

everyday economics

One Small Step for Man ...

... and one giant leap for economists: How we figured out why people walk up staircases but not up escalators.

By Steven E. Landsburg

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I am privileged to teach in one of the world's most respected economics departments. We're on pretty much everyone's top-15 list, and by a lot of measures, we're considered top-five. I mention this by way of pointing out that this is not some bunch of bozos we're talking about here.

And yet somehow last summer, we managed to spend a week in a state of collective befuddlement, obsessing over a seemingly impenetrable conundrum that came up over lunch: If people stand still on escalators, then why don't they stand still on stairs?

It was observed early on that if you stand still on stairs, you'll never get anywhere. But for reasons I can no longer entirely reconstruct, that explanation was dismissed as overly simplistic. Soon the search for a deeper theory was under way. Within a few days, blackboards all over the economics building were covered with graphs and equations. Research projects were temporarily shelved while we tackled the escalator puzzle, which had taken on the dimensions of a profound and perhaps insurmountable challenge to economic theory.

For those of us who were too dense to see what all the fuss was about, one of our colleagues spelled out the paradox: Taking a step has a certain cost, in terms of energy expended. That cost is the same whether you're on the stairs or on the escalator. And taking a step has a certain benefit—it gets you one foot closer to where you're going. That benefit is the same whether you're on the stairs or on the escalator. If the costs are the same in each place and the benefits are the same in each place, then the decision to step or not to step should be the same in each place.

In other words, a step either is or is not worth the effort, and whatever calculation tells you to walk (or not) on the escalator should tell you to do exactly the same thing on the stairs.

And so one of the world's top economics departments entered a state of near paralysis. Theories were presented, considered, and rejected; I will spare their inventors (including myself) the embarrassment of having those theories recounted here. Suffice it to say that each theory centered around one or another cockamamie reason why "marginal analysis"—the weighing of costs and benefits associated with taking a single step—might not apply in this situation.

For a bunch of economists, that's a pretty radical position since we use marginal analysis to explain how people choose everything from the lengths of their workdays to the number of chocolate-chip cookies they have for lunch. (What is the cost, in terms, say, of calories, of one additional cookie? What is the benefit, in terms of deliciousness? If the benefit exceeds the cost, have another! Otherwise, it's time to stop.)

Soon the madness spread beyond Rochester, N.Y. One of my colleagues posed the escalator problem at a conference in Boston, where he was overheard by an economist from another top department who excitedly volunteered that he'd always been plagued by exactly the same question.

Oh, we've been collectively obsessed before. Faithful readers of this column might recall that we once spent a week arguing about the right way to peel a [banana](#). But with bananas we knew we were being whimsical; with escalators we felt genuinely challenged.

Regarding escalators, the solution came in a blinding flash. Marginal analysis *does* work. It *is* right to compare the costs and benefits of each individual step. (And thank God it's right; otherwise I'd have to retract everything I've told my students since the day I started teaching.) But before you can weigh costs against benefits, you've got to measure the benefits correctly. And in this case, "getting one foot closer to where you're going" is the wrong way to measure benefit. Who cares how close you are to where you're going? What matters is how long it takes to get there. Benefits should be measured in *time*, not *distance*. And a step on the stairs saves you more time than a step on the escalator because—well, because if you stand still on the stairs, you'll never get anywhere. So walking on the stairs makes sense even when walking on the escalator doesn't.

My colleague Mark Bills figured out a way to rephrase this so that even an economist can understand it. Every producer knows that workers should spend less time with inferior machinery. Compared to an escalator, a staircase is an inferior machine, so the "workers"—that is, the people who use the stairs—should try to minimize their time there. The way to limit

your time on a staircase is to keep walking until you get to the end.

The same argument proves, incidentally, that even if you choose to walk on the escalator, you should always walk even faster on the stairs. If you're planning to write and tell me that in fact you walk at the same speed in both venues, I'd really rather not hear about it right now.

So what's the moral of the story? To me, the moral is that we should take seriously what we tell our students: Marginal analysis really works. If it seems not to be working, the right question is not, "Why doesn't the marginal analysis work?" Instead, the right question is, "How am I failing to understand the marginal analysis?" or, more succinctly, "In what way am I being stupid?"

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