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

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Abstract: this essay presents a transactional system based on blockchain technology that permits usage of digital currency ecosystem to reduce 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-life 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, 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 a creation of "gift card request pool". It is similar to a usual memory pool of pending Bitcoin transactions, but instead relates to requests of "gift cards" from real economical agents (unrelated to Bitcoin 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 provider). For a "gift card request" to be valid, it should include: the wallet identifier of the requester, with the wallet having any non-zero balance; the wallet identifier of the product, which should also have a non-zero balance (zero balance denotes that a gift offer is no longer available); and the customer's identifier local to provider's informational system (e.g., a public password-protected or 2FA username). A "gift card request" is non-mandatory for fulfilling, and expires after 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 many requests present in a given time-frame, selects (e.g., via lottery) the requests that can be fulfilled immediately. If the request can be fulfilled, a provider creates a special transaction in miners' memory pool. This gift card transaction (which may only originate from product wallet) includes gift card receiver's wallet identifier, transaction fee, and a public identifier string of the issued gift card (which together with product wallet is unique to the provider). The local username is not included into the transaction as it is only used by the provider to reference gift card receiver in its database, in order to register and initiate a real-world transfer of goods to this receiver. The public identifier of a gift card can be used for goods delivery assurance by a third party, which may or may not be mandatory, depending on implementation of the authority moderation.

Secondly, it's quite obvious that without some authority moderation 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 any non-zero balance from an "authority wallet" to gift card receiver wallet and product wallet along with a message "grant" or "rewoke". The authority wallets are a set of agreed-upon wallet identifiers shared and accepted by miners. A gift card receiver and product wallets without the most recent "grant" authority message, from an agreed authority, is not considered valid. Each wallet should pass through moderation, from one or more authorities, which is a real-world process not covered by the blockchain technology nor this essay, and may require legislation which is not yet in place; moderation may include identity confirmation and some background checks.

Where is the money? This is the third part of the proposed enhancement. Monetary mass in 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 the miner. 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 providers. Here, the One-Dollar-Store model kicks in: the overall block reward is evenly spread over all included “gift card transactions” less miner’s own reward. For example, if block reward is 100 coins, and there were 1000 “gift card transactions” in the block, 10 coins plus transaction fees may be rewarded to the miner, and 90 coins spread over 1000 product wallets: 0.09 coins per wallet.

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

Since the miner prepares the blockchain block for inclusion, 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, and existence of “grant” authority transactions. As an additional anti-fraud and anti-flood countermeasure, the miner software may reject transactions between requester and provider that previously occurred sooner than a specific number of blocks: it’s usually normal to receive a product once a day or less often.

In overall, the most problematic parts of this system are fraud and authority moderation, but considering that digital currencies are generally “funny money” and poverty is real, an implementation attempt seems a worthwhile endeavor. With the current 500 billion dollar Bitcoin capitalization, the proposed system could provide 25 billion dollars of free goods per year, while “free stuff” at the same time is a great marketing opportunity.