryptocurrencies. Martin and Christin (2016) address the ethical dimensions of the ever-increasing amount of research on cryptocurrencies. Scharding (2019) analyzes Bitcoin from the ethical framework developed by eighteenth-century philosopher Johann Gottlieb Fichte.

The limited literature available on the ethical aspects of cryptocurrencies has resulted in the virtual neglect of one crucial aspect: the ethical implications of possible large-scale use of digital currencies. In this regard two papers provide a starting point. Dierksmeier & Seele (2019) examine the blockchain technology upon which cryptocurrencies are based from an ethical perspective. Similarly, Dierksmeier and Seele (2018) undertake an ethical assessment of the potential consequences of a hypothetical widespread use of cryptocurrencies. Our paper goes in the same direction as Dierksmeier and Seele (2018) but differs from it in two crucial aspects. First, we approach the topic from both a deontological and utilitarian perspective, whereas Dierksmeier and Seele only provide a utilitarian analysis. Second, we carry out an in-depth ethical analysis of cryptocurrencies as facilitators of tax evasion and nefarious consumption. In contrast, Dierksmeier's and Seele's examination of these two issues is too concise and schematic.

3. Ethical frameworks

In this section, we briefly outline the two ethical theories we draw upon to undertake an ethical assessment of cryptocurrencies: private-property ethics and utilitarianism.

3.1. Private-property ethics

Private-property ethics has a long tradition going back to Aristotle, Roman law, St. Aquinas, and the Spanish scholastics (Hoppe 2006). In the seventeenth century, Locke

(1967) put forward a more systematic theory based on natural rights. More recently, authors such as Hoppe (2006), Nozick (1974) or Rothbard (1982) have elaborated on Locke's approach based on natural rights to develop their own theories of private property ethics.

Private property ethics is based on the principle of self-ownership, i.e. everyone is the owner of their own physical body. The homestead principle, found in Locke (1967), is a logical corollary of self-ownership: one can gain ownership of a natural resource that has no owner by making use of it. From these two basic precepts, we can derive the remaining principles of private-property ethics. First, people are allowed to dispose of their justly acquired property as they please, provided that the property of other human beings is not infringed upon. In other words, one can produce new goods using one's property and become their rightful owner. Second, one may exchange one's property with another person for goods and services as long as the exchange does not violate the rightful property of other human beings.

3.2. Utilitarianism

Utilitarianism is a consequentialist ethical theory which holds that the right action is the one that maximizes the wellbeing (happiness) and minimizes the misery (suffering) of those affected by the action. In its classical form, utilitarianism dates back to the works of the seventeenth and eighteenth century philosophers Jeremy Bentham and John Stuart Mill (Bentham, 1988; Mill, 2001). More recent versions of utilitarianism include rule utilitarianism (Brandt, 1968; Hooker, 2002), preference utilitarianism (Singer, 1993), negative utilitarianism (Popper, 2013), or motive utilitarianism (Adams, 1976). In this paper, we use a general version of utilitarianism that focuses on the consequences of an action in terms of wellbeing and suffering to determine whether the action is right or wrong.

In the following sections, we apply both ethical frameworks to the case of cryptocurrencies.

4. An ethical assessment of cryptocurrencies

Any ethical assessment of cryptocurrencies should be built on the premise that cryptocurrencies are not subject to ethical judgements *per se*. In effect, cryptocurrencies cannot be judged as morally good or bad simply because they facilitate the attainment of some ethical or unethical objective. As Angel and McCabe (2015) point out, an ethical judgment must be applied to the use of payment methods, not to the payment method itself. As digital forms of money, cryptocurrencies can be used for morally good or bad ends. Analogically, guns can be used for different aims. They can be used to kill innocent people, or to defend oneself against criminals. Therefore, the subsequent analysis of the ethical aspects of cryptocurrencies is based on the potential consequences of a widespread use of these new forms of digital money. Particularly, we examine three different dimensions: cryptocurrencies as money; cryptocurrencies as means to evade taxes, and cryptocurrencies as facilitators of nefarious consumption.

4.1. Cryptocurrencies as money

4.1.1. Ethical upsides: cryptocurrencies vs. central-bank fiat money

As opposed to central-bank fiat money, whose supply is arbitrarily determined by a centralized issuer, cryptocurrencies are not subject to money supply manipulation.[1] This reduces government control over money and spurs currency competition as envisioned

[1] This is not only true for cryptocurrencies with a fixed supply (e.g. Bitcoin) but also for cryptocurrencies with elastic money supplies (e.g. stablecoins).

by Hayek (1978) (Dierksmeier & Seele, 2018). From a utilitarian perspective, this feature endows cryptocurrencies with several advantages over central-bank fiat money.[2]

First, the creation of central-bank fiat money and its introduction into the loan market may exacerbate business cycles. New investments are financed through the production of new currency without any corresponding increase in the amount of real savings. This tends to trigger an artificial boom followed by an inevitable bust: malinvestments are liquidated and scarce resources wasted, with the subsequent negative impact on living standards.[3]

Second, central-bank fiat money tends to incentivize overindebtedness, which affects a society's culture. An overindebted society will tend to be more materialistic and short-term oriented. In contrast, as Ammous (2018) notes, a stable monetary system, such as a gold standard or a monetary system based on a cryptocurrency with an inelastic supply, lowers social time preference, i.e. it makes people more future oriented, fosters savings and leads to an economic, cultural and even artistic heyday.[4]

Third, our current monetary system allows for a massively unjust redistribution through money production. The first to receive the newly-produced money benefit to the detriment of the last receivers who are confronted with higher prices. This redistribution is particularly harmful to low-income segments of the population, who do not often own any assets to be used as collateral for new loans (Bagus and Marquart 2016; Hülsmann

[2] Cryptocurrencies, especially those with an inelastic money supply like Bitcoin, also have disadvantages from a monetary-theory perspective (de la Horra et al., 2019).
[3] For a detailed discussion of the so-called Austrian Business Cycle Theory, see Hayek (1967); Huerta de Soto (2006); Rothbard (2009); and Mises (1998).
[4] For the adverse cultural effects of central-bank fiat money, see also Bagus and Marquart (2016); Hülsmann (2008); and Hülsmann (2016).

2008; Hülsmann 2014). The advantage of cryptocurrencies with an inelastic supply (e.g., Bitcoin) is that they prevent massive redistributions through money production.[5]

Finally, cryptocurrencies enable users to undertake peer-to-peer financial transactions without the need for intermediaries such as banks. This means that cryptocurrencies can be used to circumvent our fractional reserve banking system, although they are not incompatible with this widespread banking practice.

4.1.2. Potential ethical downsides: volatility and deflation

From a utilitarian point of view, volatility and deflation are considered undesirable consequences of cryptocurrencies. Price volatility is usually considered a functional downside of cryptocurrencies that prevents them from fulfilling the store-of-value function of money.[6] However, this is not unethical *per se* as suggested by Dierksmeier & Seele (2018). It is true that cryptocurrencies are suitable financial assets to be used for speculative purposes, which is viewed by many as an unethical practice.[7] Yet they are also effective diversifying instruments, precisely due to their high volatility and low correlation with other assets (Corbet, Meegan, et al., 2018; Platanakis & Urquhart, 2018). As a result, they may be useful instruments to preserve one's wealth, which is an arguably ethical purpose.

Furthermore, Dierksmeier & Seele (2018) contend that the deflationary nature of cryptocurrencies would prove problematic for macroeconomic stability were these to become reserve currencies. However, the authors do not distinguish between demand-

[5] In contrast, cryptocurrencies that possess an elastic supply lack this advantage against central-bank fiat money. These cryptocurrencies are likely to fail the market test.
[6] Not all cryptocurrencies are highly volatile. So-called *stablecoins* are pegged to a reserve currency or a basket of assets or goods, thus reducing their volatility to a minimum.
[7] Despite their bad reputation, and contrary to conventional wisdom, speculators play an essential role in the economy, for instance, by improving the liquidity of financial markets.

side and supply-side deflation. Whereas the former may cause a deflationary spiral under certain circumstances, supply-side deflation (i.e., price deflation caused by economic growth) is a natural and beneficial event (Selgin 1997). Productivity-led economic growth tends to reduce unit costs of production, putting downward pressure on prices. This means that supply-side deflation does not negatively affect business margins and, as a result, the economy. Second, the expectation of falling consumer prices does not pose a problem for the general economy either, as production costs for companies may fall even faster than revenues (Bagus 2006; Bagus 2016; Hülsmann 2008). The high-tech sector is a good example of this. The expectation of falling prices (or increasing quality) has depressed neither investments nor profits in this sector. Due to time preference, consumers do not refrain from buying an iPhone X now even though they expect iPhone X+1 to be better at a similar price next year.

4.2. Cryptocurrencies and tax evasion

Some authors point out that the intrinsic nature of cryptocurrencies qualify them to become tax havens, facilitating tax evasion (Filippi, 2014; Marian, 2013). Yet is the use of cryptocurrencies for tax evasion purposes morally wrong? Tax evasion is generally considered an unethical practice.[8] The poor reputation of tax evasion seems to stem from the fact that it is considered a form of theft: tax evaders take ownership of resources that belong to society as a whole (Tamari, 1998). However, this interpretation is problematic from an ethical framework based on private property rights. It is the government (and not citizens) who uses or threatens to use force to take other people's property, which is the definition of theft. If this interpretation is correct, tax evasion would just be a legitimate

[8] Tax morale differs substantially among regions, such that attitudes towards tax evasion are not the same in all countries (OECD, 2014). However, there is a general tendency to regard tax evasionas immoral.

way of protecting one's property from being stolen. In other words, taxation would be theft and tax evasion a defense against theft.

Yet one might think -and indeed only one of the co-authors of the present manuscript does so- of some exceptions where theft is morally permissible from a utilitarian perspective. For instance, a person that is about to die of starvation would be justified in stealing a loaf of bread (Huemer, 2017). If we extrapolate this reasoning to the taxation problem, the logical corollary is that taxation is ethical (and, therefore, tax evasion unethical) under certain circumstances. As a result, it is hardly surprising that the unethicality of tax evasion has traditionally been justified by appealing to utilitarian arguments. One widespread view is that tax evasion undermines the fiscal capacity of governments to provide welfare state services such as education and health care, which would have a negative impact on the lower segments of the population who cannot afford to purchase these services in the market. This argument is grounded upon the assumption that only when the government monopolizes the provision of basic services, are these accessible for a majority of the population. Is this assumption correct?

In 2015, the United States spent an average of $12,800 per full-time-equivalent student on elementary and secondary education (McFarland et al., 2019). This represented a substantial portion (almost a quarter) of the median household income in 2015 (U.S. Census Bureau, 2019). Economic theory suggests that a competitive market for education would lower prices, allowing parents to school their children regardless of their economic background. Existing evidence seems to confirm this.[9] Something similar could be said about health care. Despite spending substantially less as a percentage of GDP,

[9] The District of Columbia provides a good example of how competition results in lower prices in the field of education. The average school voucher to be used in private schools amounted to $9,545, which represents around 11 percent of the median household income in the District of Columbia (EdChoice 2019; U.S. Census Bureau 2018b).

Singapore's largely private health care system achieves better results than any OECD country (Miller & Lu, 2018).[10]

The argument that without taxation most citizens would not have access to basic services does not seem to hold. Since there are other non-coercive means of providing the public with health care and education, resorting to taxation would thus not be justified. However, in a society where these services are provided by the private sector, those with little or no income might not be able to access such services, with the subsequent impact on their living standards. In this case, private charity and mutual aid societies would help alleviate the problem (Green, 1993). Were this not enough, government would be justified in collecting taxes, provided that these were utilized to fund the vital needs of that part of the population who could not otherwise afford it. [11]

Other arguments against tax evasion move away from utilitarian ethics. Social contract theory has traditionally been cited to justify the ethicality of taxes and, thus, the immorality of tax evasion. In its various expressions, social contract theory states that there is a contract between the government and its citizens, according to which the former provides certain services.[12] In exchange, citizens are compelled to obey the law and to pay taxes (Huemer 2013, p. 20). Social contract theory would thus justify taxation, as it is part of the voluntary contract signed by both the government and those governed. In this sense, tax evasion would imply unilaterally breaking this contract, leading to free-riding on the provision of goods and services by the government.

[10] Singapore's private health care spending represents 45 percent of total expenditure (World Health Organization, 2018).
[11] One of the co-authors disagrees with this point.
[12] According to Lockean social contract theory, government must provide protection from criminals and foreign governments. Rawlsian theory states that government must also take care of the basic needs of the population by redistributing income (Huemer, 2013).

Yet social contract theory suffers from one major flaw: it is based on the existence of an explicit or implicit contract between the government and those governed, a premise that seems extremely difficult to justify. The idea of an explicit contract is easily refutable, as citizens have never been given the opportunity to sign such a contract. However, some proponents of social contract theory argue that consent does not need to be explicit. Instead, citizens give their implicit consent by living in the country (Huemer 2013, p. 23). The "agreement through presence" argument does not hold since it implies that, as long as you do not migrate to another country, you are implicitly giving your support to whatever policy the government implements, including the violation of human rights. The idea of a social contract is further undermined by the impossibility of one of the parties (the governed) being able to terminate the contract (Huemer 2013, p. 30). For instance, you are not allowed to cease paying taxes by arguing that you have no intention of using the public health care system.

Two more arguments are usually put forward to justify taxation and to show the unethicality of tax evasion. The first is based on the idea that, as long as a majority of the population support a specific policy, this would be justified (McGee, 2006, 2012). Citizens have, therefore, the moral duty to pay any tax imposed by a government that has the majority support of citizens. This reasoning assumes that majorities are justified to impose any coercive measure on the rest of the population. This seems intuitively wrong, since torture or murder do not become ethical because they are supported by a majority. The second argument concerns the obligation to obey laws regardless of their content (Bagus, Block, Eabrasu, Howden, & Rostan, 2011). The assumption behind this idea (that laws are inherently ethical) is untenable as there are hundreds of examples throughout history of immoral laws (e.g., slavery was legal in the United States until 1865).

4.3. Cryptocurrencies and nefarious consumption

The informal sector of the economy has also been affected by the irruption of cryptocurrencies. The pseudonymity (or in some cases anonymity) of transactions has turned cryptocurrencies into suitable vehicles for the consumption and trade of nefarious goods and services. In effect, a fraction of the demand for cryptocurrencies stems from its utility as a means of payment in the online black market (Fanusie and Robinson 2018; Foley et al. 2018). Is this an ethically unacceptable consequence derived from the use of cryptocurrencies?

The ethical assessment in this section focuses on one form of *non-rights-violating* nefarious consumption: the use and trade of illegal drugs. Specifically, the issue will be addressed in the context of the legalization-prohibition debate, given that most ethically controversial aspects related to drug consumption and commerce arise from the prohibitionist legal framework in which these activities take place. Again, the analysis will be undertaken from both a property rights and utilitarian perspective. The former involves an ethical examination of the paternalism-individual freedom dichotomy based on the ethics of private property (Hoppe, 1993; Rothbard, 1982), whereas the latter approaches the topic from a purely cost-benefit perspective.

From a private-property ethical perspective, prohibition is not justified. It is by no means clear why government, or indeed any other person or institution, should have the right to prohibit a voluntary exchange between (adult) human beings. Both parties of a voluntary exchange expect to benefit from it *ex ante*. Any prohibition prevents the parties from reaping the possible gains, thereby reducing their utility (Block, 1993). From a deontological perspective, there remains the pertinent question of why a person who is a self-owner and owner of their justly acquired property should not be allowed to buy and sell, for instance, sexual services or certain substances for their own consumption.

In addition, how can we objectively determine what consumption is nefarious and what is not? Where do we draw the line? Can we consider consumption of alcohol or sugar *nefarious*? There is no way to answer these questions non-arbitrarily. More fundamentally, is it really government's duty to protect its citizens against self-inflicted harm? Who defines harm, and does this also include psychological harm? A state may also prohibit books or TV shows that are found to be harmful for the minds of its citizens. Accepting a paternalistic government sets us off on a slippery slope (Mises 1998, pp. 728-729).

Considering the will of freely interacting market participants, the use of cryptocurrencies must be interpreted as a defense of their property rights, and constitutes a defense of their autonomy. An authoritarian state may prohibit the purchase of weapons, foreign products (such as smart phones) or even medicine for opponents of the regime. Cryptocurrencies are a way to circumvent these prohibitions and to allow people to satisfy their needs despite government prohibition. Insofar as cryptocurrencies facilitate bypassing government prohibitions regarding nefarious consumption, their use should be considered morally acceptable. Cryptocurrencies are thus liberty-enhancing from a property rights perspective.[13]

Through being the most representative case of nefarious consumption, the utilitarian analysis that follows will focus exclusively on illegal drug consumption and trade.[14] Most arguments in favor of banning certain drugs are linked to the alleged

[13] One important facet of cryptocurrencies is that they offer the possibility of enhancing the privacy of exchanges.

[14] See Block (1993) for an excellent exposition of utilitarian arguments in favor of drug legalization, including a decrease in crime, better health protection and an increase in civil liberties. See also Cussen and Block (2000).

harmful consequences of a free market for drugs as opposed to a prohibitionist regime.[15] Prohibition has traditionally been justified by appealing to the effects of drug use and trade. According to the Office of National Drug Control Policy, drugs contribute to "addiction, disease, lower student academic performance, crime, unemployment, and lost productivity" (Coyne & Hall, 2017). The ultimate goal of drug policy is thus to minimize these harmful effects via legal prohibitions, which tend to reduce the demand for illegal substances (Miron & Zwiebel, 1995).[16] However, the question is not whether government policies prove effective in reducing drug consumption, but whether the costs generated by prohibition are higher than those that would arise in a free market for drugs (Miron & Zwiebel, 1995).

The War on Drugs initiated by President Nixon is heralded as the start of the prohibitionist regime in the United States as we know it today.[17] The Nixon administration expanded the size and scope of the federal government in order to combat the illegal drug trade and distribution within the country, creating the Drug Enforcement Administration (DEA) to undertake this task. Since the War on Drugs started in the early 1970s, U.S. taxpayers have spent more than $1 trillion in enforcement policies (Coyne & Hall, 2017). What effects have such a ban had?

Between 1971 and 2008, the number of overdose deaths in the U.S. increased by a factor of twelve (Coyne & Hall, 2017). As predicted by economic theory, information asymmetries are far more pronounced in black markets due to the lack of competition as

[15] Under prohibitionist regimes, there are laws that forbid the consumption, production, or trade of illegal substances (Thornton, 1991). In contrast, a free-market regime refers to a system in which there are few or no restrictions to the use and production of drugs.

[16] Yet, given the low "price elasticity" of illegal drugs, the increase in demand resulting from legalization would be low (Gallet, 2014). The cross-sectional effects are more difficult to analyze, although some studies suggest that legalization would result, for instance, in less consumption amongst the young (Anderson, Hansen, Rees, & Sabia, 2019).

[17] Even though the first drug-prohibition policies on a federal level date back to 1914 (Lesser, 2014), it was not until the 1970s that the current drug-policy regime began to operate.

well as reputational mechanisms among producers. This in turn results in lower product quality, with the subsequent impact on drug consumers' health. Furthermore, antidrug policies have had an impact on the spread of HIV. According to the Centers for Disease Control and Prevention, six percent of all new HIV cases diagnosed in 2017 stemmed from the use of intravenous drugs (Centers for Disease Control and Prevention, 2017).

Increased violence is another consequence of prohibition. A 2011 paper based on fifteen studies (thirteen of which contain U.S. data) shows that "gun violence and high homicide rates may be an inevitable consequence of drug prohibition and that disrupting drug markets can paradoxically increase violence" (Werb et al. 2011, p. 87). Similarly, Miron (2002) finds that today's homicide rate is between 25 and 75 percent higher than it would be if prohibition did not exist. Antidrug policies have also resulted in the emergence and strengthening of drug cartels. It is estimated that a large percentage of all heroin entering the U.S. is distributed by Mexican cartels (Inzunza & Pardo, 2014), which often resort to violent means to protect and expand their operations.

Racial minorities in particular have been affected by the War on Drugs.[18] Blacks and Hispanics are arrested for drug offences more often than whites despite the fact that they use and traffic drugs at similar rates (Alexander, 2010). Likewise, despite representing only 12 percent of the U.S. population, Black Americans represent 62 percent of all sent-to-prison drug offenders (Coyne & Hall, 2017). Other harmful effects of prohibition are the militarization of domestic police, the reinforcement of asset-forfeiture laws, or the human and economic impact of antidrug policies abroad (Coyne & Hall, 2017; Miron & Zwiebel, 1995)

[18] For the detrimental effects of drug prohibition on the black community, see also Block and Obioha (2012).

Overall, the War on Drugs has created important negative externalities that would not have emerged in the absence of drug prohibition. The alleged benefits of prohibition (mainly, a moderate decrease in consumption) pale when compared with the enormous cost in economic and human terms. Indeed, as Thornton (2007) points out, there is a general consensus among economists in favor of policy changes towards the legalization of drugs.

This leads us to conclude that any step towards a less restrictive regime regarding the production and sale of illegal substances would represent a major improvement in the status quo from a utilitarian perspective. Legalization would imply fewer deaths resulting from overdoses and syringe-sharing; decreased drug-related violence; the breakup of drug cartels; and a drastic reduction in the incarceration rate for racial minorities.

5. Policy implications

Several policy implications can be drawn from the above analysis. First, cryptocurrencies could potentially pose a serious challenge to the current monetary systems, especially in countries where central banks have a poor track record on controlling inflation successfully. Second, governments could reinforce their mechanisms to fight tax evasion as a response to a widespread use of cryptocurrencies, implementing new regulations to prevent economic agents from evading taxes. Nonetheless, fiscal authorities would find it extremely difficult to do so were cryptocurrencies to become the main tax evasion vehicle. For this reason, governments could end up reducing their tax burden if they are unable to collect taxes effectively. Finally, the impossibility to control drug consumption and commerce could force governments to end the war on drugs. As a

result, a widespread use of cryptocurrencies could lead the way to a *de facto* and later *de jure* legalization.[19]

6. Conclusion

The rapid development of cryptocurrencies over the last decade has given rise to a number of ethical considerations concerning the implications of these new forms of money. In this paper, we show that the use of cryptocurrencies is ethical, both from a private-property ethics and a utilitarian point of view. Were the use of cryptocurrencies to spread across the globe, governments would face difficulties conducting monetary, fiscal and drug policy. Based on our ethical analysis, we consider this possible outcome as a *moral good* since it would help limit the size and scope of government in these three areas. We are aware that potential government incapacity to control and regulate cryptocurrency transactions might also be taken advantage of by those engaging in activities that entail rights-violating activities such as terrorism, human trafficking or ransoming. In this sense, future research should analyze, from an empirical perspective, whether the emergence of cryptocurrencies has caused these activities to increase on a global basis.

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[19] As pointed out in Miron and Zwiebel (1995), there are many options between prohibition and a free market for drugs that would vastly improve the status quo. For instance, Becker et al. (2004) argue that an optimal monetary tax would be more efficient in reducing production and consumption.

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