Middle Age Hiatus

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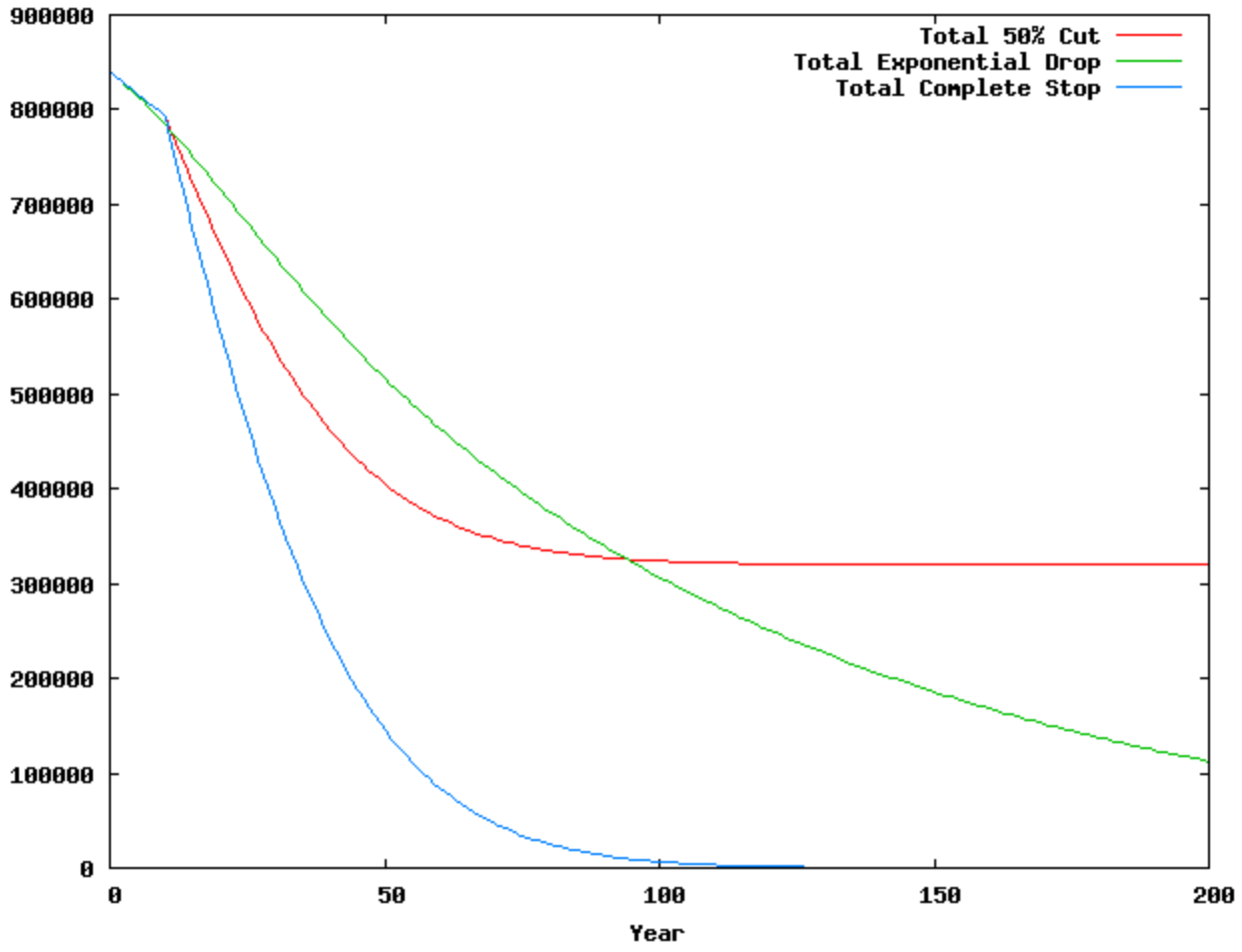
Introduction

Greg asked what would happen if people took off for a while in their thirties and forties and returned in their fifties. I created a simple model that was like the last one except that people moving from their twenties to their thirties had three choices: they could leave classical music forever, they could go on a twenty-year hiatus, or they could continue. The rest of the model is the same. I arbitrarily presumed that 50% would go on hiatus and 20% would leave.

I could do more comparisons, but I have other things to do right now, and I haven't tested the model well, either. I thought you might like to see the results, though.

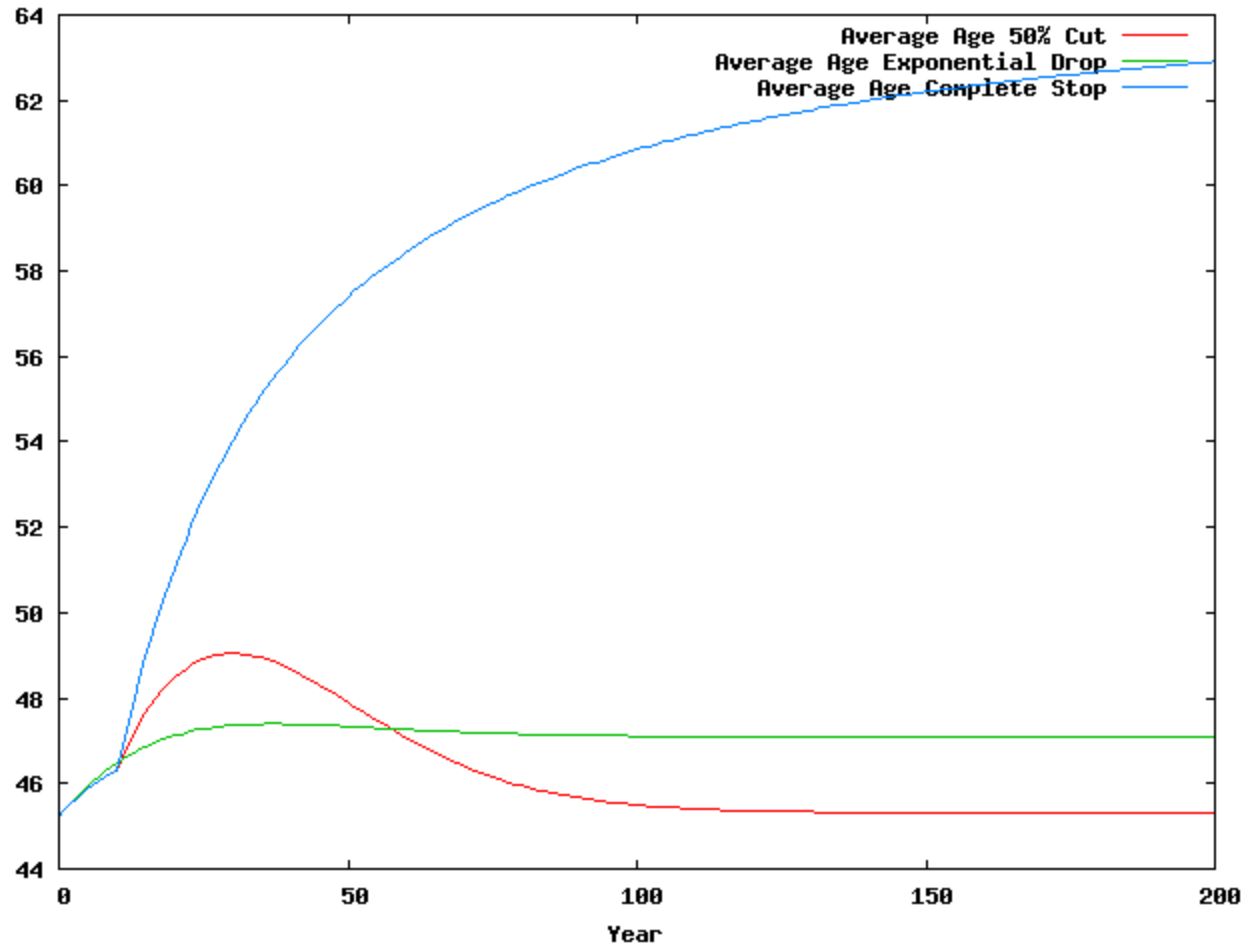
Graphs

Here is the graph of total concert-goers for each of the three profiles of new concert-goers:



All lines show a drop in the initial decade as some “graduating” twenties leave forever. Those leaving on hiatus should balance those returning, if I did it correctly (I'll have to check later, if we decide this experiment is useful; I've got other things to get to now). Qualitatively, all the lines are similar to those in the original model, except that they end up with lower overall attendance.

Here is the graph of average ages:



As you can see, it looks much as the graphs did before, except that the average age creeps up in the first ten years before the drop-off in attendance for the red and blue cases due to the loss of people as they turn 30.

Other experiments

There are other experiments which could be performed. For example, I (tried to) initialize the model in equilibrium, so that some people were already on their two-decade hiatus. Thus it didn't likely do much except to hollow out the middle ages from audiences; there should be no surprise returns not balanced by departures.

It's possible that the hiatus is a new phenomenon. I could have initialized those stocks to zero and seen what would happen as people left, making the audience smaller, and then returned twenty years later, making it bigger again.

Model

Here's the model I used:

```
# The twenties through sixties are decades of concert-goers.  States
# ending in NOGO are decades of temporary non-concert-goers.
States = {
        twenties, thirties, forties, fifties, sixties,
        thirtiesNOGO, fortiesNOGO
          };
Inputs = {
        newpa,          # Number of young people becoming concert-goers pa
        };
Outputs = {
        input,
        avgage,
        total
        };
decade = 10.0;
bins = 5.0;                     # no. of decades modeled
population = 1.0e6;             # total initial concertgoers

fractionNOGO = 0.50;        # fraction of twenties who leave for two decades
fractionQUIT = 0.20; # fraction of twenties who leave forever

Initialize{
        twenties = (population / bins) * (1 + fractionQUIT);
        thirties = (population / bins) * (1 - fractionNOGO);
        thirtiesNOGO = (population / bins) * fractionNOGO;
        forties = (population / bins) * (1 - fractionNOGO);
        fortiesNOGO = (population / bins) * fractionNOGO;
        fifties = population / bins;
        sixties = population / bins;
}
Dynamics{
```

```
        from20spa = twenties / decade;
        to40spa = thirties / decade;
        to50spa = forties / decade;
        to60spa = fifties / decade;
        endingpa = sixties / decade;

        quittingpa = fractionQUIT * from20spa;
        hiatuspa = fractionNOGO * from20spa;
        to30spa = from20spa - (quittingpa + hiatuspa);

        to40NGOpa = thirtiesNOGO / decade;

        returningpa = fortiesNOGO / decade;

        dt(twenties) = newpa - (to30spa + quittingpa + hiatuspa);
        dt(thirties) = to30spa - to40spa;
        dt(thirtiesNOGO) = (hiatuspa - to40NGOpa);
        dt(forties) = to40spa - to50spa;
        dt(fortiesNOGO) = (to40NGOpa - returningpa);
        dt(fifties) = (to50spa + hiatuspa) - to60spa;
        dt(sixties) = to60spa - endingpa;
}
# The average age is calculated only for those in attendance at concerts.
CalcOutputs{
        input = newpa;
        total = twenties + thirties + forties + fifties + sixties;
        avgage = (25.0 * twenties + 35 * thirties + 45 * forties
                + 55 * fifties + 65 * sixties) / total;
}
```

Thought

We've been ignoring one possible explanation for the aging of audiences: the aging of the population! According to http://www.cdc.gov/nchs/data/hus/hus06.pdf#027, the average lifespan at birth in 1900 was about 47 years (*significantly* lower for blacks). By 1950, it was 68. By 2000, it was 77. Thus it's natural for audiences to have been younger near the beginning of the twentieth century. In a quick search, I didn't find the average population age by year, and I haven't modeled any of this yet.