

Modeling of current TUG financial structure

revised 10/25/2005 by DCW

This modeling is based on the September year-end forecast. Before you are too critical of my assumptions below, please remember the rule of thumb for modeling: all models are wrong; some are useful. Also, I can probably adjust some of the assumptions without much trouble.

a. dues through "September"	\$82,985	Line a is the sum of the Jan-Aug actual plus the Sept actual plus Nov. UK \$2,000 that is in Sept number of members.
b. rest of years dues	\$1,500	Line b is less than Robin's forecast of \$4,500 dues over the next three month, which may be optimistic.
Income		
d. members thru Sept	1344	Line d. is the total members from the September financial report.
e. est. year end dues	\$84,485	Line e. is the sum of line a. and line b., i.e., dues for the whole year.
f. est. year end members	1368	Line f. is line d scaled up by e./a. to get an estimate of the number of members at year end.
g. dues/member	\$62	Dividing line e. by line f. we get an average dollar value of dues per member (across all membership fees levels).
h. year-end product sales	\$5,621	Line h. is from the September year-end forecast; 80 percent of sales are software, half of which is to non-members; hence some of sales is more like "fixed income" (or proportional to loss of members) -- not proportional to members.
i. sales/member	\$4	Dividing line h. by line f. we get an average dollar value of sales per member.
j. year-end contributions	\$6,971	Line j. is from the September year-end forecast.
k. contributions/member	\$5	Dividing line j. by line f. we get an average dollar value of contributions per member.
l. interest, advert, conf	\$3,842	Line l. is the sum of the remaining income lines from the forecast; including interest of \$3,460 as proportional to members is not accurate as interest is more like "fixed income" based on TUG's money in the bank.
m. interest, advert, conf / memb	\$3	Dividing line l. by line f. we get an average per member.
n. total income per member	\$74	Line n. is the sum of lines g., i., k., and m, i.e., the average income per member.

I can change any of h., j., or l. into fixed levels of income, but I suspect it doesn't matter much to the analysis.

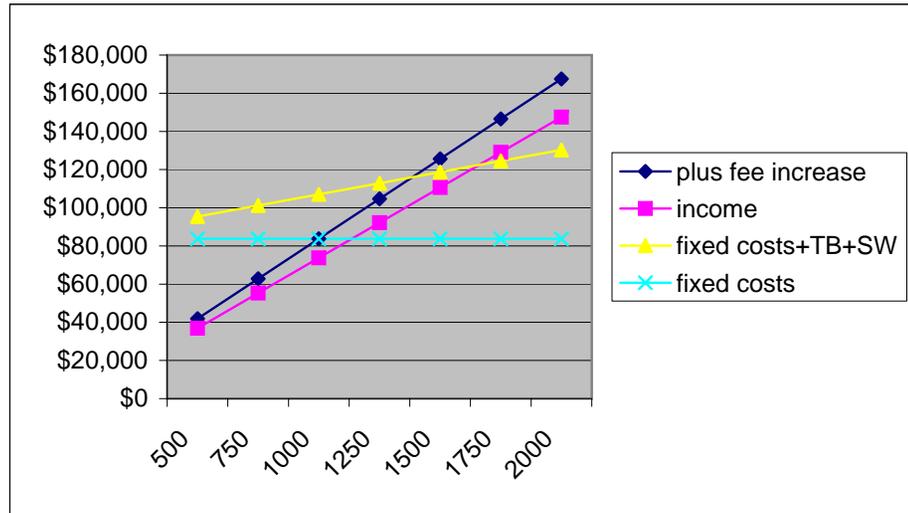
Expenses		
o. contributions	\$4,700	Line o. is from the September forecast.
p. office and payroll	\$72,612	Line p. is from the September forecast
q. depreciation	\$2,040	Line q. is from the September forecast
r. non-TB, non-SW COGS	\$4,384	This is all the COGS from the September forecast except for TB, software, and half of postage/delivery.
s. total fixed costs	\$83,736	Line s. is the total of lines o. to r., and I am assuming these are fixed costs.
t. dollars/member	\$61	Dividing line s. by line f. we get the average fixed-costs per member.
If we think some of the above or following expenses are overstated for 2006, we can add a column of appropriate offsets.		
u. TUGboat and software	\$31,873	Line u. is the sum of two lines from the September forecast plus one-half of COGS postage/delivery.
v. TB+SW/member	\$23	Line v. is line u. divided by line f., i.e., the cost per member of TUGboat and the software.
w. total expenses / member	\$84	Thus, line w. is the total cost per member (line t. plus line v.).

Comparing line w. with line n. we see that we are losing \$10 for every member with our current fee level, costs, and number of members. Hence, there is some argument for a fee increase, especially since there has been no fee increase in several years, and I show one possible fee increase below. An obvious alternative to raising fees is to cut fixed costs. As part of budgeting, we can look closely at fixed costs to see if any of them can be reduced. Of course, most of the fixed costs are in office and payroll.

Now we do some calculations

	\$10	plus fee increase	\$41,878	\$62,817	\$83,755	\$104,694	\$125,633	\$146,572	\$167,511	(line x. + \$10) * number of members
x.		income	\$36,878	\$55,317	\$73,755	\$92,194	\$110,633	\$129,072	\$147,511	line n. times number of members
		fixed costs+TB+SW	\$95,383	\$101,206	\$107,030	\$112,853	\$118,677	\$124,500	\$130,324	line y. + line z.
y.		fixed costs	\$83,736	\$83,736	\$83,736	\$83,736	\$83,736	\$83,736	\$83,736	line s.
		number of members	500	750	1000	1250	1500	1750	2000	
z.		TB+SW	\$11,647	\$17,470	\$23,294	\$29,117	\$34,941	\$40,764	\$46,588	line v. times number of members

And the resulting graph follows:



Fixed costs are shown with the horizontal line of asterisks just about \$80,000. The line of triangles is the sum of fixed and variable costs.

The above graph shows our current situation where we fall short of breakeven with the line of boxes. The line of diamonds shows that with a \$10 fee increase, we would break even at about 1375 members (approximately our anticipated end-of-year membership). Whether membership would decline in 2006 or there would be other changes in our cost and income structure so a \$10 fee increase would not achieve breakeven is a question of budgeting accuracy and risk assessment; just manipulating the above model, a decrease of 10 percent in members would require a fee increase of \$17 for breakeven. With that 10 percent level of member decrease and only a \$10 fee increase, there would be a \$9,000 loss for the year.

Implementing an option for members to not receive hard copies of TUGboat and the software would save \$23 per member who chooses that option, assuming linearity over the interval including the number of members who might choose that option.

I can imagine that an average \$10 or \$15 fee increase and a \$20 discount for not receiving hard copies might make sense. Members choosing the discount would see a \$5 or \$10 decrease, and TUG might net a couple of dollars extra for every member who selected the discount option.

To consider the option of reducing fixed costs, mentally move the line of triangles down by however much you think we should be able to reduce fixed costs.

If you see mistakes in my spreadsheet logic, please let me know; ditto for mistakes in my mental logic.