UB Faces Retirement (and Prison?)

This article analyzes the growing prison population in parallel with the mathematics of compound interest. Our society had taken definite steps in an obvious direction over the 1980s and 1990s. The criminal justice system had been "reformed" with mandatory sentences, "three strikes" laws, and less discretion for judges. If the goal of these reforms was to hire more guards, build more jails, and to stuff them with more prisoners, then society has achieved the goal. The data are undeniable. Here are some statistics from the early years of "court reform."

The following data pairs, from the U.S.Census Bureau, report (year, US Prison Population), for both state and federal incarcerations.

Year	1986	1987	1988	1989	1990	1991	1992	1993
Population	522,084	560,812	603,732	680,907	739,980	789,610	846,277	932,074

We can analyze this data. We can get a formula which closely mimics the data pairs, and using that formula we can predict future values. This process is called math modeling.

First, we need to determine the type of math model which is appropriate. You will notice that the data does not exhibit linear growth because the change from year to year is not a constant increase, but rather an ever growing one. Is the data exponential? To decide, we look at growth factors. Divide a population by the previous year's. For example, 560812 / 522084 is 1.07 approximately, and that indicates 7% growth. Repeat this division for consecutive pairs all the way across the table. You will find that there is at least 7% growth in all but one case, and that tells us two things: US society had exponential growth in its prison populations, and it had a serious problem.

If the prison pop is growing at 7% per annum, then that variable behaves in the same way that your savings account balance does under the effect of compound interest. If you have an investment currently earning 7% APR (annual percentage rate), you can project your future balances by multiplying by a factor of 1.07 for each year into the future. We call it exponential growth because we multiply by a power of 1.07; for example, $2000 will grow to $3934 in ten years at that rate. We multiply 2000 by the tenth power of 1.07, which is pretty close to a factor of 2, and so the money nearly doubles.

Let's use this math to predict the prison population for 2003. We take the 1993 figure of 932,074 and, assuming seven percent growth, our model predicts nearly 2 million in prison for the current year. Most mathematical models that deal with human behavior

aren't very accurate when we try to use them too far beyond the known data. I'm saddened to report to you that our model in this case is reasonably accurate.

Let's revisit this idea of doubling. Most investment managers know a rule of thumb called the Rule of 70. Divide 70 by your investment's APR and you get the number of years it takes to double your money. You've seen it work for 7% because 70 divided by 7 is the ten-year period discussed above. If your account grows at only 5%, then your money will take 70/5 or 14 years to double.

Returning to the prison population, if in 2003 it stands at 2 million and continues growing at the same rate, then it will be 4 million in 2013, 8 million in 2023, and, skipping a few decades, it will be 128 million in 2053 when our children will be looking to enjoy their retirement savings. But if the mathematical forecast is accurate, it means that one-third of our citizens will be incarcerated. Imagine the size of the police and security force that will be needed to maintain safety for the innocent public, and think what it will do to the taxpayer's ability to save long-term. I sincerely hope that the mathematics does not play out this way.

Are there things our society can do to force the model to break down, in other words, to curtail this unchecked growth? Any detailed plan I give would be more suitable for the editorial page, and much too lengthy besides; however, I won't shirk this responsibility completely. I will have a brief word on it.

My brief word on what society can do to stem the growth in the number of prisoners in our jails is <u>nurture</u>. Advertisers in one recent year spent $36.60 to pry the allowance money from each and every one of our children: it says that we have come to regard children as a vital segment of the economy, and a segment that we blithely finance. I think many adults have forgotten the other reasons they are important to children. I think we err in treating children as small adults. In this era of direct deposit and debit cards, do six-year-olds need to carry five bucks a week to school to (perhaps, and perhaps not) buy their lunches? No, they do not; on the other hand, am I saying that it is not important for children to learn how to handle money? Not exactly. What they need to know about money, right now, is that if you save regularly and long-term, you will have financial independence later, rather than a computer game now. And, later, they need to know to shop around for a good interest rate. And THAT they can learn when they are of an age preparing to enter the job market. Until that six-year-old is sixteen, concentrate on nurturing, so that the child knows that only love is uniquely priceless, and the best investment any adult can make.

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