A New Apportionment Formula

A quick look at what is being proposed

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$$App_{t=0} = B_{t=0}\left[\left(\mu\frac{m_{i_{t=-2}}}{M}\right)+\left(\alpha\frac{a_{i_{t=-2}}}{A}\right)+\left(\sigma\frac{s_{i_{t=-2}}}{S}\right)\right]$$

n = number of churchs
App = a church's apportionments
B = the conference budget
M = a church's membership
S = a church's staffing costs

Where $M=\sum_{i=1}^{i=n} m_{i_{t=-2}}$ $A=\sum_{i=1}^{i=n} a_{i_{t=-2}}$ $S=\sum_{i=1}^{i=n} s_{i_{t=-2}}$

And $\mu+\alpha+\sigma=1$

And $0\le\mu\le 0.3 \quad 0\le a\le 0.3 \quad 0.4\le\sigma\le 1.0$

And $\frac{App_{t=0}-App_{t=-1}}{App_{t=-1}}\le\left(0.1+\frac{B_{t=0}-B_{t=-1}}{B_{t=-1}}\right)$

Overview

An apportioning formula is nothing more than a systematic method of dividing up a budget across a number of churches. Heretofore, all apportioning formulae in the United Methodist Church assumed the same parameters for every church, a one-size-fits-all approach.

A superficial survey of the conference showed the fallacy of this approach. Most churches wanted attendance substituted for membership, yet some churches insisted membership be the only measurement for apportionments. Similarly, many thought expenses should be removed, while others thought expenses should be the only factor. Some suggested a "bonus" to reward desired behavior and a "penalty" for opposite actions. A computer model of expense-only, membership-only, and attendance-only showed the problems with these approaches; all generated a wider dispersion of apportionments than the current system. That is to say, these narrow parameter systems would make more churches more upset with apportionments. There would be a greater feeling of "unfairness" and, in fact, that would be the case.

The one-size-fits-all stems from our inertia and history; computers weren't powerful enough to handle anything more complex than a simple formula. Today we can devise apportionment formulae that are simple, elegant, and customized to every local church, while still maintaining the financial integrity of the conference. Such is the proposed formula.

Proposed Formula

The proposed formula uses three factors to divide the conference budget: membership, attendance, and staffing expenses. In most churches the factors would be weighted 10% membership, 20% attendance, and 70% staffing costs. Indeed, we could move from our current two-parameter 1/3, 2/3 system with little difficulty. But we can do better.

First, we limit the increase in apportionments of any church to 10% plus the amount of the change in the conference budget. If, for example, the conference budget increased 3%, then no church would have an apportionment increase of more than 13%, regardless of circumstances. There would be no limit to the decrease in apportionments a church could experience. Of course, the average change in a church's apportionments will be moderated by the excess increase over the cap that must be distributed across the remaining churches. (More about this later.)

Second, each church can select the parameters it wants used in it apportionment calculation, i.e. it can tailor the apportionment formula to its situation. The parameters must add up to 100%, but membership and attendance can range from 0 to 30% each and staffing expenses from 40% to 100%. Thus, the church that wants its apportionments calculated solely on staffing expenses can set sigma equal to 1 and mu and alpha equal to 0. The church that wants membership weighted more heavily can set membership at 30% and adjust the other two parameters as it desires so the total remains 100%.

Staffing Costs

"Staffing costs" is a new factor in the apportionment formula. It replaces "operating expenses" as the financial measure of a congregation. A church's staffing cost is the sum of the following:

- Plan Compensation for pastors, deacons, and dicaonal ministers
- W-2 Box 1 amount for all lay employees
- 1099 Box 7 amount for all contract employees
- Amount actually paid for all staff for ARP and MRA

These figures are easily obtained and are much less subjective than operating expenses. What is missing in staffing costs is significant. Utility, maintenance, health insurance, pension, and program expenses are all omitted. The staffing costs are the amounts paid by the local church from its own funds. If the church receives equitable compensation it is not included. Also, if a church handles the payroll for a day-care center whose director is paid by fees charged parents, it is not included.

Operational Issues

How will this work in practice? If the annual conference approves the formula, we will immediately send each church a package of information about the new formula and ask them to provide us with their 2001 staffing costs. For each church we will then mail a "What If" table showing the three parameters and the corresponding results. There will be a time for the church to respond with their choice of parameters. Then the apportionments will be calculated for the entire conference. Churches that did not opt for different parameters will have apportionments based upon 1, 2, 7.

Simple Example

Assume there is a conference the increased its budget 3% from the previous year to $10,000. The conference had only five churches, A-E who have membership (m), attendance (a), and staffing costs (s) as shown. In the previous year they had apportionments as shown in column A_{-1}. This generates the maximum amount each church can be apportioned this year, shown in column A_{max} .

Basic Church Statistics					
Church	**m**	**a**	**s**	**A_{-1}**	**A_{max}**
A	10	5	100	$ 775.00	$ 875.75
B	20	15	200	$ 1,790.00	$ 2,022.70
C	30	15	200	$ 1,700.00	$ 1,921.00
D	40	15	100	$ 1,000.00	$ 1,130.00
E	100	50	400	$ 4,443.74	$ 5,021.43

If each church is apportioned by a straight 1, 2, 7 approach, church D exceeds the maximum allowable amount by $70. The excess must be redistributed across churches A, B, C, and E.

Church	A_0
A	$ 850.00
B	$ 1,800.00
C	$ 1,850.00
D	$ 1,200.00
E	$ 4,300.00

Church D's apportionments are therefore set at the maximum of $1,130. This is subtracted from the $10,000 to be apportioned, church D. is removed from the mix and the apportionments are recalculated.

Church	m	a	s	A_0	Final
A	10	5	100	$ 849.68	$ 849.68
B	20	15	200	$ 1,803.71	$ 1,803.71
C	30	15	200	$ 1,859.15	$ 1,859.15
D					$ 1,130.00
E	100	50	400	$ 4,357.46	$ 4,357.46

Notice what has happened. Church A's apportionments decreased slightly, whereas churches B, C, and E increased to help cover the $70 that church D would have been apportioned had there been no cap. In practice, there will probably be several iterations before all the church maxima are eliminated.

The following "What If" table shows a variety of values for Mu, Alpha, and Sigma and the resulting theoretical apportionments for each church. Churches D and E are most likely to opt for apportionments calculated entirely on staffing costs, as this would result in the lowest apportionment. Churches A - C would select membership and attendance to be weighted at 30% and staffing costs at the minimum 40%.

Mu	Alpha	Sigma	Total	Church A	Church B	Church C	Church D	Church E
0	0	1	1	1,000	2,000	2,000	1,000	4,000
0.1	0	0.9	1	950	1,900	1,950	1,100	4,100
0.2	0	0.8	1	900	1,800	1,900	1,200	4,200
0.3	0	0.7	1	850	1,700	1,850	1,300	4,300
0	0.1	0.9	1	950	1,950	1,950	1,050	4,100
0	0.2	0.8	1	900	1,900	1,900	1,100	4,200
0	0.3	0.7	1	850	1,850	1,850	1,150	4,300
0.1	0.1	0.8	1	900	1,850	1,900	1,150	4,200
0.2	0.1	0.7	1	850	1,750	1,850	1,250	4,300
0.3	0.1	0.6	1	800	1,650	1,800	1,350	4,400
0.2	0.2	0.6	1	800	1,700	1,800	1,300	4,400
0.3	0.2	0.5	1	750	1,600	1,750	1,400	4,500
0.3	0.3	0.4	1	700	1,550	1,700	1,450	4,600
0.1	0.2	0.7	1	850	1,800	1,850	1,200	4,300

When each church uses it best strategy, (try for the lowest apportionments), the final numbers look like this.

Basic Church Statistics				Best Strategy			
Church	**m**	**a**	**s**	**A_{-1}**	**A_{max}**	**A_0**	**%Change**
A	10	5	100	$ 775.00	$ 875.75	$ 782.12	0.92
B	20	15	200	$ 1,790.00	$ 2,022.70	$ 1,731.84	(3.25)
C	30	15	200	$ 1,700.00	$ 1,921.00	$ 1,899.44	11.73
D	40	15	100	$ 1,000.00	$ 1,130.00	$ 1,117.32	11.73
E	100	50	400	$ 4,443.74	$ 5,021.43	$ 4,469.27	0.57
				$ 9,708.74		$ 10,000.00	3.00

Notice that none of the churches exceed the maximum, one church has a decrease, and the full budge is apportioned. Churches C and E, in trying to get the lowest apportionments, actually received higher values than they would have gotten had everyone chosen 1, 2, 7. Nevertheless, the dispersion is less, i.e. apportionments are "fairer" when everyone optimizes.