Real World Graduation: Question 77: Small Expenses
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Question 77

A certain man has a full-time job. Every work day (Monday through Friday), he spends an average of $7.00 for lunch. His wife has offered to make him a lunch every day (which would cost about $2.00 per day). Suppose the man took his wife up on her offer, and invested the $5.00 per day in mutual funds that received an average annual return of 8%. Will saving these small amounts make any economic difference over the long run, say 20 or 30 years? To assess this question, the formula for calculating the value of an investment with a fixed annual return is (neglecting inflation):

$A = P(1.0 + r)^n$,

where P is the amount invested, r is the rate of return expressed as a decimal (8% = 0.08), n is the number of years the money is invested, and A is the value of the investment after n years.   In this case, P would be the amount saved in a year. Inflation is ignored here because we are interested in the buying power, not the number of dollars. (Including inflation makes the calculation more difficult, and increases the number of dollars the investment is worth, but those dollars have less buying power). The effect of inflation does not change the general answer to this question.

a)   It is not worth it because "brown-bagging" is not cool, especially if one is a white-collar worker. In our image-conscious society, people think "brown-bagging" is a sign of cheapness, and appearing cheap may impede one's chances of getting ahead.
b)   "Brown-bagging" over long periods of time is bad for the environment because several trees will probably have to be sacrificed to manufacture the bags, so it is not worthwhile.
c)   It may be worthwhile for short periods when money is tight, or if one's workplace is far away from restaurants, but is otherwise socially degrading.
d)   It is not worth it; the amount accumulated will be so small that he would have been better off to enjoy buying his lunch every day.
e)   It is not worth it in general, for a combination of the above reasons, and possibly some others.

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Answer to Question 77

This is a trick question. None of the answers are correct.

Answer (a) is incorrect because the question was not about what is "cool", it was about the economic effect of a certain action. If you are one of those who care about what others think, then you, by definition, are not cool. The truly cool people could care less what people think, which is why people respect them.

Answer (b) is incorrect because the question pertains to economics, not the environment. But speaking of the environment, even is one consumed a "brown bag" every day for 40 years, only a small amount of wood would be consumed. So, the "environmental effect" of brown-bagging is a virtually a non-issue (it might make you feel virtuous, but only if you also refrain from using charcoal fires at barbecues).

Answer (c) is incorrect because history demonstrates otherwise: a very large number of people spent their entire lives brown-bagging. Are they to be despised? Well, aren't we hoity-toity?

Answer (d) is also incorrect because the total that can be accumulated through investing small amounts is surprisingly large, due to the effect of "compounding". "Compounding" is a fancy word that means the growth of a certain sum of money over one year does the same thing for every succeeding year, except in each succeeding year, the amount grows on the basis of the gains made in all the previous years. For example, if one invests $500 in one year and it grows by 10%, one will have $550 the next year. If that $550 grows by 10%, the new total is $605, and so on. After 5 years, the total is $1296.87. This is considerably more than one might expect.

In the example given in the problem, the person saves $5 per day, which is $25 per week, which is $1300 per year. At the end of the first year, he has accumulated $1300 to invest. Now let us use the formula given in the problem for a 20-year period. It took the first year to get the first $1300, so we want to know how much that grows for the next 19 years. Here P = 1300, n = 19, and r = 0.08. Thus, the first $1300 grows to $5610.41 at the end of the 20-year period. But that is not the end of the story. What about the $5 per day he saves and invests during the second year? That $1300 will accumulate for 18 years, which will grow to $5194.82; the results of two years savings over 20 years is 5610.41 + 5194.82 = $10805.23. The same behavior occurs for all the other years that he saves and invests. As you can see, it is the time that makes all the difference. As a concrete example, this $1300 per year, invested with an average return of 8% for 20 years, returns $54,490. After 30 years, it grows to $147,268; after 40 years, is $323,775. Now these may not seem like enormous sums. But if you are now 20 years old, think about where you will be 20 years from now. Would you like to have an extra $54,000 in your pocket then, or would you rather fritter that kind of money away at $5 per day? It's up to you. You can either make someone else rich in the near-term by wasting small amounts on soda and tacos, or you can make yourself rich in the long-term. When you consider the long term costs of buying lunch, they are not a cheap as they appear..

The important point here is to watch out for the little things that you spend money on. No one wants to live like a termite, but restraining the little things, and having the discipline to invest it, will pay off in the long run. Incidentally, this is one of the positive changes from the administration of Ronald Reagan. It was during his administration that the rules were changed such that people of modest means could save and invest in small amounts, thus building up considerable wealth over the long run. Before his time, one had to already have considerable assets in order to pay the large commissions to get into the stock market.

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