



NOTES FROM THE DISMAL SCIENCE

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Growing and Shrinking University Budgets: Go Ask Alice

Economists generally argue that when you expand or cut back your budget it is a misconception to try to change each item by the same percentage. Most people with budgetary experience would agree. In this column, I merely wish to illustrate why these many folks see wisdom in inequality.

My illustration is Alice of *Through the Looking Glass*. Suppose that you have a photo of Alice on your computer screen and that it can be manipulated by your favorite graphics program. You can expand Alice both by height and width. A button marked “Proportional,” when checked, will ensure that she expands just as if you were using an enlarger in a darkroom. I am going to call any combination of rules for expansion and contraction that are just the reverse of each other (that is, the same path “up” as “back”) “symmetrical,” while any rules for expansion or contraction that apply the same percent changes to all budget items “proportional.”

Lewis Carroll didn’t change Alice proportionally, in fact, many odd-looking things happened to her. Like Carroll, Nature

too would not have been so cruel as to expand Alice proportionally. If she had been grown say by doubling her scale units, the surface area of her feet would have grown by a factor of four times, yet her gravitational mass would have grown twice that again. Every square inch of her feet would have had to bear twice the body weight, her spindly legs would have had to put on more bulk to bear the extra torso and head weight.

Nature is never shy about inequality when it comes to bodily dimensions, and every parent knows this. If you imagine a “human size contraction” as being a reverse of our actual growing and aging process, we quickly notice what organs Nature favors during the “smaller ages” of humans: small children have disproportionately large eyes and large brains.

I guess my point is just this. A university or any organization makes most sense when it grows and contracts disproportionately but symmetrically. To illustrate the latter, and somewhat looser argument, think of a family that has had the unusual experience of a 50 percent increase in income for several years only to be followed by a 33 percent reduction (returning them to the original income level). How would they have expanded? They might increase food by only 10 percent, you can only eat so much. They might increase travel by 80 percent, ‘at last we can go skiing in the Rockies again!’ They might replace the family Tempo with a brand new Mazda.

Now what would happen when they contract back to their original income? Surely they wouldn’t reduce each item by $1/3$; that is to say, surely their reductions would not be proportional. For example, I think that skiing in the Rockies would face the most severe cutbacks. They would more likely follow a similar (symmetrical) path back to their earlier priorities.

In real life, as opposed to the printed page, time will have changed the family in many other ways as well, some of these would affect their spending priorities. The upshot is that a perfectly symmetrical path for reductions probably would not be followed either. However, don’t most families in practice at least return to somewhat similar ways for contraction times? Put it this way: Shouldn’t we set different priorities during hard times than we do in good times?