

What was missing in talking about EIP-1559

I found that currently, almost all of popular and frequently quoted posts about EIP-1559 came from supporters of this proposal [1]. And I think that something was missing in their posts. Here I am going to make it public and clear, and hope that our community can make a well-informed decision.

Some reasoning base on [my last post on 1559](#). All the comparisons base on one basic definition: The block gas limit of 'current mechanism' is equal to the target usage of applied 'EIP-1559' (the specific value is unimportant).

TL;DR:

- 1) There are other methods (may be easier) to improve predictability of tx cost.
 - 2) In some cases, users will be hurt, either.
 - 3) There will no longer exist incentive to maintain a stable block gas limit.
 - 4) An artificial deflation will come with side effects.
 - 5) EIP-1559 is worse at DoS resistant in some cases.
 - 6) Force can't induce demand for a money.
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1) There are other methods (may be easier) to improve predictability of tx cost.

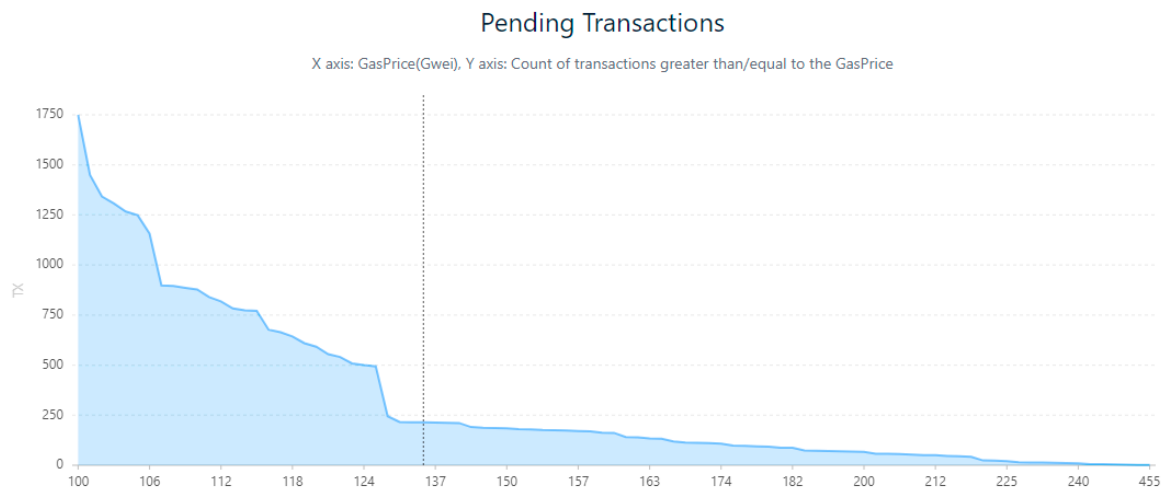
In discussions about 1559, the most frequently argument is that it can improve UX, which means increasing the predictability of tx cost. The reasoning is that a self-adjusting BASE FEE can ensure not-full blocks, in which the tx cost is mainly determined by miners' marginal cost of gas production, rather than other users' bids. **And then, although BASE FEE mechanism cannot tell us how to set a appropriate tip to persuade miners, there is other methods to help us figure out miners' marginal cost.**

There are two main methods mentioned in discussions:

1. External measure. The third parties can measure miners' marginal cost and give us creditable guide. (I am not for sure, the method may be originally proposed by [Vitalik \(2018\)](#).)
2. Voluntarily Exposure. A new parameter called 'minimum_inclusion_fee' will be introduced to clients' mining feature to determine which tx should be included when mining. So if a miner do not change it frequently, this price will be public. (Micah: '[the only real reason to do that \(setting a dynamic value\) that I can think of would be to be a dick](#)' .)

I am not saying that these methods don't work, our community can think of them by themselves. I am going to point out there are other methods to improve predictability of tx cost, should be discussed and compared with 1559. For example, we can improve users' visibility into mempool, to have more confidence on their bid.

[Gasnow.org](#) is a good example. As a gas price prediction system, it uses real-time information of sparkpool's mampool to provide prediction. Users can directly see how much txs with gas price higher than a specific value. Theoretically, it can provide an accurate minimum price for next inclusion.



- Fig 1. GasNow.org -

Someone may say, it is easy to be cheated by miners. But actually, miners would not send fake txs to cheat it (see [Tim Roughgarden's paper](#)). What sparkpool can do is forging data in front end. And it is a very simple problem: we can have many many gasnow to decentralize this service. In fact, every full node can provide this kind of services.

Our community should consider this 'more visibility' method and compare it with 1559 to determine whether it is worth the risk or not.

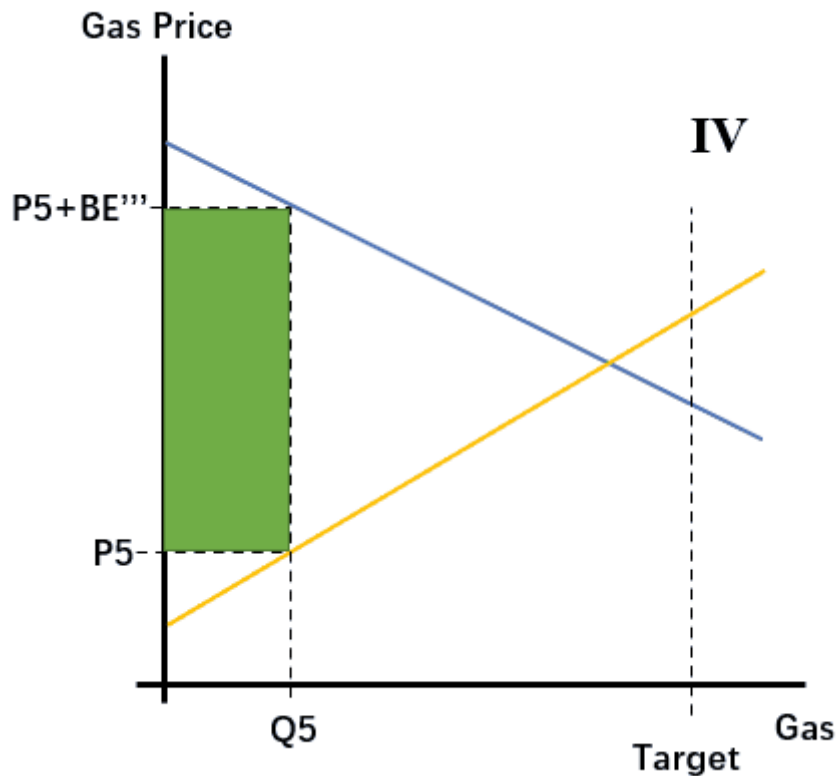
2) In some cases, users will be hurt, either.

Is it true that 1559 just affect miners and doesn't affect users? No. Pros of 1559 said they never claimed that 1559 can decrease tx costs. But they didn't tell you that in some cases, users will have to bear higher tx cost **than in current mechanism**.

When demand is so low that even base fee equal to 0 cannot induce a block bigger than target size, and base fee have not decrease to 0 yet, the tx cost (base fee + necessary tip) will be higher than in current mechanism (which is equal to when base fee is 0), until base fee decrease to 0.

It is contrary to so called 'slack mechanism', where users can get lower tx costs when demand rise suddenly and base fee have not increase to a level resulting in blocks with the target size.

See this gif and [my first post on 1559](#).



- Fig 2. When base fee should decrease -

Someone may say, it is less possible, as the demand to ethereum gas will not be that low. If the target will be fixed at 12.5m, this argument may be true. But the target and block gas limit would not be fixed, as:

3) There will no longer exist incentive to maintain a stable block gas limit.

As pros of 1559 correctly argued, 1559 will eliminate miners' excess income from congestion, which means, miners' income will depend only on how much gas they provide, no matter how much is the gas limit.

For example, after deploying 1559, when gas limit is 25m (so target is 12.5m), miners provide 15m gas, they will get, say, 1000 dollar. When target is 15m (so gas limit is 30m), and they provide 15m gas, they will get 1000 dollar, too.

What is wrong with this? It will also eliminate the incentive to maintain a stable block gas limit.

In current mechanism, miners can increase block gas limit collectively, but they would not increase it frequently, as bigger blocks don't necessarily lead to higher income. So in current mechanism, miners have incentive to maintain the present status.

In a post-1559 world, block gas limit would not be a meaningful parameter to miners. At the same time, the bigger the blocks, the less impact 1559 has (less adjustment suffering, less burning, etc.). So miners will increase block gas limit as much as possible.

It is a big security consideration.

Maybe someone will propose to deprive miners' right to adjust block gas limit. Oh, god, please.

4) An artificial deflation will come with side effects.

It is a common argument that burning mechanism can reduce supply amount of ether, even make a negative issuance rate of ether (resulting in higher value of ethers in their pocket). But it seems that they don't care where does this deflation come from and its side effects.

There are two obvious cost to implement deflation via 1559:

1. Ethereum becomes an unfair system. **It is clear that 1559 is a wealth redistribution system that extracts value from users and miners and subsidize coin holders.** You know it, I know it, everyone knows it. And that's why a lot of people support it.

Value coming from users at first. They find profit opportunities on-chain and try to catch them. When competition between users becomes intense, these value goes to miners. No force, just willing. But 1559 extracts value from them. Coin holders do nothing. Why are they deserved?

2. A unstable issuance rate will make ether a bad money. A stable issuance rate is very important in money market, where people need to know the issuance rate to calculate the real interest rate (and determine how much they save and how much they borrow). Counter-intuitively, only unexpected inflation is harmful, will make inflation-tax and savings dilution. The same, unexpected deflation is harmful, too. It will disincentive investment and innovation, resulting in undercapitalization. What we need is not deflation, but a stable issuance.

Pintail shows different ideas on the first argument. He believes that it is fair, because coin holders (have already?) pay miners through money dilution. But, they pay for what? Consensus liveness or transactions order? Miners' income getting from gas is not coming from an invisible entity called 'coin holders', but every single specific and touchable user. Why do you guys have the right to deprive others' income? Isn't it robber?

By the way, if you (as a coin holder) don't want to pay that much, you can propose a stable monetary policy, or at least you can propose a lower issuance rate. An unstable monetary policy is the root of dilution.

To implement deflation by 1559 just likes you want to eat eggs, so you kill the hen, or, looting shops and claiming it is better to everyone.

5) EIP-1559 is worse at DoS resistant in some cases.

Tim Beiko correctly said that after deployment of 1559, when attackers want to launch DoS attack on our network ('DoS attack' means using computational-intensive txs/blcoks to make nodes over load), the attack cost will increase as base fee go up. It is correct, but he didn't compare this cost with the equivalence in current mechanism.

In fact, when we say users can get lower tx cost via the slack mechanism (bigger blocks), it is equal to say attackers can produce a bigger blocks with a lower cost, although this cost will go up. When base fee finish its adjustment such that the actual gas usage equal to target usage, tx cost equal to the counterpart in current mechanism (given the same demand). So is attack cost.

Also, 1559's anti-DoS benefit comes from when base fee need to decrease to 0. In these cases, tx cost will be higher than in current mechanism.

Please, do not use the fact that 'attacker can submit txs with 0 gas price when they collude miners' to prove that current mechanism is weak. Doesn't pay on-chain do not means the attack cost is 0. The opportunity cost of miners is still the market gas price. Attacker still need to offer a higher price to persuade miners.

6) Force can't induce demand for a money.

'Prevent economic abstraction' is another benefit claimed. But, may I question that what is the necessity? If 'pay to miners off-chain and submit 0 gas price tx' can be seen as a form of 'economic abstraction', in the last five years, Ethereum is always economic abstract-able. Where is the side effect? Our ecosystem break? Our money lose value?

It remind me of good old days when ethereum ecosystem try to implement economic abstraction as a UX improvement. (Although 1559 do not prohibit all possible form of economic abstraction. Through smart contract tech and meta-transactions, users can also interact with ethereum via other tokens. see [this coinbase blog](#).)

(By the way, economic abstraction will not affect ethers' value, as ether lose nothing functional.)

In fact, 1559 does force people to spend ether. This force is not necessary to operation and existence of our network. Economic abstraction just means miners can accept other tokens, doesn't means no one will accept ether.

Force can 't induce demand for a money. See fiat money.

Summary

I have learn more in discussions about 1559. But I still believe it is a bad idea.

If I misunderstand your ideas, please contact with me.

Note:

[1]: As far as I know, they are: [Micah Zoltu](#), [Tim Beiko](#), [Pintail](#), [David Hoffman](#), [Hasu and Gorgios Konstantopoulos](#).