

Quadratic Voting Explained



[Quadratic voting](#) is adopted from the book *Radical Markets* by Weyl and Posner. It has two constitutionally defined uses. The first is to allocate the [Earth Dividend](#). This is done annually. The second is to allocate [VIP Treasury intellectual property](#) funds at the top two levels, also annually and likely six months after the Earth Dividend allocations.

Voters are given a fixed number of [VIP\\$](#) to allocate between the categories. Earth Dividend allocation voters will likely be given the monthly 1,200 VIP\$ to divvy up. Intellectual property voters will be given an arbitrary 100,000 VIP\$.

Slots are allocated based on the current distribution. If 404 VIP\$/month currently go to the housing distribution, then housing will have 404 “slots” on the ballot. Existing slots are more like a bucket. You can pour up to 404 VIP\$ into the bucket.

Next to the bucket are slots for individual VIP\$. If you believe the housing distribution should be raised to 405 VIP\$/per month, add a VIP\$ to one of the slots. Unless the Treasury has added additional VIP\$ to the Earth Dividend, that VIP\$ must come from some other distribution which will lose funding.

Suppose you want to add 2 VIP\$ to the housing distribution. Filling in a second slot with another VIP\$ won't do the trick. Here is where the “quadratic” comes in. The VIP\$ added to any distribution is equal to the square root of the number of extra slots filled in.

The square root of 1 is 1, so filling in a single slot is a vote to add 1 VIP\$ to the distribution. In order to add 2 VIP\$ to the distribution, 4 slots must be filled in because the square root of 4 is 2. If the voter fills in only 2 slots, they are actually voting to increase the size of the housing distribution by 1.414 VIP\$ per month. To vote an increase in the distribution by 3 VIP\$ requires 9 slots, and an increase by 4 VIP\$ requires 16 slots.

When the voting is complete, the total VIP\$ for each distribution are added together and divided by the number of voters. If the housing distribution was to average 404.50 VIP\$, an additional 0.50 VIP\$, the new housing distribution would be 404 VIP\$ + the square root of 0.50 (0.71) = 404.71 VIP\$. Keep in mind that there

is no inflation in [land-based capitalism](#), so this is a real increase in the housing distribution of 71 cents.

After all increases are computed, the decreases to distributions are equal and opposite and proportional to VIP\$ lost/total VIP\$ lost. For instance, if a total of 17.5 VIP\$ were added to various distributions, and the food distribution (240 VIP\$) lost 4.2 VIP\$ out of a total 23 VIP\$ lost, then the new food distribution would be:
 $240 - 17.5 \times (4.2/23) = 240 - 3.2 = 236.80$ VIP\$.

There are caveats from [The Earth Dividend as a Synthesis](#) and [Allocated Distribution Theory](#). The personal distributions can never exceed twice the public goods and service distributions, nor be less than those distributions.

Education is considered to be a public good for this calculation. Unearmarked cash distributions can only be increased with new VIP\$ added to the package by the Treasury. Public service distributions are not just divided by category, but by [tranche](#) to different [levels of dominion](#).

The more divided the public is on a distribution, the slower it will change. Even if the public is unanimous on a distribution, the rate in which the distribution changes will be slow. This is further slowed by using a multi-year moving average to determine the actual increase or decrease.

Why would we want such slow motion? People and businesses rely on these distributions. Voters could vote to shrink a distribution only to encounter unexpected consequences.

The [original distribution](#) is proposed in this text and modified by an [ISO](#) working group during [Phase II](#), based on real-life empirical data. Over any century, the people can change these distributions to something completely different. Over a few years, not so much. This is how it should be.

Voters will look for departments running at maximum efficiency that still rely on a [consumption tax](#) or [aristocratic handout](#) from time to time. These are candidates for an increase in the distribution. Departments running a loose ship are candidates for belt-tightening.

Although this has been mostly a description of Earth Dividend allocation voting, the same principles apply to intellectual property (IP) allocation voting. If folk music has 3 VIP\$ and robotic software 855 VIP\$, and you believe folk musicians are

getting short shrift while robotic software engineers are living too well, you might vote to increase the IP distribution for folk music.

If you had very strong opinions, you might vote all 100,000 VIP\$ to folk music, which is a vote to increase the folk music distribution to 316 (square root of $100,000$) $+ 3 = 319$ VIP\$ and take those VIP\$ from other distributions equally. If this was a wide enough campaign, the IP distribution for folk music might very well go up by more than a few cents in the following year.

New categories are proposed by any of the cellular councils and must be ratified by 30% of the dominion. If ratified, the category moves to the next higher level of dominion, where it again must be ratified by 30%.

This continues to the federation level, where, if ratified by 30% of the Federation, it finds itself on the next IP or Earth Dividend ballot with zero VIP\$. It is up to the voters to fund this category or not. New IP categories must be associated with a new or existing [VSG](#).

Quadratic voting should produce the most equitable and efficient Earth Dividend and intellectual property distributions over time.