

# Better PB Voting Steps Forward

## One way to appreciate Fair-Share Spending

Participatory Budgeting is a big improvement over the old ways to imagine, research and select local projects worth funding. The Chicago results would have been even better if the same ballots went through a cost-aware tally. That is the first of several steps toward the really efficient use of money that we can get through fair-share spending.

The steps are below are simple. Each step is a clear improvement over the previous voting method.

**Bloc Voting** gives each voter as many votes as there are seats to fill, or projects that we can afford. It elects the candidates which get the most votes. It is a majority rule: The majority can win all of the seats — if they do not divide their votes among too many candidates.

The **2011** PB vote in Chicago has like Bloc Voting: Each voter got 6 votes and as it happened, 6 projects won.

**Limited Voting** gives each voter fewer votes, for instance, 3 votes for an election to fill 5 seats. It is a semi-proportional rule: It gives the majority a majority of the seats and the minority a chance to win a share of the seats — if each group does not divide their votes among too many candidates.

The **2010** PB vote in Chicago resembled Limited Voting: Each voter got 8 votes and 14 projects won funding.

A common problem in plurality rules is that having too many nominees divides an interest group so they get less than their fair share of winners. In this situation, groups make “back-room deals” to avoid getting too many nominees. Each back-room deal leaves most people out of the real decision; their votes merely rubber stamp it.

But PB voting adds another major problem: Winning **costly projects** can give a majority or minority far more than its share of funding. Which leads us to the next step needed for fair share spending.

A **Cost-Aware Tally** elects the projects which get the most votes compared to their costs. It can use the same ballots as Bloc and Limited Voting. It tends to elect many low-cost winners rather than a few high-cost winners.

Cost-aware results always beat the uneconomic results: by 9,924 votes to 8,055 votes in 2010, and by 3,074 votes to 2,322 votes in 2011.

We would predict that ballots from the 2010 PB vote would show **fairness** is improved by a Cost-Aware Tally. (That means the allocations attributable to each ballot will be more equal as measured by a Gini index.) Unfairness is bad in itself and can be a sign that the results have a poor utility value for the average voter.

But a cost-aware tally could make it harder for a costly project to win.

**Cumulative Voting** is then needed to give a costly project a fair chance: The rules should let a voter give it more than one vote. And that is what Cumulative Voting can do. For example, it may let a voter give 1 vote for each \$20,000 in the project's cost.

**Assisted Cumulative Voting (ACV)** eliminates the weakest project with the fewest votes. But it does not “waste” those votes; it transfers them. When it transfers your vote(s) from a loser, ACV does not change each remaining project's relative share of your votes. (Perhaps you gave the loser 3 votes and a couple other projects 1 vote and 2 votes. Then your remaining projects will end up with 2 votes and 4 votes.)

A group with too many projects will see votes for their weak projects transfer to help elect their strong ones. We can't afford everything; so some items must lose. But that does not mean some voters must lose their votes.

**Benefits:** ACV would lead to fewer wasted votes, higher fairness and thus higher utility and voter satisfaction with the winners. But we invented ACV only as a step to help teach the best voting method.

ACV cannot efficiently transfer **excess votes** from a winner which has more than enough, *i.e.* the number of votes it needs in order to win. Transferring excess votes could cause a project to give away the very vote(s) it must have to remain a winner later in the tally. To transfer excess votes well, the voting method needs to set a definite “threshold of victory” or quota. With this step we arrive at a method like the Single Transferable Vote.

Participatory budgeting elections may have proposals with low costs relative to the money per voter. Therefore PB has a requirement that elections of delegates do not: Each project must prove it is an important public good by winning its funding from a substantial fraction of the voters. We should set this quota before the election.

Here's an extreme example: The members of one family might propose an expensive bird feeder to go on the public tree in front of their private house. The ACV method would let them use their shares of the public money to fund this largely private good.

With this last step, we arrive at **Fair-share Spending**. It lets a voter fund only a set fraction of each project. Now to win its funding, a project needs support from a large number of voters. A tally that lets each voter allocate only a fair share is inherently cost aware.

You rank your favorites. The tally moves your money to help as many as you can afford to help fund. And a tally of all ballots drops the least-funded project. This repeats until all projects still in the race are fully funded.

PB tallies that are fair share are a big improvement over wasteful unfair methods.