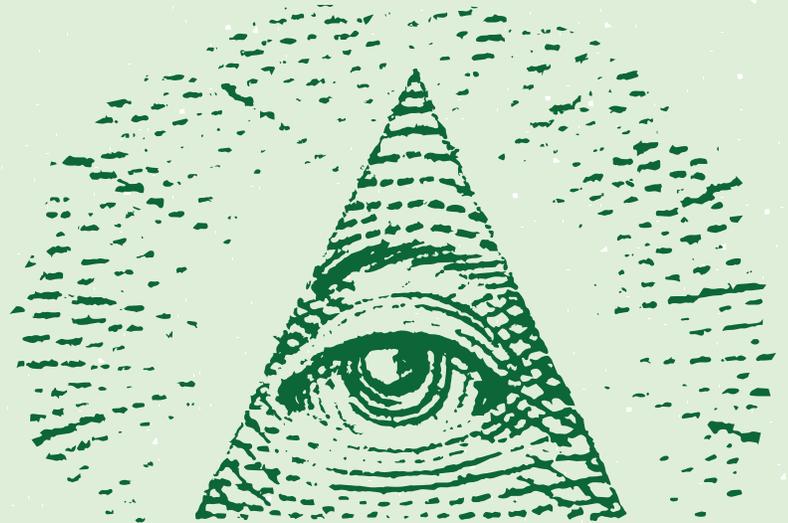


# The Case for Electronic Cash: Why Private Peer-to-Peer Payments are Essential to an Open Society

Jerry Brito  
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## **Abstract**

Cash is more than a method of payment. It is a fundamental tool for individual privacy and autonomy, and it is necessary for an open society. This paper shows that a cashless economy is a surveillance economy. It also argues that removing the option to freely transact without intermediation greatly limits our economic self-determination, placing our economic lives in the hands of financial institutions and governments. This paper presents several case studies demonstrating the dangers of a completely intermediated payments system and concludes that electronic cash is a tool that should not only be tolerated, but fostered and celebrated.

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## **About Coin Center**

Coin Center is a non-profit research and advocacy center focused on the public policy issues facing open blockchain technologies such as Bitcoin. Our mission is to build a better understanding of these technologies and to promote a regulatory climate that preserves the freedom to innovate using blockchain technologies. We do this by producing and publishing policy research from respected academics and experts, educating policymakers and the media about blockchain technology, and by engaging in advocacy for sound public policy.

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## Introduction

Completely anonymous cryptocurrency is an experimental new technology that is being perfected by the day. While it is tempting to only focus on the opportunities it presents to criminals and its inevitable illicit uses, more important is what it represents for the law abiding citizens that make up the vast majority of society. Not only do its benefits outweigh its costs, electronic cash is indeed essential to sustaining a liberal open society.

In a world without cash (a bearer and peer-to-peer form of money) all transactions must be necessarily intermediated by financial institutions. Intermediated transactions are by their nature subject to surveillance and control. If third-party financial institutions must be part of all transactions, then they will be privy to the intimate details of everyone's financial life. They can also choose to disallow certain transactions and potentially even certain persons from transacting.

Intermediation has many benefits, including efficiency and convenience. Used responsibly, the information gleaned from the privileged position of financial intermediary can also allow one to better extend credit, prevent fraud, and help the authorities fight crime. But as this paper will show, it can also be abused spectacularly by corporations and governments. If there is no way to avoid intermediation, then individuals will have no way to preserve their privacy or their autonomy.

Cash is an ancient technology that allows us to avoid intermediation and thus to preserve the values necessary for the individual liberty and human dignity. While we are a long way from a cashless and completely intermediated existence, at least in the United States, this paper will also show that there is a concerted effort to eliminate cash that has been quite successful in other parts of the world.

This paper will argue that cash is essential to an open society. It is an escape valve in our increasingly intermediated and therefore surveilled world. We do not argue that cash should be the only option for transactions, or even the option one should choose most of the time. But it should be an option. Without it, there is no choice but to have one's every purchase be watched and recorded and the information used without one's consent. Without cash there is no exit—no chance for the kind of dignity-preserving privacy that undergirds an open society.

Cash is also necessary to retain agency and autonomy. Autonomy can be understood as the power to make decisions for oneself without interference from others. It's the ability to try things one's way, to succeed and be rewarded, or to make mistakes and learn from them. As with personal privacy, without individual autonomy there can be no meaningful open society.

It is therefore imperative that we preserve our ability to use it. Yet that is not enough. As we move to an increasingly online world in which physical cash is not practical for many transactions, we must also develop and foster *electronic cash* that is as privacy-preserving and

permissionless as physical cash. While this will have costs as well as benefits, we argue that the way to address the costs is not to prohibit electronic cash, but instead to regulate its use no differently than physical cash for which there is a robust regime.

## What is Cash

Cash is not simply money. The word cash typically refers to money in the form of coins and paper notes. It is distinct from other forms of money, such as demand deposits, which is money held in bank accounts and from which one can pay using a check. Paper notes and coins, on the other hand, are *bearer instruments*. That means that whoever has physical possession of the tokens—in this case, the notes or coins—is presumed to be the owner of the money, and ownership is transferred by simply handing over physical possession of the token.

Cash transactions are *peer-to-peer*. Transferring ownership of a house, a car, a stock or bond registered in one's name, or even money in one's bank account, requires the involvement of a third party, such as a bank, a stock transfer agent, or a local register of deeds. A cash transaction, on the other hand, happens only between the two parties to the transaction. I hand you a \$100 note, and that's all there is to it.

The bearer and peer-to-peer nature of cash means that transactions require little or no trust. You may still want to verify that the cash in hand is not counterfeit,<sup>1</sup> but there is no trust in third parties necessary for the transaction. In contrast, when you accept a check, you trust that the bank is solvent and will honor the order to pay.

Because it is bearer and peer-to-peer, cash is also *permissionless*. This means that one does not need authorization from, or an account with, any institution in order to transact with others. This is important for many persons who cannot easily open such an account, perhaps because they don't have steady income, a good credit history, a government ID, or a permanent address. In some countries, like Saudi Arabia, women are not allowed to open accounts.<sup>2</sup> Cash is an open access system in which anyone—banked or unbanked—can participate without having to seek the permission of financial gatekeepers.

Because cash is permissionless, it is censorship resistant. You can use cash to contribute to an unpopular cause or to purchase goods or services that are legal but socially or culturally taboo. Of course, it can also be used to buy an illicit goods or services. While you may be punished after the fact for engaging in an illegal transaction, there is no third-party gatekeeper that can

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<sup>1</sup> The U.S. Treasury Department estimates that about only one note in every 10,000 is counterfeit. U.S. Treasury Department, "The Use and Counterfeiting of United States Currency Abroad, Part 3," final report to Congress (Sep. 2006) <https://www.federalreserve.gov/boarddocs/rptcongress/counterfeit/counterfeit2006.pdf>.

<sup>2</sup> Margaret Coker, "How Guardianship Laws Still Control Saudi Women," *New York Times* (Jun. 22, 2018) <https://www.nytimes.com/2018/06/22/world/middleeast/saudi-women-guardianship.html>.

prevent the transaction because transactions are peer-to-peer. This even includes the very governments that may be issuing the cash notes.

Finally, cash is *private*. Because cash is peer-to-peer, there need not be more witnesses to a transaction than its participants. Sometimes the case that only one party to a transaction is witness to it, such as when one drops a bill into a church's donation box. There also need not be any record made of the transaction, since possession of the cash is what matters, and not any ledger entry.

So, cash is a bearer, peer-to-peer, permissionless, and privacy-preserving form of money. It is an ancient technology with striking features, yet there is a movement afoot to eliminate it.

## The Cashless Society

It is easy to take cash for granted. When people think of money, they imagine colorful paper notes even though the vast majority of global money stock is composed of electronic entries in bank ledgers, not physical cash.<sup>3</sup> The ability to use an ATM to convert some of those ledger entries into paper that can then be used to pay at a newsstand—privately and permissionlessly—is as second nature as breathing. Yet there's no reason why that has to be the case.

Sweden, for example, is fast becoming a cashless society. According to its central bank, cash transactions accounted for only 2% of the value of all payments made in 2015, and that figure is expected to drop to 0.5% by 2020.<sup>4</sup> A majority of bank branches in Sweden no longer keep cash on hand and ATMs are increasingly rare.<sup>5</sup> Other Nordic countries, like Norway,<sup>6</sup> Denmark,<sup>7</sup>

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<sup>3</sup> The Federal Reserve releases regular reports on the amount and breakdown of the monetary base in the United States. Its most recent release reports a seasonally adjusted M2 of \$14.27 trillion in October of 2018, \$1.62 trillion of which was physical cash in public circulation. That means that only around 11 percent of money is physical cash in the United States. See Board of Governors of the Federal Reserve System, "Money Stock and Debt Measures - H.6 Release," Data Report (Nov. 29, 2018) <https://www.federalreserve.gov/releases/h6/current/h6.pdf>. To get an idea of the international picture, we can look at statistics compiled by the Bank for International Settlements. The annual "red book" publication from the Committee on Payments and Market Infrastructures reports \$4.7 trillion in banknotes and coins in circulation among 24 major economies in 2016. This is roughly 8.95 percent of those nations' \$60.7 trillion in combined GDP that same year. See Committee on Payments and Market Infrastructures, "Statistics on payment, clearing and settlement systems in the CPMI countries - Figures for 2016," Comparative Tables 1 and 2, Data Report (Dec. 15, 2017): pgs. 420-422, <https://www.bis.org/cpmi/publ/d172.htm>.

<sup>4</sup> John Henley, "Sweden leads the race to become cashless society," *The Guardian* (Jun. 4, 2016) <https://www.theguardian.com/business/2016/jun/04/sweden-cashless-society-cards-phone-apps-leading-europe>.

<sup>5</sup> *Id.*; also: Patrick Jenkins, "'We don't take cash': is this the future of money?" *Financial Times* (May 9, 2018) <https://www.ft.com/content/9fc55dda-5316-11e8-b24e-cad6aa67e23e>.

Iceland,<sup>8</sup> and Finland<sup>9</sup> are similarly situated. South Korea targets 2020 for phasing out paper notes and coins.<sup>10</sup>

Citizens in these countries rely on card and mobile payments systems owned and operated by banks and financial technology (fintech) firms. These companies have an interest in promoting an increasingly cashless society. Every cash transaction is a transaction that takes place outside of the infrastructure that they own and on which they take a fee.<sup>11</sup> Additionally, cash management is a not an insignificant cost for financial institutions.<sup>12</sup>

Firms such as Visa have launched advertising and media campaigns to urge consumers to give up cash for card payments.<sup>13</sup> Other campaigns are targeted at merchants. In one, Visa offered \$10,000 to restaurants and food trucks that committed to stop accepting cash.<sup>14</sup> As Visa UK put it, these campaigns are part of a “long term strategy to make cash ‘peculiar’ by 2020.”<sup>15</sup>

Central banks also have an interest in eliminating cash. Doing so would grow the monetary policy tools at their disposal. If there are no bearer notes and all money is in the form of deposits, then it is easier to impose negative interest rates across the whole economy. The Bank

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<sup>6</sup> Will Martin, “Fewer than 10% of people in Norway use cash— and a senior official thinks it could disappear completely within a decade,” *Business Insider* (Apr. 25, 2018) <https://www.businessinsider.com/norway-first-cashless-society-2018-4>.

<sup>7</sup> “Denmark will eventually be cash-free: expert,” *The Local DK* (Aug. 14, 2018) <https://www.thelocal.dk/20180814/denmark-will-eventually-be-cash-free-expert>.

<sup>8</sup> Anna Kuzmina, “Cashless Iceland,” *Medium* (Sept. 17, 2018) <https://medium.com/what-the-money/cashless-iceland-f77147c9b253>.

<sup>9</sup> “Bank of Finland predicts country will be cash-free by 2029,” *Yle Uutiset Online* (Feb. 21, 2016) [https://yle.fi/uutiset/osasto/news/bank\\_of\\_finland\\_predicts\\_country\\_will\\_be\\_cash-free\\_by\\_2029/8689417](https://yle.fi/uutiset/osasto/news/bank_of_finland_predicts_country_will_be_cash-free_by_2029/8689417).

<sup>10</sup> Patrick Jenkins, “‘We don’t take cash’: is this the future of money?” *Financial Times* (May 9, 2018) <https://www.ft.com/content/9fc55dda-5316-11e8-b24e-cad6aa67e23e>.

<sup>11</sup> Brett Scott, “The War on Cash,” *TheLong+Short* (Aug. 19, 2016) <https://thelongandshort.org/society/war-on-cash>.

<sup>12</sup> Patrick Jenkins, “‘We don’t take cash’: is this the future of money?” *Financial Times* (May 9, 2018) <https://www.ft.com/content/9fc55dda-5316-11e8-b24e-cad6aa67e23e>.

<sup>13</sup> Brett Scott, “The War on Cash,” *TheLong+Short* (Aug. 19, 2016) <https://thelongandshort.org/society/war-on-cash>.

<sup>14</sup> Jackie Wattles, “Visa offers restaurants \$10,000...if they stop accepting cash,” *CNN Business* (Jul. 14, 2017) <https://money.cnn.com/2017/07/14/news/companies/visa-no-cash-restaurant-initiative/index.html>.

<sup>15</sup> “Visa Europe launches ‘Cashfree and Proud’ campaign,” *Visa Europe* (Mar. 21, 2016) <https://www.visa.co.uk/newsroom/visa-europe-launches-cashfree-and-proud-campaign-1386958>.

of England's chief economist proposed abolishing cash altogether to secure that option.<sup>16</sup> There are also public finance motivations. Nobel prize-winning economist Joseph Stiglitz would also like to do away with cash in order to make tax evasion and other financial corruption more difficult and traceable.<sup>17</sup> Still, critics must admit that cash has its uses. Former International Monetary Fund chief economist Kenneth Rogoff, whose gripes with paper money are plainly stated in the title of his book, *The Curse of Cash*, nevertheless agrees that "we need cash for privacy."<sup>18</sup>

This anti-cash trend is taking hold. Signs that read "no cash accepted" are an increasingly common sight at shops in Nordic countries.<sup>19</sup> Even in countries like the UK where cash is still popular, some shops are going cash-free,<sup>20</sup> and as Transport for London's website will tell you, "You can't use cash to pay for your bus fare."<sup>21</sup> On the Internet, cash has never been an option, and as commerce moves online, the proportion of intermediated payments grows concomitantly. Market research firm eMarketer estimates \$2.3 trillion in global ecommerce sales in 2017.<sup>22</sup> That is around 10 percent of the \$22.6 trillion in all global retail sales, and a

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<sup>16</sup> Chris Giles, "Scrap cash altogether, says Bank of England's chief economist," *Financial Times* (Sep. 18, 2015) <https://www.ft.com/content/7967908e-5ded-11e5-9846-de406ccb37f2>.

<sup>17</sup> Ross Chainey, "The US should get rid of cash and move to a digital currency, says this Nobel Laureate economist," World Economic Forum (Jan. 17, 2017) <https://www.weforum.org/agenda/2017/01/the-us-should-get-rid-of-cash-and-become-a-digital-economy-says-this-nobel-laureate-economist/>. Stiglitz has elsewhere criticized the Indian government's 2016 demonetization experiment which aimed to achieve similar goals. Indian citizens complained about the waste and inefficiency of the process which stemmed little evasion. Cash demand in India has since returned to pre-demonetization levels. See: "Why Demonitisation Was Launched Will Remain A Mystery: Joseph Stiglitz," Interview with NDTV (Jan. 26, 2018), <https://www.youtube.com/watch?v=acgVZEhsjgo>; Andy Mukherjee, "By a 99.3% Verdict, India's Cash Ban Was a Farce," *Bloomberg Opinion* (Aug. 30, 2018) <https://www.bloomberg.com/opinion/articles/2018-08-30/india-s-cash-ban-was-a-farce-by-a-99-3-verdict>.

<sup>18</sup> James Pethokoukis, "The problem with cash: A Q&A with economist Kenneth Rogoff," *AEIdeas*, (Nov. 10, 2016) <http://www.aei.org/publication/the-problem-with-cash-a-qa-witheconomist-kenneth-rogoff/>.

<sup>19</sup> Amanda Billner, "'No Cash' Signs Everywhere Has Sweden Worried It's Gone Too Far," *Bloomberg* (Feb. 18, 2018) <https://www.bloomberg.com/news/articles/2018-02-18/-no-cash-signs-everywhere-has-sweden-worried-it-s-gone-too-far>.

<sup>20</sup> Patrick Jenkins, "'We don't take cash': is this the future of money?" *Financial Times* (May 9, 2018) <https://www.ft.com/content/9fc55dda-5316-11e8-b24e-cad6aa67e23e>.

<sup>21</sup> Transport for London website, <https://tfl.gov.uk/modes/buses/cash-free-buses>, accessed December 3, 2018.

<sup>22</sup> Corey McNair, "Worldwide Retail and Ecommerce Sales: eMarketer's Estimates for 2016-2021," *eMarketer Report* (Jul. 18, 2018) <https://www.emarketer.com/Report/Worldwide-Retail-Ecommerce-Sales-eMarketers-Estimates-20162021/2002090>.

24.8 percent increase from 2016's \$1.8 trillion in worldwide online sales. Online commerce will only grow.

The growth of online retail necessarily requires a growth in online payments. Online transactions are therefore generally facilitated by new fintech services, credit or debit cards issued by traditional banking intermediaries, or some combination of these. This means that intermediaries have more information about our buying habits than ever before.

Although some countries like Sweden are on a cashless path, it would be a mistake to conclude that people's desire for cash has lessened globally.<sup>23</sup> A report from the Bank for International Settlements (BIS) finds that cash demand, measured by proxy through cash in circulation, increased among most of the 46 national economies in its sample. The BIS also reports data on the substitution between cash payments and online payments, as estimated through card transactions, in 24 nations.<sup>24</sup> Only two of them, Russia and Sweden, exhibit signs of substituting card payments for cash transactions. The other 22 nations exhibit increases in both online payments and cash demand, which suggest a lingering value placed on cash's unique features.<sup>25</sup>

While the death of cash is not imminent in countries like the United States,<sup>26</sup> it is certainly visible on the horizon. Unfortunately the death of cash means the birth of perfect financial control.

## **The Intermediated Society**

If cash is eliminated, then all transactions will necessarily be intermediated. This is because instead of relying on the physical scarcity of bearer instruments, we would have to rely on intermediaries to guarantee all transfers of value. To understand why remember what a

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<sup>23</sup> John Williams and Claire Wang, "Reports of the Death of Cash are Greatly Exaggerated," *Federal Reserve Bank of San Francisco Blog* (Nov. 20, 2017) <https://www.frbsf.org/our-district/about/sf-fed-blog/reports-death-of-cash-greatly-exaggerated/>.

<sup>24</sup> Morten Linnemann Bech, Umar Faruqui, Frederik Ougaard, and Cristina Picillo, "Payments are a-changin' but cash still rules," *Bank for International Settlements Quarterly Review* (Mar. 11, 2018) [https://www.bis.org/publ/qtrpdf/r\\_qt1803g.htm](https://www.bis.org/publ/qtrpdf/r_qt1803g.htm).

<sup>25</sup> The authors suggest a few explanations for lingering cash demand: expanded ATM infrastructure, which makes accessing cash easier; low interest rates, which lowers the opportunity cost of holding cash; and increased use of cash as a store of value, backed by empirical evidence of increased holding of higher note bills. *Id.*

<sup>26</sup> As noted earlier, most money in the United States is not physical. But around \$1.6 trillion of it is, and that is not an insignificant amount. See Board of Governors of the Federal Reserve System, "Money Stock and Debt Measures - H.6 Release," Data Report (Nov. 29, 2018) <https://www.federalreserve.gov/releases/h6/current/h6.pdf>.

physical cash transaction looks like. I take out a \$100 bill and hand it to you, at which point you have it and I don't, and we can verify this by looking at our hands. Physical scarcity, which was historically not available electronically, makes this possible.<sup>27</sup> On the other hand, by keeping ledgers of accounts and recording transactions in those ledgers, intermediaries like banks make it possible for me to virtually "hand" you \$100. After the transaction you will have the \$100 not because I gave you a token that I no longer have, but because an intermediary made a record in their ledger deducting from my balance and adding to yours. As a result, bank-mediated electronic payments are *not* peer-to-peer. They replace the scarcity of peer-to-peer cash transactions with trust that the bank correctly records payments in their ledgers. This has several implications.

First, it means that bank-mediated electronic payments are not permissionless in the same way as cash. To hold and transfer digital money, you must first secure an account from an intermediary. We do not tend to think in terms of "seeking permission" when we open an account with a bank or mobile payments app, but that is what we do. Those firms are not obligated to open an account for us. It is possible that you will be denied an account. In a cashless world, not having an account with which to receive and send money is essentially expulsion from society. This is very different from a cash system, exclusion from which is impossible.

Even if you have an account, intermediaries have full control over whether they will faithfully execute your instructions to transfer money, and may therefore choose to reject (or be compelled by a government or other third party to reject) any particular transaction you request. As a result, digital money is not censorship-resistant like cash. For whatever reason (and there may be good reasons and bad reasons), your bank can decide not to allow you to transact with certain people, to buy certain things, or to give to certain causes.

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<sup>27</sup> If we tried to do this same thing electronically, it would not work. First, I would have to have a digital representation of the money to take the place of the \$100 bill. Let's say it's a \$100 file on my computer. Then I would have to send you this \$100 file electronically, perhaps by attaching it to an email the same way I would send you a photo or a text file. The problem is this: When you receive an email from me with a photo, *you* will have the photo—but what about me? Will I no longer have the photo? No. I will retain a perfect digital copy of any data that I send to you electronically. So, if I send you a \$100 file, you'd get it, but I would retain a copy, which I could in turn send to a second and then a third person ad infinitum.

Computer scientists refer to this limitation as "the double spending problem," and it is the result of the inherent lack of scarcity in digital networks. To avoid the double spending problem and make electronic payments possible, we employ third-party intermediaries like banks or payments companies. Here is how it works: If I want to send you \$100, I don't send a message to you directly. Instead, I send a message to a third party (say, a bank) that we both trust and with which we each have accounts. I tell the bank to please deduct \$100 from my account and to add it to yours. The bank, in turn, keeps a ledger of all account-holder balances and transactions, and it dutifully adds a ledger entry that records the subtraction and additions to our respective balances. In this way, we can easily send each other digital money.

Even seemingly pro-social or benign financial activities can have unintended consequences. Federal laws aimed at curbing money laundering and terrorist financing deputize banks to be vigilant about money sent to certain “high-risk” countries. Because of this, charities providing aid to war-torn areas or deprived populations have difficulty accessing reliable banking services and thus getting money to those most in need.<sup>28</sup>

High-risk countries tend to be among those most in need of humanitarian aid, so charities understandably focus their efforts there. When charities’ fund transfers are slowed and scrutinized, or their bank accounts are shut down, the potential human cost is significant. What is worse, banks’ appeals processes are opaque. One lawyer representing charities whose bank accounts had been closed told the *Wall Street Journal*, “There’s no no in explanation...no opportunity given to appeal. It’s adding to the problem in Syria and the Middle East.”<sup>29</sup>

Second, mediated electronic payments are never private. An intermediary must always know the parties to, and the details of, a transaction in order to make the appropriate ledger entries. Unlike cash, there is *always* a third-party witness to every transaction. In a cashless world, your bank will know the exact time, amount, and counterparty to every transaction you engage in, and can build a thorough profile of you.<sup>30</sup> This information, especially if combined with other data such as social network activity (see recent reports about Facebook and Google trying to reach a deal with banks),<sup>31</sup> can be a formidable tool. Or, if fallen to wrong hands, it can be a powerful weapon.<sup>32</sup>

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<sup>28</sup> Rob Barry and Rachel Louise Ensign, “Cautious Banks Hinder Charity Financing,” *Wall Street Journal* (Mar. 30, 2016), <https://www.wsj.com/articles/cautious-banks-hinder-charity-financing-1459349551>.

<sup>29</sup> *Id.*

<sup>30</sup> Institutions already hold detailed data-based profiles of many people. The *New York Times* recently investigated one woman’s use of several smartphone apps and found that companies were compiling a comprehensive profile of the woman—based in part by her trips to Planned Parenthood, Weight Watchers, and her ex-boyfriend’s house—to sell to advertisers and financial institutions. See: Jennifer Valentino-DeVries, Natasha Singer, Michael H. Keller, and Aaron Krolik, “Your Apps Know Where You Were Last Night, and They’re Not Keeping It Secret,” *New York Times* (Dec. 10, 2018) <https://www.nytimes.com/interactive/2018/12/10/business/location-data-privacy-apps.html>.

<sup>31</sup> Emily Glazer, Deepa Seetharaman, and AnnaMaria Andriotis, “Facebook to Banks: Give Us Your Data, We’ll Give You Our Users,” *Wall Street Journal* (Aug. 6, 2018) <https://www.wsj.com/articles/facebook-to-banks-give-us-your-data-well-give-you-our-users-1533564049>.

<sup>32</sup> See, for example: Ben Sasse, “Senator Sasse: The OPM Hack May Have Given China a Spy Recruiting Database,” *WIRED* (Jul. 9, 2015) <https://www.wired.com/2015/07/senator-sasse-washington-still-isnt-taking-opm-breach-seriously/>; John R. Schindler, “China’s Spies Hit the Blackmail Jackpot With Data on 4 Million Federal Workers,” *The Daily Beast* (Jun. 11, 2015) <https://www.thedailybeast.com/chinas-spies-hit-the-blackmail-jackpot-with-data-on-4-million-federal->

The bleeding edge of financial surveillance and profiling can be found in China. As the *New York Times* has noted, “China is systematically and rapidly doing away with paper money and coins.”<sup>33</sup> Cash transactions are being replaced by mobile payments, which account for over \$16 trillion annually—over 100 times more than in the U.S.<sup>34</sup> The move away from cash in China happened in just a few years.<sup>35</sup> While cash accounted for 96 percent of payments in 2012, today that number is below 15 percent.<sup>36</sup> As of 2018, more than one-half billion Chinese use mobile payments.<sup>37</sup>

Tencent’s WeChat Pay and Alibaba’s AliPay are the dominant payment platforms in China, with a combined market share of 92 percent.<sup>38</sup> These two companies have unprecedented visibility into almost all consumer transactions and are using the data they are gathering to develop credit scores for every consumer.<sup>39</sup> The scores look not just at creditworthiness, but at social media and consumption behavior as well to determine “whether [the consumer’s] social behavior is healthy.”<sup>40</sup>

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workers.

<sup>33</sup> Paul Mozur, “In Urban China, Cash Is Rapidly Becoming Obsolete,” *New York Times* (Jul. 15, 2017) <https://www.nytimes.com/2017/07/16/business/china-cash-smartphone-payments.html>.

<sup>34</sup> *Id.*; see also: Don Weinland and Sherry Fei Ju, “China’s Ant Financial shows cashless is king,” *Financial Times* (Apr. 13, 2018) <https://www.ft.com/content/5033b53a-3eff-11e8-b9f9-de94fa33a81e>; Jeppe Saarinen, “Mobile Payments in China: Why Foreign Businesses Should Adopt a Strategy,” *China Briefing* (Aug. 29, 2018) <http://www.china-briefing.com/news/mobile-payments-china-foreign-businesses-china-adopt-strategy/>.

<sup>35</sup> Paul Mozur, “In Urban China, Cash Is Rapidly Becoming Obsolete,” *New York Times* (Jul. 15, 2017) <https://www.nytimes.com/2017/07/16/business/china-cash-smartphone-payments.html>.

<sup>36</sup> Jeppe Saarinen, “Mobile Payments in China: Why Foreign Businesses Should Adopt a Strategy,” *China Briefing* (Aug. 29, 2018) <http://www.china-briefing.com/news/mobile-payments-china-foreign-businesses-china-adopt-strategy/>.

<sup>37</sup> Xiang Bo, “More than half billion Chinese pay by mobile phones: report,” *XinhuaNet* (Jul. 19, 2018) [http://www.xinhuanet.com/english/2018-07/19/c\\_137335685.htm](http://www.xinhuanet.com/english/2018-07/19/c_137335685.htm).

<sup>38</sup> Jeppe Saarinen, “Mobile Payments in China: Why Foreign Businesses Should Adopt a Strategy,” *China Briefing* (Aug. 29, 2018) <http://www.china-briefing.com/news/mobile-payments-china-foreign-businesses-china-adopt-strategy/>.

<sup>39</sup> Mara Hvistendahl, “Inside China’s Vast New Experiment in Social Ranking,” *WIRED* (Dec. 14, 2017) <https://www.wired.com/story/age-of-social-credit/>.

<sup>40</sup> Josh Horwitz, “China’s Tencent is quietly testing a ‘social credit score’ based on people’s online behavior,” *Quartz* (Aug. 8, 2017)

What counts as “healthy” behavior will be influenced by the Chinese government, which has encouraged and guided the development of Tencent and Alibaba’s scoring systems. Beijing sees them as the backbone of a Social Credit System to “rate each and every one of the nation’s 1.3 billion citizens by 2020 using metrics that include whether they pay their bills on time, plagiarize schoolwork, break traffic laws or adhere to birth-control regulations.”<sup>41</sup>

Purchasing habits are noted by the financial intermediaries and can be used as an input to your Social Credit score.<sup>42</sup> As an Alibaba executive told a Chinese magazine in 2015, the company judges the purchases consumers make.<sup>43</sup> “Someone who plays video games for 10 hours a day, for example, would be considered an idle person, and someone who frequently buys diapers would be considered as probably a parent, who on balance is more likely to have a sense of responsibility.”<sup>44</sup>

A high Social Credit score will earn a citizen certain privileges. Today that includes expedited permission to travel abroad and access to express lanes at airports,<sup>45</sup> but in the future it could grant your children placement at desired schools.<sup>46</sup> A low Social Credit score, however, will lead to punishment, according to official government policy, including, “slower internet speeds; restricted access to restaurants, nightclubs or golf courses; and the removal of the right to

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<https://qz.com/1049669/chinas-tencent-hkg-0700-is-quietly-testing-a-social-credit-score-based-on-peoples-online-behavior/>.

<sup>41</sup> Julie Makinen, “China prepares to rank its citizens on ‘social credit,’” *Los Angeles Times* (Nov. 22, 2015) <https://www.latimes.com/world/asia/la-fg-china-credit-system-20151122-story.html>; Josh Horwitz, “China’s Tencent is quietly testing a “social credit score” based on people’s online behavior,” *Quartz* (Aug. 8, 2017) <https://qz.com/1049669/chinas-tencent-hkg-0700-is-quietly-testing-a-social-credit-score-based-on-peoples-online-behavior/>; Sean O’Kane, “China will ban people with poor ‘social credit’ from planes and trains,” *The Verge* (Mar. 16, 2018) <https://www.theverge.com/2018/3/16/17130366/china-social-credit-travel-plane-train-tickets>.

<sup>42</sup> Amy Hawkins, “Chinese Citizens Want the Government to Rank Them,” *Foreign Policy* (May 24, 2017) <https://foreignpolicy.com/2017/05/24/chinese-citizens-want-the-government-to-rank-them/>; Julie Makinen, “China prepares to rank its citizens on ‘social credit,’” *Los Angeles Times* (Nov. 22, 2015) <https://www.latimes.com/world/asia/la-fg-china-credit-system-20151122-story.html>.

<sup>43</sup> Celia Hatton, “China ‘social credit’: Beijing sets up huge system,” *BBC* (Oct. 25, 2015) <https://www.bbc.com/news/world-asia-china-34592186>.

<sup>44</sup> *Id.*

<sup>45</sup> Rachel Botsman, “Big data meets Big Brother as China moves to rate its citizens,” *WIRED UK* (Oct. 20, 2017) <https://www.wired.co.uk/article/chinese-government-social-credit-score-privacy-invasion>; Julie Makinen, “China prepares to rank its citizens on ‘social credit,’” *Los Angeles Times* (Nov. 22, 2015) <https://www.latimes.com/world/asia/la-fg-china-credit-system-20151122-story.html>.

<sup>46</sup> Maya Wang, “China’s Chilling ‘Social Credit’ Blacklist,” *Wall Street Journal* (Dec. 11, 2017) <https://www.wsj.com/articles/chinas-chilling-social-credit-blacklist-1513036054>.

travel freely abroad[.]”<sup>47</sup> Already, over six million people are banned from taking flights, and another 1.65 million are not allowed to take trains.<sup>48</sup>

Your score doesn’t just affect you, but your friends and family as well. If your friend’s score drops because of something she said or purchased, your score will be dragged down with hers as well.<sup>49</sup> This means that not only will people have an incentive to watch what they say and buy, but to police their friends and family as well. Not only will there be peer pressure to conform to “healthy behavior,” but official government policy states that the “new system will reward those who report acts of breach of trust.”<sup>50</sup> In tips for individuals looking to improve their ranking, Alibaba today warns about the downsides of friending people with low scores.<sup>51</sup>

This kind of social control is made possible by intermediation. This kind of social control emerges naturally as the economy becomes increasingly dependent on dominant centralized intermediaries. These intermediaries, as a matter of course, surveil and record every action, which can then be judged and enforced algorithmically. The privacy and censorship resistance that permissionless cash affords serves as a check on such a systems of social control.

Today, Alibaba’s and Tencent’s credit systems are technically voluntary, but in the near future (perhaps as early as 2020) they will be mandatory for everyone in China.<sup>52</sup> Similarly, cash is currently still available, but in order for the Social Credit System to work optimally, the government has every incentive to eliminate cash and replace it with intermediated money.

As should be clear, intermediation is not without consequence. An end to cash, a technology that we take for granted, will have an effect on liberties that we also take for granted. A cashless society cannot be an open society.

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<sup>47</sup> Rachel Botsman, “Big data meets Big Brother as China moves to rate its citizens,” *WIRED UK* (Oct. 20, 2017) <https://www.wired.co.uk/article/chinese-government-social-credit-score-privacy-invasion>.

<sup>48</sup> *Id.*; see also: Sean O’Kane, “China will ban people with poor ‘social credit’ from planes and trains,” *The Verge* (Mar. 16, 2018) <https://www.theverge.com/2018/3/16/17130366/china-social-credit-travel-plane-train-tickets>.

<sup>49</sup> Rachel Botsman, “Big data meets Big Brother as China moves to rate its citizens,” *WIRED UK* (Oct. 20, 2017) <https://www.wired.co.uk/article/chinese-government-social-credit-score-privacy-invasion>.

<sup>50</sup> Celia Hatton, “China ‘social credit’: Beijing sets up huge system,” *BBC* (Oct. 25, 2015) <https://www.bbc.com/news/world-asia-china-34592186>.

<sup>51</sup> Rachel Botsman, “Big data meets Big Brother as China moves to rate its citizens,” *WIRED UK* (Oct. 20, 2017) <https://www.wired.co.uk/article/chinese-government-social-credit-score-privacy-invasion>.

<sup>52</sup> Julie Makinen, “China prepares to rank its citizens on ‘social credit,’” *Los Angeles Times* (Nov. 22, 2015) <https://www.latimes.com/world/asia/la-fg-china-credit-system-20151122-story.html>

## The Open Society

The opposite of an authoritarian state like China is an open society, the hallmark of which is a free competition of ideas that drives progress.<sup>53</sup> In an open society, challenges to status quo thinking are not only tolerated, they are valued and protected. An open society eschews *monism*, “the ancient belief that there is a single harmony of truths into which everything, if it is genuine, in the end must fit” in favor of value *pluralism*, a celebration of variety and diversity within society.<sup>54</sup>

An open society works only if individuals are free to engage in critical thinking to develop, communicate, critique, and accept or reject ideas. That, in turn, requires freedom of thought and expression and association, which is why open societies tend to be liberal democracies that guarantee civil liberties under the rule of law.<sup>55</sup> The equality and dignity of individuals are also paramount values in liberal open societies. Persons are equal in worth and rights and should be treated by their government and their fellow citizens with dignity—*i.e.*, not as means to an end, but as ends in themselves.<sup>56</sup>

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<sup>53</sup> See, generally: Karl Popper, *The Open Society and Its Enemies, New One-Volume Edition*. Princeton, NJ: Princeton University Press (2013).

<sup>54</sup> Isaiah Berlin, “Isaiah Berlin on Privacy,” selection from “The First and the Last,” *New York Review of Books*, Vol. XLV, No. 8 (1998), available at <https://www.cs.utexas.edu/users/vl/notes/berlin.html>.

<sup>55</sup> Benjamin Franklin (writing as “Silence Dogood,” one of his many pseudonyms) articulated this necessity when he wrote: “Without Freedom of Thought, there can be no such Thing as Wisdom; and no such Thing as publick Liberty, without Freedom of Speech; which is the Right of every Man, as far as by it, he does not hurt or controul the Right of another: And this is the only Check it ought to suffer, and the only Bounds it ought to know.” Silence Dogood, “No. 8,” *The New-England Courant* (Jul. 9, 1722) available at <https://founders.archives.gov/documents/Franklin/01-01-02-0015>. Franklin and the other American Founders were inspired by Enlightenment thinkers such as John Locke who articulated the contours of liberal governance based on the “natural state of...equality” inherent to man. Locke wrote: “The freedom then of man, and liberty of acting according to his own will, is grounded on his having reason, which is able to instruct him in that law he is to govern himself by, and make him know how far he is left to the freedom of his own will.” The liberal state is necessary only to the extent that it allows free individuals to fully exercise their will without interfering with others’ freedoms to do the same. See generally: John Locke, *Two Treatises of Government*. ed. Thomas Hollis. London: A. Millar et al. (1764) available at: <https://oll.libertyfund.org/titles/locke-the-two-treatises-of-civil-government-hollis-ed>

<sup>56</sup> Many people are familiar with the “categorical imperative” that guides the moral philosophy of Immanuel Kant: “Act only according to that maxim by which you can at the same time will that it should become a universal law.” Less well known is the philosopher’s alternative formulation of his core moral principle offered later in his *Groundwork of the Metaphysics of Morals*: “Act so that you treat humanity, whether in your own person or in that of another, always as an end and never as a means only.” See: James Rachels, “Kantian Theory: The Idea of Human Dignity,” from *The Elements of Moral Philosophy*. New York, NY: Random House Press (1986): pgs. 114-117, 122-123.

The case for an open society based on liberal democracy has been made well elsewhere,<sup>57</sup> so we will not rehearse it here and will instead assume that the reader finds its relative merit uncontroversial. The case we will make, however, is that cash is a necessary condition for the existence of an open society. That is, that a cashless society cannot fully be an open society because, as we have seen, eliminating cash means that all transactions are necessarily intermediated, and intermediation undermines privacy and autonomy—two values necessary for the individual liberty and human dignity that undergird an open society.

Privacy is essential to freedom of thought, speech, and association not only because it prevents would-be censors from discovering thoughtcrimes, but also because of the chilling effects that come from knowing one is being watched, especially by an authority. In his excellent history of the Third Reich, Thomas Childers explains how the German people were changed by the fear of being watched:

The American novelist Thomas Wolfe, who had traveled widely in Germany during the Weimar years, was shocked on a return trip in the mid-1930s by the dramatic changes that Hitler had wrought. He could hardly recognize the country he thought he knew. “Here was an entire nation,” he wrote, “. . . infested with the contagion of an ever-present fear. It was a kind of creeping paralysis which twisted and blighted all human relations.” Yet, thinking back on day-to-day life in the Third Reich, most Germans did not recall being consciously afraid. Instead they lived with a subliminal fear; developing a sixth sense for survival; learning what to say, when, and to whom was essential in daily life. A quick, almost reflexive glance over the shoulder to see who might be watching or listening nearby was dubbed the “deutscher Blick,” the German glance. Martha Dodd, the daughter of the American ambassador, recalled that “whenever we wanted to talk, we had to look around corners and behind doors, watch for the telephone and speak in whispers.” Many were convinced that their telephone receivers were rigged to act as transmitters so that private conversations at home could be listened to by the authorities. One defense was to place a tea cozy over the telephone to muffle conversations. Berlin merchants couldn’t keep them on the shelves.<sup>58</sup>

Additionally, without privacy—without the ability to control what one reveals to others about oneself—it is more difficult to avoid becoming an instrument in someone else’s design, to preserve one’s dignity. For example, consider this story published in the *New York Times Magazine* in 2012:

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<sup>57</sup> Perhaps most famously by the United Nations’ Universal Declaration of Human Rights. Universal Declaration of Human Rights, G.A. Res. 217A (III), U.N. Doc. A/810 at 71 (1948), *available at* [https://www.ohchr.org/EN/UDHR/Documents/UDHR\\_Translations/eng.pdf](https://www.ohchr.org/EN/UDHR/Documents/UDHR_Translations/eng.pdf).

<sup>58</sup> Thomas Childers, *The Third Reich: A History of Nazi Germany*. New York, NY: Simon & Schuster (2017): pgs. 321-322.

[A] man walked into a Target outside Minneapolis and demanded to see the manager. He was clutching coupons that had been sent to his daughter, and he was angry, according to an employee who participated in the conversation.

“My daughter got this in the mail!” he said. “She’s still in high school, and you’re sending her coupons for baby clothes and cribs? Are you trying to encourage her to get pregnant?”

The manager didn’t have any idea what the man was talking about. He looked at the mailer. Sure enough, it was addressed to the man’s daughter and contained advertisements for maternity clothing, nursery furniture and pictures of smiling infants. The manager apologized and then called a few days later to apologize again.

On the phone, though, the father was somewhat abashed. “I had a talk with my daughter,” he said. “It turns out there’s been some activities in my house I haven’t been completely aware of. She’s due in August. I owe you an apology.”<sup>59</sup>

How did Target know that the girl was pregnant before she had told her father?

When you shop at Target you are assigned a unique identifier that is used to track everything you buy. Target does not seek your consent to do this. Simply using a credit card is enough to let Target start identifying and profiling you. By statistically comparing the shopping habits of women who had voluntarily signed up for Target’s baby registry program (thus known to be pregnant) with those of the broader public, the retailer can predict not only who is pregnant, but “also estimate her due date to within a small window, so Target could send coupons timed to very specific stages of her pregnancy.”<sup>60</sup>

It’s tempting to think, “So what?” Although the girl did not willingly reveal her pregnancy, Target gleaned the fact from her purchasing history, which is a history of voluntary interactions, even if the girl could not foresee what they would reveal. And it was indeed a fact, after all, that she was pregnant, and not something she would be able to keep from her father for long. There are deeper issues, however, and that is betrayed by how Target thinks about its surveillance program.

Andrew Pole, the Target statistician who developed the pregnancy prediction program, had the task put to him by the marketing department this way: “If we wanted to figure out if a customer is pregnant, even if she didn’t want us to know, can you do that?”<sup>61</sup>

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<sup>59</sup> Charles Duhigg, “How Companies Learn Your Secrets,” *New York Times Magazine* (Feb. 16, 2012) <https://www.nytimes.com/2012/02/19/magazine/shopping-habits.html>.

<sup>60</sup> *Id.*

<sup>61</sup> *Id.*

As the *New York Times* reported, “Using data to predict a woman’s pregnancy, Target realized soon after Pole perfected his model, could be a public-relations disaster. So the question became: how could they get their advertisements into expectant mothers’ hands without making it appear they were spying on them? How do you take advantage of someone’s habits without letting them know you’re studying their lives?” A Target executive explained the solution:

“[W]e started mixing in all these ads for things we knew pregnant women would never buy, so the baby ads looked random. We’d put an ad for a lawn mower next to diapers. We’d put a coupon for wine glasses next to infant clothes. That way, it looked like all the products were chosen by chance.

“And we found out that as long as a pregnant woman thinks she hasn’t been spied on, she’ll use the coupons. She just assumes that everyone else on her block got the same mailer for diapers and cribs. As long as we don’t spook her, it works.”

Not only did Target seek to gather information about individuals even if the individuals did not want to give up the information, they also sought to hide what they were doing because they understood it would be seen as an affront to human dignity. They were right. In the particular case of the young woman, Target’s surveillance inadvertently robbed her of her ability to decide when and how to tell her father about her pregnancy.

Other examples abound. Companies may not always divulge their targeted advertising campaigns like Target has, but much modern marketing relies on such impersonal data-driven methods.

Firms assuage the public of the “creepiness factor” by pointing out that their datasets are de-individualized, which means that the advertising profiles they build for people are not directly connected to their name.<sup>62</sup> Someone is merely “Potential Customer #46274, unmarried, high school student, with likely interests in baby items and frozen foods,” or whatever the case may be. However, since that profile is still tied to one’s identity, and used to try to affect their behavior, the fact that a literal name is not associated may be cold comfort.

Companies pay for access to this data to try and coax people to behave the way they want—namely, by buying more of their product or services. When advertising merely broadcasts general price or product information to the public, it can be a helpful tip (or a minor

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<sup>62</sup> See, for example: Mark Bergen and Jennifer Surane, “Google and Mastercard Cut a Secret Ad Deal to Track Retail Sales,” *Bloomberg* (Aug. 30, 2018) <https://www.bloomberg.com/news/articles/2018-08-30/google-and-mastercard-cut-a-secret-ad-deal-to-track-retail-sales>.

annoyance). But when marketing is driven by a comprehensive secret profile of imputed lifestyle attributes, it can become invasive and troubling.

The case of a major retailer targeting pregnant women with a campaign to ensure future consumer loyalty is alarming. But not all behavioral marketing is necessarily sinister. The point is that a world without cash gives consumers less of an ability to voluntarily exit such schemes, since all of their purchases would be intermediated and therefore up for grabs to marketing profilers who may not respect our privacy and autonomy.

Privacy's fundamental relationship to human dignity must be emphasized.<sup>63</sup> Samuel Warren and Louis Brandeis's foundational article, "The Right to Privacy," not only noted the physical and pecuniary harms dealt by privacy violations, but also "spiritual" wrongs, injuries to "estimates of [ourselves]," assaults upon our "own feelings," and blows to our "inviolable personality"—that is, our human "dignity," to which the authors directly refer in their conclusion.<sup>64</sup> We do not desire privacy merely for its beneficial effects, the dignity it affords is a fundamental part of being human.

Given that consumers don't affirmatively consent to retail surveillance, what can one possibly do to avoid losing one's privacy? The answer is to pay with cash; to transact anonymously.

Cash serves as an escape valve in our increasingly intermediated and therefore surveilled world. It's not that it should be the only option, or even the option one should choose most of the time. But it should be an option. Without it, there is no choice but to have one's every purchase be watched and recorded and the information used without one's consent. Without cash there is no exit—no chance for the kind of dignity-preserving privacy that undergirds an open society.

Cash is also necessary to retain agency and autonomy. Autonomy can be understood as the power to make decisions for oneself without interference from others. It's the ability to try things one's way, to succeed and be rewarded, or to make mistakes and learn from them. As with personal privacy, without individual autonomy there can be no meaningful open society.

The law surrounding prior restraint of publication in the United States is a good illustration of how an open society respects autonomy. It holds that while one may be held to account for one's speech after the fact, censorship before publication is not allowed. This ancient rule of Anglo-American law was explained by English jurist William Blackstone this way:

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<sup>63</sup> Edward J. Bloustein, "Privacy as an aspect of human dignity: an answer to Dean Prosser," 39 *N.Y.U. L. Rev.* (1964): pgs. 962-1007, available at: <https://heinonline.org/HOL/P?h=hein.journals/nylr39&i=974>.

<sup>64</sup> Samuel D. Warren and Louis D. Brandeis, "The Right to Privacy," 9 *Harv. L. Rev.* 5 (1890), available at: <http://www.gutenberg.org/files/37368/37368-h/37368-h.htm>.

The liberty of the press is indeed essential to the nature of a free state; but this consists in laying no *previous* restraints upon publications, and not in freedom from censure for criminal matter when published. Every freeman has an undoubted right to lay what sentiments he pleases before the public; to forbid this, is to destroy the freedom of the press; but if he publishes what is improper, mischievous or illegal, he must take the consequence of his own temerity.<sup>65</sup>

Even when the government might know that one is going to publish something potentially harmful or illegal, it is not allowed to prevent one from publishing it, though it may seek to punish one for it after the fact. That is, it must respect one's autonomy. As the Supreme Court has put it, "If it can be said that a threat of criminal or civil sanctions after publication 'chills' speech, prior restraint 'freezes' it at least for the time."<sup>66</sup>

The same logic that applies to speech is applicable to association and other freedoms valued by an open society. Respect for autonomy is how such freedoms are given meaning; a legal right is useless if one can be prevented from exercising it. The more intermediated a society is, however, the easier and more tempting it becomes to effect prior restraints on the free exercise of rights.

In more liberal societies, censorship is typically not aimed at mainstream views, but rather at speech that is unpopular and controversial—that is, speech the protection of which is the hallmark of an open society. It's therefore no surprise that a target of attempts to use financial intermediaries for prior restraint has been the National Rifle Association (NRA). The NRA may be a controversial organization, but it is certainly one rooted in the constitutional bedrock of our open society. After all, for good or ill, the NRA is a free association of individuals that exists to engage in speech to defend a constitutional right. The group is not just a legal and legitimate voice, it speaks for millions of Americans.

Someone who values an open society and also disagrees with the NRA would seek to meet speech with speech and ideas with ideas; they would not, however, seek to silence the NRA from speaking at all. Preventing "unhealthy" views from being expressed is what you would expect to see in an authoritarian, closed society like China. Yet this is how a press release from the State of New York issued last year began:

Governor Andrew M. Cuomo today directed the Department of Financial Services to urge insurance companies, New York State-chartered banks, and other financial services companies licensed in New York to review any relationships they may have with the National Rifle Association and other similar organizations. Upon this review, the

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<sup>65</sup> William Blackstone. *Commentaries on the Laws of England: A Facsimile of the First Edition of 1765-1769, Volume 4*. Chicago: University of Chicago Press (1979): page 152.

<sup>66</sup> *Nebraska Press Assn. v. Stuart*, 427 U.S. 539 (1976).

companies are encouraged to consider whether such ties harm their corporate reputations and jeopardize public safety.<sup>67</sup>

If the governor's request was too subtle, Financial Services Superintendent Maria Vullo made it clear later in the same press release, stating, "DFS urges all insurance companies and banks doing business in New York to join the companies that have already discontinued their arrangements with the NRA[.]"<sup>68</sup> This is remarkable. Governor Cuomo is telling financial intermediaries over which he has serious power that they must cut off one of his political opponents, not because that opponent broke any law, but because it engages in speech and advocacy at odds with the governor's views.<sup>69</sup>

While the governor cannot simply ban the NRA's speech, he clearly feels less constrained to threaten intermediaries that he regulates and whose continued operations depend on permission from the state. Because New York is the world's financial hub, the state has authority over just about every bank and fintech firm with operations in the country. As a result, losing access to New York-regulated financial intermediaries is practically a death sentence for any advocacy group. As the NRA put it in a suit filed against Cuomo, "If the NRA is unable to collect donations from its members, safeguard the assets endowed to it, apply its funds to cover media buys and other expenses integral to its political speech, and obtain basic corporate insurance coverage, it will be unable to exist as a not-for-profit or pursue its advocacy mission."<sup>70</sup>

This is not just a viewpoint-based prior restraint on one organization's ability to speak; it is also a restraint on the autonomy of millions of citizens who wish to make perfectly legal and legitimate contributions, to engage in free association and collective speech. Such prior

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<sup>67</sup> Office of Governor Andrew M. Cuomo, "Governor Cuomo Directs Department of Financial Services to Urge Companies to Weigh Reputational Risk of Business Ties to the NRA and Similar Organizations," Press Release (Apr. 19, 2018) <https://www.governor.ny.gov/news/governor-cuomo-directs-department-financial-services-urge-companies-weigh-reputational-risk>.

<sup>68</sup> *Id.*

<sup>69</sup> The DFS went beyond idle threats. It fined two insurance companies, Lockton Companies and Illinois Union Insurance Company, \$7 million and \$1.3 million respectively for underwriting an NRA-branded insurance program called "carry guard." See: New York Department of Financial Services, "DFS fines Lockton Companies \$7 million for underwriting NRA-branded 'carry guard' insurance program in violation of New York insurance law," Press Release (May 2, 2018) <https://www.dfs.ny.gov/about/press/pr1805021.htm>; New York Department of Financial Services, "DFS fines Chubb subsidiary Illinois Union Insurance Company \$1.3 million for underwriting NRA-branded 'carry guard' insurance program in violation of New York insurance law," Press Release (May 7, 2018) <https://www.dfs.ny.gov/about/press/pr1805071.htm>.

<sup>70</sup> *National Rifle Association of America v. Cuomo et al*, No. 18-CV-00566-TJM-CFH (N.D.N.Y., Jul. 20, 2018) available at <https://drive.google.com/file/d/15Ld2KEw6SqsVhOYgKU13SXFTDoz4J3IA/view>.

restraint is only possible because of our dependence on financial intermediaries. While physical cash could serve as a last resort, it is not a practical alternative in our increasingly digital world. It is therefore the reliance on intermediaries that is at odds with individual autonomy, an important basis for an open society.

The risk to autonomy posed by a dependence on financial intermediaries exists even if there were no egregious government actions like Cuomo's. In an article published months before the governor's edict, *New York Times* columnist Andrew Ross Sorkin made the case that the financial industry should, of its own accord, use its "leverage over the gun industry" to "effectively set new rules for the sales of guns in America[.]"<sup>71</sup> If Mastercard were to bar customers from using their credit cards for certain gun purchases, he wrote, "assault weapons would be eliminated from virtually every firearms store in America because otherwise the sellers would be cut off from the credit card system."<sup>72</sup>

While one may not like guns or speech advocating for the right to bear arms, it is important to recognize that maintenance of an open society is not compatible with financial intermediaries having this much power. Dependence on intermediaries means not only constant and unavoidable surveillance, but also the power to thwart individual autonomy. Today it may be gun advocates that are targeted, but tomorrow it could be abortion providers<sup>73</sup> that are dropped by financial intermediaries. Groups such as Muslim charities,<sup>74</sup> sexual fetishist communities,<sup>75</sup>

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<sup>71</sup> Andrew Ross Sorkin, "How Banks Could Control Gun Sales if Washington Won't," *New York Times* (Feb. 18, 2018) <https://www.nytimes.com/2018/02/19/business/banks-gun-sales.html>.

<sup>72</sup> *Id.*

<sup>73</sup> Meaghan Winter, "The Most Difficult Business You Could Run," *Bloomberg Businessweek* (Feb. 24, 2016) <https://www.bloomberg.com/features/2016-abortion-business/>.

<sup>74</sup> Lawrence White, "Hundreds of UK charities hit by global crackdown on illegal funds," *The Independent* (Jul. 27, 2017) <https://www.independent.co.uk/news/business/news/uk-charities-illegal-fund-crackdown-money-hundreds-oxfam-save-the-children-hsbc-a7862261.html>.

<sup>75</sup> Jeremy Malcolm, "Payment Processors are Still Policing Your Sex Life, and the Latest Victim is FetLife," *Electronic Frontier Foundation* (Mar. 15, 2017) <https://www.eff.org/deeplinks/2017/03/payment-processors-are-still-policing-your-sex-life>; Or even those misidentified as sexual fetishists: Violet Blue, "Why PayPal's crackdown on ASMR creators should worry you," *Engadget* (Sep. 14, 2018) <https://www.engadget.com/2018/09/14/paypal-ban-asmr-sound-art-therapy/>.

and socialist booksellers<sup>76</sup> have already experienced such extralegal sanctioning. It's no surprise that the American Civil Liberties Union filed a brief in support of the NRA.<sup>77</sup>

Cash and financial intermediaries both have important roles in an open society. Cash affords people with autonomy and privacy. Financial intermediaries provide convenience. Both structures, however, present challenges. Cash can be used to facilitate crimes or evade taxes. Financial intermediaries surveil our every transaction and can limit what we are allowed to do with our own funds, becoming de facto legislators, judges, and juries. The challenge for open societies is to allow both structures to co-exist while maintaining a legal system that proportionately addresses downsides.

Another challenge for open societies is to ensure that, as more commerce is undertaken on the internet and via mobile devices, we maintain an escape valve that allows individuals to safeguard their privacy and autonomy. One way to do this is to foster the ongoing development of electronic cash.

## **The Moral Case for Electronic Cash**

Cash is a bearer, peer-to-peer, permissionless, and privacy-preserving form of money. In a world without cash, all transactions are intermediated. That means that there is no way to engage in a transaction that is not recorded by a third party, and there is no way to engage in a transaction without the permission of a third party. Such complete intermediation is at odds with the essential values of an open society. Indeed, intermediation undergirds the systems of control employed by authoritarian states like China.

Cash is essential to an open society. It is an escape valve that lets us protect our privacy, dignity, and autonomy. It is therefore imperative that we preserve our ability to use it. Yet that is not enough. As we move to an increasingly online world in which physical cash is not practical for many transactions, we must also develop and foster *electronic cash*.

Electronic cash is exactly what it sounds like: a bearer, peer-to-peer, permissionless, and privacy-preserving form of money that is not paper or metal, but digital. Bitcoin, the world's first cryptocurrency, was created to be that. While it is bearer, peer-to-peer, and permissionless, it is not yet completely privacy-preserving. The Bitcoin system still leaves a sufficient digital trail to make it traceable in a way that physical cash is not.<sup>78</sup> For close to a decade, cryptographers and computer scientists have been working to improve on Bitcoin's

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<sup>76</sup> Cory Doctorow, "Paypal blacklists payments for a World Socialists pamphlet about the Iranian opposition," *BoingBoing* (Mar. 29, 2018) <https://boingboing.net/2018/03/29/oh-paypal.html>.

<sup>77</sup> Brief for the ACLU as Amicus Curiae, *NRA v. Cuomo* (2018), available at <https://www.aclu.org/legal-document/nra-v-cuomo-aclu-amicus-brief>

<sup>78</sup> Adam Ludwin, "How Anonymous is Bitcoin?" *Coin Center* (Jan. 20, 2015) <https://coincenter.org/entry/how-anonymous-is-bitcoin>.

design in order to build a cryptocurrency that is not only permissionless and censorship-resistant, as Bitcoin is, but also private. Today there are several privacy-preserving cryptocurrencies under development, including Beam, Dash, Grin, MobileCoin, Monero, and Zcash, which hold the promise of being true electronic cash. It is also likely that enhanced privacy will eventually be added to Bitcoin as well.

Privacy is a notoriously difficult concept to define, but a useful definition was put forth by mathematician and computer scientist Eric Hughes: “Privacy is not secrecy. A private matter is something one doesn’t want the whole world to know, but a secret matter is something one doesn’t want anybody to know. Privacy is the power to selectively reveal oneself to the world.”<sup>79</sup> In this formulation, it is interesting to note that Hughes does not frame privacy as a right to be respected by others, but as a power to be exercised by individuals.

Without denying conceptions of privacy as a *right*, which necessarily imposes duties on others and must be enforced by government, the case we make here is simply for the freedom to guard what one reveals about oneself to the world, and to build and use technology (like cash) to do so. Not only is that a more modest goal, but additionally if privacy is to be a check on government overreach, then its enforcement cannot depend on government. The conception of privacy we advance here is therefore something that can be exercised individually and does not depend on anyone else. Think of the \$100 bill dropped anonymously into a church’s poor box. The donor’s privacy depends on no one but himself. The donor’s ability to retain his privacy, however, turns on the technology available to him.

Physical cash—from seashells, to gold coins, to paper notes—is a technology that for millennia has allowed individuals to exercise autonomy and retain privacy. As we move to a world that is increasingly dematerialized, with all the attendant benefits and efficiencies, we must preserve the ability to transact autonomously and privately that physical cash has heretofore made possible. Cryptocurrency that is both permissionless and private is a technology that can allow individuals to continue to live in an open society even as life is increasingly digitized. It is a tool that can allow one to shop at physical or online stores alike and reduce the risk of being tracked. It is a tool that allows one to contribute to advocacy groups that have powerful political enemies. And it is a tool that dissidents can use to resist authoritarian states.

Caring deeply about the freedom that cash engenders is part and parcel of the Western liberal tradition. While many Nordic and Asian countries seem to be racing towards adopting a cashless society, in Germany the trend is decidedly the opposite. Given their experience with two authoritarian regimes—one fascist and one communist—Germans seem to appreciate how cash helps protect their freedom, privacy, and autonomy. Germans use cash for 80 percent of all transactions, and proposals to move in a more cashless direction have been met with

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<sup>79</sup> Eric Hughes, “A Cypherpunk’s Manifesto,” (1993)  
<https://www.activism.net/cypherpunk/manifesto.html>

widespread public protest.<sup>80</sup> Germans also carry about twice as much cash as people in the U.S.,<sup>81</sup> and tens of thousands of restaurants and shops, from big to small, are cash only.<sup>82</sup> In Germany, the major chains Aldi and Ikea did not begin accepting credit cards until two years ago.<sup>83</sup>

“Cash, to me, is an important public good by which you measure the transparency and legal order of a society, and also the respect for the individual and the private sphere,” Max Otte, a German economist who leads Save Our Cash, a national campaign opposing restrictions on cash, has explained. “‘Why do Germans like cash?’ is the wrong question,” he told Bloomberg. Instead, Otte asks, “Why have others shifted to a cashless society so quickly?”<sup>84</sup> Indeed, “cash is printed freedom” is a German expression.<sup>85</sup> Unlike other polities that have taken for granted the freedom that cash confers on individuals, Germans understand that cash is an individual check on the kind of all-out state control that we see in China.

Peer-to-peer electronic cash is at most 10 years old. Before that, all online transactions were necessarily intermediated. This means that there was a period of decades in which digital transactions were synonymous with intermediated transactions because there simply was no alternative. As a result, it may be that individuals, firms, and governments have come to see electronic transactions as inherently traceable and censorable. But there is nothing natural or fixed about such a state of the world; there is no reason it has to be that way. Indeed it may have been only a matter of time for individuals who value the capabilities that physical cash technology afford would successfully replicate it digitally. Those who build the technology and advocate for its use today share with the German people an understanding of the fragility of liberty and how technologies of individual empowerment are essential to retaining an open society.

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<sup>80</sup> Matthew Campbell, “Germany is Still Obsessed With Cash,” *Bloomberg Markets* (Feb. 5, 2018) <https://www.bloomberg.com/news/features/2018-02-06/germany-is-still-obsessed-with-cash>; Mihret Yohannes, “German rallying cry is ‘cash only,’” *USA Today* (Jul. 16, 2015) <https://www.usatoday.com/story/news/world/2015/07/16/germans-love-cash-and-suspicious--credit-debt/30230061/>.

<sup>81</sup> Matt Philips, “Why Germans pay cash for almost everything,” *Quartz* (Sep. 17, 2014) <https://qz.com/262595/why-germans-pay-cash-for-almost-everything/>.

<sup>82</sup> Matthew Campbell, “Germany is Still Obsessed With Cash,” *Bloomberg Markets* (Feb. 5, 2018) <https://www.bloomberg.com/news/features/2018-02-06/germany-is-still-obsessed-with-cash>.

<sup>83</sup> *Id.*

<sup>84</sup> *Id.*

<sup>85</sup> *Id.* See also: Hardy Graupner, “Should paper money be abolished?” *Deutsche Welle* (May 18, 2015) <https://www.dw.com/en/should-paper-money-be-abolished/a-18456046>.

An open society is not costless. Free speech is abused by demagogues and used to spread truly harmful ideas. Freedom of religion protects cultists. Freedom of movement is exploited by terrorists. Yet it would be ridiculous to do away with these freedoms and the benefits they bestow in order to eliminate their costs. The same is true about technologies that enable an open society. Cars are often used to rob banks, email to commit fraud, and web forums to post child pornography. We do not, and should not, restrict individuals' right to use technologies solely because they can be misused.

Without a doubt, electronic cash will be used by some in the course of breaking the law. That is an attendant cost to the benefits described above. If there was no electronic cash (or physical cash for that matter), and all transactions were surveilled and subject to control, then law enforcement might have an easier time prosecuting criminals—just as they would have an easier time spotting crime if all houses were made of glass. But that would not be a better world. It would therefore make no sense to seek to restrict the freedom of all citizens to use cash—to undermine the underpinnings of an open society—in order to make it easier to catch a minority of people who commit crimes. Justice Douglas was right when he wrote, “I am not yet ready to agree that America is so possessed with evil that we must level all constitutional barriers to give our civil authorities the tools to catch criminals.”<sup>86</sup> The fact that criminals will exploit freedom and technology to break the law is the cost of living in an open society, but it is outweighed by the benefits. And, making a thing illegal will not necessarily stop criminals from using it.

The good news is that over time we have developed an effective way to deal with the criminal use of cash. Financial institutions throughout the world are required to identify their customers, keep records, and report suspicious activities to government authorities.<sup>87</sup> Among such suspicious activities are the withdrawal or deposit of large sums of cash or otherwise questionable transactions involving cash.<sup>88</sup> There is no reason why the same reasonable regulatory regime that is applied to anonymous and untraceable physical cash could not be applied to electronic cash, and in almost all respects it is already.<sup>89</sup> Doing so would allow law abiding individuals to withdraw and use electronic cash as a useful form of payment and

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<sup>86</sup> *California Bankers Assn. v. Shultz*, 416 U.S. 21 (1974) available at <https://caselaw.findlaw.com/us-supreme-court/416/21.html>.

<sup>87</sup> For example, the Financial Action Task Force (FATF), also known as the Groupe d'action financière (GAFI), is an international intergovernmental organization comprised of 38 members which develops and recommends policies to combat money laundering and other crimes. These policies are directed primarily at financial institutions because of the critical role that banks play in international money transfers. See: Kern Alexander, “The International Anti-Money-Laundering Regime: The Role of the Financial Action Task Force,” *Journal of Money Laundering Control*, Vol. 4, No. 3 (2001): pgs. 231-248, <https://doi.org/10.1108/eb027276>.

<sup>88</sup> *Id.*

<sup>89</sup> US Department of the Treasury, Financial Crimes and Enforcement Network, “Application of FinCEN’s Regulations to Persons Administering, Exchanging, or Using Virtual Currencies” Guidance FIN-2013-G001 (Mar. 18, 2013) [http://fincen.gov/statutes\\_regs/guidance/html/FIN-2013-G001.html](http://fincen.gov/statutes_regs/guidance/html/FIN-2013-G001.html).

escape-valve from constant monitoring while ensuring that law enforcement has the ability to target the large scale and systematic criminal use of the technology. What this means in practice is that enforcing the law against some criminals, especially small-scale ones, will not be easy and will instead require the same kind of resource-intensive police work (often undercover) necessary to apprehend those who use physical cash. Those parts of a criminal enterprise that employ electronic cash on a larger scale will eventually interface with the regulated financial system, however, and at that point law enforcement should have the same tools at their disposal as they do with physical cash. Regulators can and should treat electronic cash the same as physical cash.

## Conclusion

The U.S. is far from being a cashless society, and it has constitutional protections that should serve as a bulwark against overreach from an authoritarian state. But eternal vigilance is the price of liberty. While the likelihood that a China-style social credit system will be enacted in the U.S. is low, there are similar threats that citizens should be able to guard against. As we have seen, the more intermediated our financial lives become, the more tempted corporate entities and government officials will be to spy on individuals or take steps to restrict how individuals can transact—often with the best of intentions.

In 2014, for example, the Transportation Security Administration sought bids from vendors to build a passenger screening system that would rely on “commercial data” including “wide ranging data such as purchase information.”<sup>90</sup> The TSA did not explain what kinds of purchases could be deemed red flags, or as Chinese authorities might put it, “unhealthy.” More recently, online financial intermediaries like PayPal, Stripe, and Patreon have shut down the accounts of users on both of the political spectrum for the fringe views they espoused.<sup>91</sup> And in 2014, J.P. Morgan lost to hackers the private financial records of over 100 millions customers.<sup>92</sup>

Cash—and in an increasingly digital world, electronic cash—is a tool that law abiding private individuals can use to protect their privacy, autonomy, and ultimately their dignity. It should

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<sup>90</sup> Tim Cushing, “The TSA Wants To Read Your Facebook Posts And Check Out Your Purchases Before It Will Approve You For PreCheck,” *TechDirt* (Jan 26, 2015) <https://www.techdirt.com/articles/20150123/09423229792/tsa-wants-to-read-your-facebook-posts-check-out-your-purchases-before-it-will-approve-you-precheck.shtml>.

<sup>91</sup> David Gilmour, “How Patreon stepped into a war between Antifa and the alt-right,” *The Daily Dot* (Aug. 8, 2017) <https://www.dailydot.com/layer8/patreon-antifa-altright-igd-lauren-southern/>; Glenn Harlan Reynolds, “When Digital Platforms Become Censors,” *Wall Street Journal* (Aug. 18, 2018) <https://www.wsj.com/articles/when-digital-platforms-become-censors-1534514122>.

<sup>92</sup> Tanya Agrawal, David Henry, and Jim Finkle, “JPMorgan hack exposed data of 83 million, among biggest breaches in history,” *Reuters* (Oct. 2, 2014) <https://www.reuters.com/article/us-jpmorgan-cybersecurity/jpmorgan-hack-exposed-data-of-83-million-among-biggest-breaches-in-history-idUSKCN0HR23T20141003>.

not just be tolerated, but fostered and celebrated. Not only do its benefits outweigh its costs, it is check that individuals may wield over abusive intermediaries. It will help ensure we do not lose our open society.