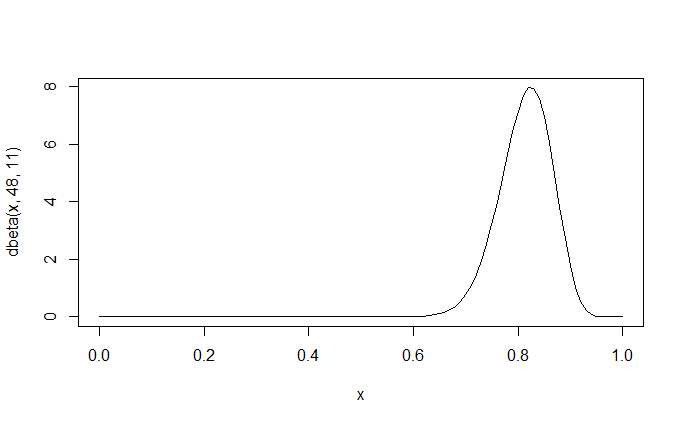
Missionary Fund Calculations

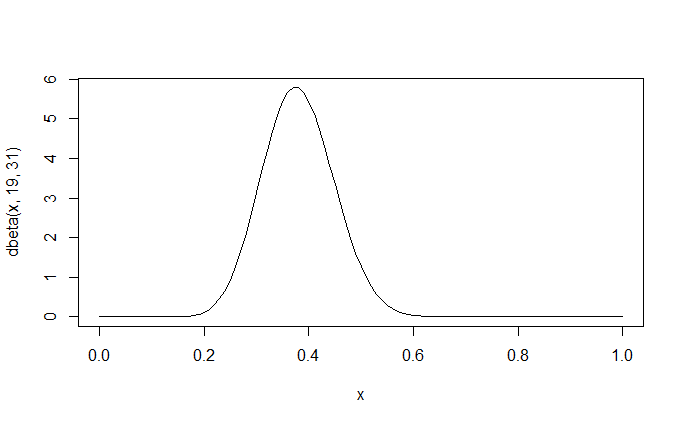
Making calculations for the missionary fund is based on a whole bunch of assumptions about what will happen in the future (who goes on missions, how long they stay, who pays, who doesn’t). You can account for this uncertainty by making probabilistic assignments to the likelihood of each event and then simulating hundreds of times to explore the range of possibilities.

For the initial calculation, I used the following probabilities and figures, but I made them all easily updatable so if you have a vastly different belief we can edit it and easily rerun the numbers:

1. Probability that a boy in the family goes—for each simulation I drew this probability randomly from a distribution that looked like this:

The mean of that is 81% and all boys in the family are assumed to have equal chances of going.

2. Similarly the girls’ distribution looked like this:

(mean of 38%)

3. Probability of what age a boy would go: 18—90%, 19—6%, 20—2%, 21—1%, 22—1%

4. Probability of what age a girl would go: 19—90%, 20—4%, 3%, 2%, 0.5%, 0.3%, 0.2%

5. Probability of when they would leave—the three summer months were set to be equal to the other 9 (half the missionaries would go in the summer).

6. Boys had an 80% of serving two years. 12% chance of coming home in first 6 months, 8% the rest.

7. Girls 76.75% of serving 18, 15% in first 6, rest in the rest.

8. Adults were assumed to pay $30/month

9. Probability that adult pays on any given month 98%

10. Grandkids who participated assumed to pay $5/month

11. Probability grandkid pays any given month 90%

12. Probabilities that grandkids would choose to participate was also assigned randomly from a distribution. The RM distribution was centered at 85% and the non-RM distribution at 40%.

13. I attempted to model the “Gio” effect, the chance that are family could grow from adoptions, remarriages, etc. I added new kids at random ages in the family with probabilities: 0—92%, 1—4%, 2-5—1% each.

14. I attempted to model the loss of one of the adult payers (e.g. through death). I assigned it a 50% chance of happening, and if it happened it was equally likely to be any year.