I think the cryptoeconomics research so far has an unwarranted aversion to cryptocurrency-denominated fixed transaction fees, at least in cases where the fees are for payment of a resource that does not have short-term moment-by-moment congestion effects (ie. things like long-term storage, NOT things like bandwidth, computation and IO costs of verifying a transaction in a block).

The easiest intuitive explanation for this aversion is simple: volatility. If you think the “just right” fee for some expense is $0.1, and ETH is currently $1000, then you might want to set the fee to 0.0001 ETH. But what if ETH then rises to $10000? The cost would rise to $1, which might make the blockchain too expensive. Or if ETH falls to $100, the cost would fall to $0.01, possibly inviting too much spam.

In the past, transactions fees have appeared reasonably stable, and have definitely risen slower than prices have in the long run. BTC fees stayed close to $0.05 all the way through 2013 until part of 2016; the ETH gasprice dropped from 50 to 20 then 4 as ETH prices rose from $1 to $10 then $300. I think that this gave many people, myself included, the false impression that transaction fees can be counted on to be stable, when in reality the stability was only there because blocks were not full and the main mechanism persuading miners to lower their minimum transaction fees was community political pressure, and this kind of politics actually worked, at least until blocks became full.

Now that blocks are full, however, transaction fees are even more volatile

than cryptocurrencyp rices. BTC transaction fees increased by a factor ofover 40 within 4 months, and Ethereum’s average gas price in the last 6 months has been similarly volatile. Fees often rise or fall by a factor of 2-4 within a single day, and short-term spikes from ICOs have been even worse.

Hence, compared to current variable transaction fees, charging fixed fees in ETH may actually be a beacon of stability. Sure, if you set a fee now to target $0.1, and the ETH price rises by 10x, fees will increase to $1, and that resource on the blockchain will be more expensive than you had wanted. But if you set the fee in gas, and interest in using Ethereum

increased by 10x, then fees will themselves rise by as much, and much more chaotically so.

How might fixed fees look in practice? Suppose that we were to market the Ethereum state as “the world computer’s hard drive”, and we determined that it would have a maximum possible storage of 120 TB. Suppose the maximum possible total supply of ETH was 120 million (ie. after full proof of stake it’s capped). Then, in order to create a contract that fills up one kilobyte of space, you would need to lock up 0.001 ETH. This would be true regardless of what the price of ETH is. If you later empty the contract, the ETH gets freed. I don’t necessarily advocate this kind of pseudo-rent-via-lockup, but this is one way to show what the mechanism would look like and what effects it would have.

Note that “diagonal” policies that specify ETH-denominated in-protocol fees, but have the fees start very low and then rise with usage, are also possible (I call these policies diagonal because you can interpret a block size limit as presenting a vertical supply curve, and a fixed in-protocol fee as a horizontal supply curve, so something in the middle would be diagonal; the simplest possible diagonal formula is where the in-protocol fee is proportional to the amount of existing usage).

Objection

: but isn’t this “price fixing” and thus socialist central planning that will lead to poverty and breadlines?

Answer

: unless you are willing to charge literally zero fees and allow unlimited usage of a resource, any

other policy represents some kind of central planning, including the status quo of a vertical supply curve. The protocol offering a horizontal supply curve or a diagonal supply curve is not ipso facto more “central plan-y” than the protocol offering a vertical supply curve, though fundamental uncertainty is definitely a good argument for not trying to make the supply curve any more complex, so as to avoid accidentally overfitting to present conditions at the expense of future unknown unknowns.

This is also not the same thing as price fixing, because price fixing refers to attempts to control the price at which sellers sell to buyers, whereas this is a single virtual seller (the protocol) simply using the power that it already has to sell the resource that it controls to buyers, and we are debating the best way for this virtual seller to set the conditions.

That said, if you want to really try to reduce the number of economic variables set in stone in the protocol as much as possible, then you should really love the stateless client proposal, as it essentially marketizes the role of permanent storage, saying that it’s a user’s own responsibility to store and maintain witnesses (or delegate this task) for any accounts they care about.