

Poverty-Reducing Economy via Bitcoin and One-Dollar-Store Model

Aleksey Vaneev (May 28, 2023)

e-mail: aleksey.vaneev@gmail.com

Abstract: this proposal presents a transactional system, based on existing blockchain technology, that permits usage of digital currency ecosystem for reduction of general poverty.

The Bitcoin and digital currencies based on blockchains are already widely used and understood. However, it is often assumed that they do not offer any real-world benefits beside financial speculation with an exaggerated risk, or even support of illegal operations...

On the other hand, it is possible to implement enhancements to existing blockchain algorithms of Bitcoin and other digital currencies – the enhancements that may lead to creation of “moneyless economy”, a sub-economy of general economy, with poverty-reducing benefits.

The first part of enhancement requires creation of the “gift card request pool”. It is similar to a usual memory pool of pending transactions, but instead collects signed requests for “gift cards” of real economy agents (unrelated to blockchain miners). A “gift card” is an abstract object that gives its recipient a right to receive some tangible or intangible product from a real-world producer or store (gift card provider). For a “gift card request” to be valid, it should include: a wallet identifier of the requester, with this wallet having a non-zero balance; a wallet identifier of the product, which should also have a non-zero balance (zero balance denotes that a gift offer is no longer available). A gift card request is non-mandatory for fulfilling, and expires in 24 hours.

The moment a gift card request appears in the pool, its associated provider considers the availability of resources to fulfill the request, or if there are too many requests present at a given time, selects (e.g., via a lottery) requests that can be fulfilled immediately. If the request can be fulfilled, the provider creates a special transaction in miners’ transaction pool. This gift card transaction (which may only originate from a product wallet) includes gift card receiver’s wallet identifier, transaction fee, and a public identifier string of the issued gift card (which is unique to the provider).

The receiver’s identity (beside wallet) is not included into the request nor transaction as it is assumed that the receiver was already registered with the provider in their local database, to facilitate a timely real-world transfer of a product to this receiver. The public identifier of a gift card is non-redeemable, and it can be used for product delivery assurance by a third party, which may or may not be mandatory, depending on authority control’s implementation specifics. This public identifier may also refer to a publicly-accessible information for audit that a provider does actually deliver gifts offered (may include delivery partner’s identifier).

Secondly, it is quite obvious that without some authority control both a gift card request and its fulfilling can be easily faked. In order to avoid or minimize the fraud, the authority transactions should be implemented. An authority transaction is a singular transfer of a non-zero balance from an “authority wallet” to gift card receiver’s wallet or product wallet, along with a message “grant” or “revoke”, possibly with wallet owner’s confirmed name. The authority wallets are a set of agreed-upon wallet identifiers shared and accepted by miners (an authority wallet may be related to a specific economy niche a blockchain targets). Gift card receiver’s and product’s wallets without the most recent “grant” authority message from an agreed authority are not considered valid.

Each wallet should pass through a control of at least one agreed authority, which is a real-world process not covered by the blockchain technology nor this proposal, and may require legislation which is not yet in place; a control procedure may involve identity confirmation, some background checks, and an infrequent, but regular processing fee paid from a real-world account, to support authority’s operations.

Where is the money? This is the third part of the proposed enhancement. The monetary mass of a digital currency is produced in the process of “mining”: when a miner finds a suitable blockchain hash value, a specific sum of digital currency is awarded to this miner, increasing the monetary mass as a result. Since this is just a book-keeping operation, the currency can be similarly awarded to the gift card providers. So, in the proposed enhancement, a miner not only builds a block of transactions for which is tries to find a hash value, but also calculates rewards of gift card providers.

Here, the One-Dollar-Store model kicks in: the overall block reward less miner’s own reward is evenly spread over all included gift card transactions. For example, if block reward is 100 coins, and there were 1000 gift card transactions in the block, 10% (10 coins) plus transaction fees are rewarded to the miner, while the remaining 90 coins are spread over 1000 product wallets: 0.09 coins per wallet. If there were only 10 gift card transactions in the block, then each product wallet would be rewarded with 9 coins. This is a self-regulating reward system that balances offers by parties willing to participate and compete for the reward. The main factors of the competition are: the market reach of a gift card provider, a gift’s quality, and digital currency’s real-world valuation.

However, most digital currencies favor a “deflationary” model where mining rewards diminish over time. Since One-Dollar-Store model requires more-or-less stable real goods prices, and needs to account for real-world inflation, an inflationary model is better suited, in order to match the increasing mass of goods to the monetary mass, and to match real-world expenses of gift card providers over time. For example, the block reward may be fixed at 5% of overall coin mass per year, at any given time, which means that the block reward increases numerically after each mined block.

Since it is the miner who prepares the block for inclusion into the blockchain, miner’s software should consider both the gift card request pool and gift card transactions placed by gift card providers: there should be a match of non-zero wallets together with existence of prior “grant” authority transactions. Signed gift card requests should be included into the block, to have a proof of requests’ existence. As an additional anti-fraud and anti-flood counter-measure, miner’s software may reject transactions between a requester and a provider, for a given product wallet, that again occur sooner than a specific number of blocks: it is common to receive the same product once a day, or even less often.

In overall, the most problematic parts of this system are fraud, authority control, and delivery checks (which may be selective and probabilistic). But considering that digital currencies are generally “funny money” while poverty is real, an implementation attempt seems a worthwhile endeavor. With the 500-billion-dollar capitalization of Bitcoin, the proposed system could provide 22 billion dollars of free goods per year, while at the same time the “free stuff” is a great marketing attraction for both the coin and the providers. Note that before 2016, Bitcoin’s yearly inflation was way above 5%, yet this had no much negative effect on its then valuations: it is a speculative asset with the inflation affecting only a part of its expected value. Also, real-world currencies are subject to inflation as well, ensuring valuation parity between them and the coin.