Basic cryptocurrency economics
crypto251.0 Cryptocurrency and the Smileycoin

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November 29, 2020

Background

Prices of cryptocurrencies have fluctuated wildly
Prices of several cryptocurrencies have started or risen to very high level before plummeting
What are the driving factors behind these fluctuations?

The issues

The main issues which drive the price of cryptocurrencies appear to be

- supply and demand
- coinbase (mining)
- difficulty
- pump and dump
- hype and fud
- airdrop
- lack of - or increase in use cases
- speculation vs investment
- change (increase) in public interest

These relate to **supply and demand**. Other economic aspects include

- Donations
- Divident payments
- Universal Basic Income (UBI)

The coinbase, difficulty and mining strategy

Each coin has a built-in plan for the generation of new blocks and new coins
Bitcoin:

- A new block should be made every 10 minutes
- The coinbase for Bitcoin is currently 12.5 Satoshi
- The coinbase is also the miner's fee
- The miner receives 12.5 BTC for mining a new block

Smileycoin:

- Same principle but 10,000 SMLY and one block per 3 minutes
- Coinbase is halved approximately every 7 years
- Miner receives only 10% of the coinbase

The strategy: The "hash" of the block must decrease (**difficulty** increases) if the blocks are generated too fast.

Mining: The tragedy of the commons

```
Block  Hash
5000   000000004d78d2a8a93a1d20a24d721268690bebd2b51f7e80657d57e
10000  0000000099c744455f58e6c6e98b671e1bf7f37346bfd4cf5d0274ac
25000  00000000ae4b125eb183e689b7231eafa8c992d5b8c952d9f3cd30a7
50000  000000001aeae195809d120b5d66a39c83eb48792e068f8ea1fea19c
100000 000000000003ba27aa200b1cecaad478d2b00432346c3f1f3986da1
200000 000000000000034a7dedef4a161fa058a2d67a173a90155f3a2fe6i
300000 000000000000000082ccf8f1557c5d40b21edabb18d2d691cfbf871
518367 00000000000000000164ac8a0f61d8157b0920d13cb53cb7d47610
```

This would be called the "tragedy of the commons" in fisheries: The problem is that there is open access to a new resource and the fee for entry (zero) is not high enough.

Mining development

- *Bitcoin: Currently only large companies ("data centres")*
- *Originally on desktop computer, then using GPSs, followed by ASICs*
- *Other coins: Commonly "mining pool" (grafarahópar?), but similar development*
- *SMLY: Still mostly "solo" mining (coinbase-split is difficult for pools to implement)*

Example: http://prohashing.com/.

Basic economics

Supply and demand drive the price of almost anything.
The supply and demand of a cryptocurrency can be influenced by

- mining to generate new, the coinbase
- airdrop
- lack of - or increase in use cases

Increased difficulty will make mining more expensive but will NOT directly affect the price over any period of time: The increased difficulty may mean that some miners will stop mining or technological development will lead to better ASICs being used.

An **airdrop** is used to hand out large amounts of a cryptocurrency to groups of users. **Auroracoin** is such an example.

Examples of **pump and dump** or **hype and fud** abound. These are techniques used by groups and individuals who intend to affect the prices of cryptocurrencies.

Investment and speculation

- speculation vs investment
- change (increase) in public interest
- like any asset, cryptocurrencies can be used for investments

See handout at https://tutor-web.net/comp/crypto251.0/lec01200/s
for Bitcoin price development
Example of analysis, see https://hackernoon.com/https-medium-com-zv

The airdrop fallacy

- airdrop

Airdrop: Giving money to everyone
Airdrop without incentive to invest or methods to spend: Useless :-)

Setting up use cases

The only way for a cryptocurrency to have a value in the long term is for it to have a use case

The use case might simply be investment:

- Bitcoin is a classic case
- Cryptocurrencies appear to be used as investment portfolios

Use cases can also consist of companies accepting a cryptocurrency as a payment (Bitcoin in particular, but also Auroracoin)

Selling donated coupons is a common method used by non-profit organisations. Coupons can easily be sold for crypto (http://smly.is)

In the early days of Auroracoin there were too few use cases to support holding or using the coin.

Note: Groups **could** agree that all members of a crypto group should put something up for sale and thus be ready to accept payments in the cryptocurrency.

Donations

Several cryptocurrencies encourage

- donations in the currency

The effect on price would normally be none, unless the coinbase is used as a donation which goes directly into circulation.
An interesting twist on donations is to use

- investment in the currency as a means to support a cause financed by the currency (Education in a Suitcase)

(see handout)

Divident payments

Reasoning:

- Reduce dumping
- Increase investment incentive

Smileycoin approach:

- Fixed portion, 45%, of coinbase goes to dividends
- Recipient group: Addresses with at least 25 M SMLY
- Method: Oldest untouched address receives entire next payment

Key figures:

- Amount: 4500 SMLY per block
- Frequency: 480 payments per day
- Rich list: https://chainz.cryptoid.info/smly/#!rich
- 180 addresses as of Sept 7, 2018

The SmileyCoin economy

Cryptocurrencies as a Universal Basic Income

Universal Basic Income (UBI) is a popular term and commonly linked to technological developments which may eventually lead to mass unemployment.

A cryptocurrency could in principle be used as for UBI through a number of means:

- airdrop
- splitting the coinbase
- splitting the transaction fee

but all of these only increase supply, not demand. Hence, none of these will work unless there is simultaneously a setup which provides demand for the coin.

An airdrop could be implemented through a premine, but experience to date suggests that this is not a very good idea (Auroracoin, Smileycoin) and it would be better to use the coinbase+fees for this purpose.

Several cryptocurrency-based UBI projects are listed at

Solving UBI implementation issues: delivery and demand

In addition to problems with a premine, the coinbase alone is unlikely to be enough (exercise: test the increase in supply and demand needed to make this work for Iceland with e.g. 100,000 recipients of a UBI equivalent of 100,000 ISK per month).

If a coin is set up such that the UBI recipient are active parts of the community through

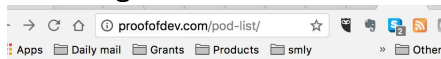- sending the UBI to other addresses (generating a fee)
- putting a service or object up for sale

then a UBI might be feasible.

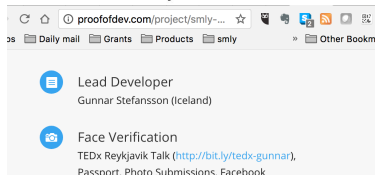Supply would mostly be through the transaction fees.

Demand would be generated by the users themselves.

Keeping or avoiding developer anonymity

Svindl og svínarí? Ýmsar leiðir, t.d. proof of developer . . .

[SMLY] Smileycoin