

OTHER PEOPLE'S MONEY, PART II

Sorrow and Feathers

The term *economy* comes to us from the Greeks, from whence much of our basic grasp of the world comes to us. The root of the word means household steward or manager. It is a modest beginning for a complex task. A later definition holds that economics is the allocation of limited means to competing ends. My own view is that this widely used definition does not quite get to the root of what we are doing with economics. It ties together means and ends in a pretty loop - the more limited our means, the fewer ends are possible and if we had unlimited means any end would be attainable - but gives us no clue as to the process we are engaged in to satisfy our needs with the means at hand. After all, if anything could be transformed into anything else at any time, would we need economics? Nature resists instantaneous transformations; fortunately, otherwise there would be insufficient stability in the world for us to exist. But without some possibility of transformation, nothing would ever happen. What is curious about life is that it needs things to happen more than it needs stability. This is where economics enters the process.

Suppose we could transform most anything into anything else - silk purses out of sows' ears, coaches out of pumpkins - would we be satisfied? Probably not. Once dependent upon change, change itself becomes a necessity. Like it or not, we are creatures of desire. In the 19th century, economists decided to give a prominent role to desire in their attempts to find the value of things; they gave it a more vigorous and upright name - demand - which they matched with the more neutral and less compelling term - supply. There are good reasons to give desire the leading role in economic transformations; it both initiates activity and narrows its objectives. The mistake that economic theory continues to make is to assume that desire can be rational. It assumes that we can always know what we want and when we want it. It assumes that we always know that we want coaches more than pumpkins and that we prefer pumpkins to sows' ears and therefore will prefer coaches to sows' ears. Whether we would always prefer coaches to silk purses is an open question. However much we would like our exchanges to be orderly and subject to diminishing desire at the margin, desire cannot be entirely tamed.

If we are forced to make an effort to satisfy our desires, the taming of desire will occur in some proportion to the effort expended. Over time our species has learned that the most efficient way to satisfy our desires is by way of satisfying someone else's. Of course, in the very short term, snatching and grabbing can be effective, along with trickery and mooching. Repeated attempts along those lines leads to retaliation and ones desire would have to contend with various furies. Was it really worth it?

Better to exchange favors. Or commodities. Or whatever. Let's say I have more eggs and milk than I need, but not enough flour to make waffles. It's off to the market (being careful not to put all my eggs in one basket. *Pride goeth before a pratfall.*). I offer my eggs to the miller for some flour. How many for how much? Let's review: we need to satisfy Born's condition. We must already know some other quantity of the same kind if we are to judge whether a newly obtained number is large, small, normal, or abnormal. We need to have in mind some value that would let us know whether the price of the flour, the amount offered in exchange for the eggs, is acceptable. We cannot obtain this value from a single exchange.

Here's the rub. Every exchange produces a 'newly obtained' number. How are we to come by our knowledge of some other quantity of the same kind? Various ways, so economists tell us, but they are mostly reducible to two methods: recalling past prices and bidding among

contestants for present prices. (On the day I arrive at the market, it turns out my hens were not the only ones popping out eggs.) Every exchange is the result of expectations which are either confirmed or disappointed. And every exchange gives rise to further expectations and so on. All that we can cling to are the gradients, the rates of change of one factor relative to another (time and heat).

The miller lives by that gradient even more than I do with my hens. His wheat is the product of photosynthesis and neither our piety nor wit can hurry along that process. I am lucky that he has flour to exchange. He, on the other hand, has more than enough eggs. Although I do not get a good bargain with the few eggs he will accept, he knows that he cannot dispose of eggs any more advantageously than I can. He wants something else, something to tide him over until the next wheat crop is harvested. He wants something durable and easily exchangeable. He wants what we've come to know as money.

For anyone to have money it means he or she exchanged something for it; effort, at a minimum. (We exclude here the rewards of pure chance, and snatching and grabbing, etc.) It means they could afford to expend that effort; which is to say they had the means of providing for themselves while they made the effort. They had savings; at a minimum, fat or food. The link is indissoluble: Money is the product of saving. We dissolve that connection at our peril.

The miller now has his money which had been someone's savings; the money now becomes the miller's savings. We discovered the price of wheat and the price of eggs on market day.

One question did not get answered: what is the value of the savings?

Why is it that whenever this question comes up, economists fold their tents and go on to the next market. The standard model of what is known in the profession as neo-classical economics is a model of the formation of prices which produces a general equilibrium of supply and demand. The model, as we noted, demonstrates the interdependence of prices; we cannot determine one price without at the same time determining what all the other prices in the market will be. The difficulty is that a solution to the problem is only found if all prices are determined simultaneously. For this to happen, everyone must come to the market fully endowed. Which is to say each participant arrives equipped with what economists call a fixed endowment. The challenge for each participant is to allocate that endowment in such a way that she achieves maximum satisfaction. Somehow, in a kind of presto-change-o, the market discovers who gets how many eggs for how much flour, and since this discovery is made at the limit of everyone's endowments, it turns out that the prices for eggs and flour are the best that anyone can do. Since, as we noted, all this must happen simultaneously, there is no tomorrow except the one to which we are forced to commit ourselves today.

The ingenuity of such a model has been much admired while at the same time its lack of realism has been faulted. Hayek was one of the first to argue for an intertemporal equilibrium, a model that can include prices set at different times. He then realized that a model that would determine future prices requires a degree of foresight that we may not be able to attain. Undaunted, economists point to futures markets. But if you recall, my venture into cocoa futures had unsettling consequences. I need not belabor the point known to all creatures that the future is unknowable.

Yes, I know, death and taxes. And humans spend considerable effort trying to cheat both. If we want to understand "bubbles", financial bubbles that lead to financial crashes, we have to look at the kind of effort required to "cheat" the undertaker and the underwriter.

How do we value our savings? We cannot discover a price for something without taking it to market to see what we can exchange it for. If there is no market for something, there can be

no price. But if there are no differences among us, there will be no market. No one exchanges eggs for eggs. A cow for beans, perhaps, if those beans are really special. No one exchanges savings for savings if they are of the same kind. If there is to be a market for the exchange of saving, it must be the result of differences. What would give rise to such differences?

Saving, to refer back to Keynes, is the link between the present and future. Money only has value if someone will give you something for it. Equipment can produce that something but it must find its price. The value of the equipment can only be measured in terms of the price of its product which it has not yet produced. So the problem of the value of savings sounds suspiciously like a chicken-or-egg problem.

Still undaunted, our economists will conjure up a market for savings. It will behave very much like a futures market. Let's suppose that the wheat grower, unlike the miller, was in actual need of tiding over and she had no more wheat to sell for money. She could borrow money, to be repaid when she harvests her next crop. How much would the loan cost the grower? At this point, we don't know. (Yes, it would be a rate of interest. We are only too familiar with rates of interest. But we do not know how rates of interest are determined. Fair disclosure: it is one of the more contentious questions in economics. There is no quick or simple answer, method or rule.) Note: I chose the wheat grower as our protagonist because the funding of crops has been throughout history, particularly in the U.S., a major source of instability in money and banking.

I, on the other hand, have done well in the egg business. Easter came early when most hens were not yet in the mood but mine were surprisingly eager. I expanded the flock. I am in a position to make the wheat grower an offer: I will purchase a share of her next crop at a price that is only a small discount from this year's price. This solves two problems for the grower. It gives her money to tide her over and it gives her an assured price for part of her crop. We won't know if this is a good deal for either of us until harvest time. But, as I said to the grower, it's just chicken feed.

Alas, there came a night when someone forgot to secure the chicken coop. The critters got in and savaged much of the flock. I am left with sorrow and feathers. My money has been spent on feed that I may not be able to use. If I had kept my money I could buy eggs and hatch more hens. The story is not turning out the way I expected. I will try to sell my wheat contract but whether I shall get more or less than I paid will depend on changing expectations and whether anyone else has money to invest. My advice: don't spend all your money on one crop and don't put all your chickens in one coop.

What was the value of my savings? I won't refer to "a bird in the hand". Savings give stability to our economic existence but we cannot know how valuable any particular saving will be until we need to make use of it. There seem to be two aspects of saving. There is the durable part, as Keynes observed about durable equipment. There is also the linking part, as he noted about money. These two aspects are somehow opposed. Durability vanishes at the point of linking: the value of the saving is transformed into the value of the commodity desired and supplied. For individuals, this need not matter. I learned about the shelf-life of waffles. Collectively, we have learned much about the shelf-life of many things. We learned about the benefits of salt and ice. We learned that decay is the fate of all life and we yearned for the means to delay, if not escape altogether, that fate.

So what to save? Look, here is a bright shiny durable metal. It is like the sun in a world with no night. How very desirable.

And so begins the collective delusion. Silver and gold (diamonds, rubies and emeralds,

too) became the measure of the durability of value. Goldsmiths could do well by themselves. Snatching and grabbing also looked to be more lucrative. Goldsmiths had to find ways to protect their gold. Others, too, realized that the threat of robbery meant taking steps to secure their treasure. Banking begins with a vault.

Have we really solved the problem of the durability of savings? No, but for many centuries we prospered (or not) with this delusion. If a delusion is widely enough shared, it assumes the trappings of reality. It doesn't much matter what I think about the value of money; what matters is what the potential recipient of the money thinks about its value. It is when money, that is savings, becomes the link to the future that we must discover the reliability of the shared delusion. If we bring different estimates of the value of our savings to the market, we must wonder how those different estimates are formed. If we all share the identical vision of the future there will be no market for exchanging savings. There would have to be some differences which are not subject to delusions, no matter how commonly shared.

The perception of differences seems to be the simplest, most natural of our capacities. Yet the determination of differences, which requires some sort of measurement, is the source of some of the most vexing problems of the reliability of knowledge. Further on we will have to venture into this dreaded thicket of epistemology, but for now we will assume that we can always spot differences and can measure them, whether they be of temperature, weight, size, color or shape.

It is when we attempt to determine the economic value of such differences that we must confront the most basic difference of all: the difference between 'here' and 'there' and 'now' and 'then'. I would like to be clear about this most unclear of distinctions. You are here, as the map in the mall informs you. Wherever you are is always here. And the time is always now. But as the map in the mall informs you, there are other places you might be. However, if you go to another of those places, what was 'there' becomes 'here'. Just check the nearest map. It will say you are here. Pondering this difference takes on a certain Alice in Wonderland-ish quality.

The point we wish to grasp is that the difference between 'here' and 'there' cannot be eliminated. The difference is not what one may find 'there' that one cannot find 'here' (the seashore versus the desert, for example, or shoe stores versus food courts) the difference is that since one cannot be in two places at the same time, the choice of 'here' versus 'there' is always absolute. It means that the choice of moving from 'here' to 'there' is not simply the cost of the mobility, the transport, but the cost of what giving up 'here' may entail.

In the case of 'now' and 'then' the difference remains both absolute and paradoxical. It is always now. Whatever one does, it is always being done now. Of course, it *was* done then. One need not even blink before 'then' (the future) becomes 'now' (the present) and 'now' becomes 'then' (the past). We have no choice in the matter. We will, if we persist at all, arrive in the future. We cannot choose what we find in the future. The future is the undiscovered country. We may attempt to bring something with us. Savings; something durable; perhaps a continuous effect of effort. But we can never reach 'then' without giving up 'now' and we can never arrive at 'then' since it is always 'now'.

Do I make too much of this? I do not think so. Try reading, for example, Gerard Debreu's *Theory of Value*. In order to participate in a determinate solution to the formation of prices, Debreu requires that we list all our desires in order of preference and that we select a specific time and place for the satisfaction of each of these desires. (He uses the neutral, less challenging term, commodity.) I suppose that most of us have some notion of the order of our

needs, but I doubt if this ranking could ever be rigid enough to satisfy M. Debreu's conditions. As for the time and place of delivery, we would be foolish to place some fixed value on such a specification unless we were assured *access* to the specific time and place. Which is precisely what we cannot be assured of.

Two brief digressions: One, on the matter of *access*. Economists have neglected to include any difficulties that might arise from providing access to markets in their theories which depend on markets. (I said above, "I'm off to the market". This rather off-hand statement includes the assumptions that I know where the market is, that I can get there, and that the market is open to everyone, including me. Even a cursory survey of the markets within our economy suggests that we cannot take these assumptions for granted. Most markets seem to be open to any buyer; there are, however, restrictions on sellers; getting shelf-space, for example.) Later on, we may want to spend a little time thinking about the effects of restricted access to markets.

Second digression: at the root of the problem of the value of savings is the problem of change. It is, as Karl Popper says, "a strange and perplexing problem". (A readable and comprehensive introduction to the problem and some its implications is to be found in Popper's essay, "Beyond the Search for Invariants," which is included in his late work, *The World of Parmenides*.) "All change," Popper writes, "is change of something. There must be a *thing* that changes; and that thing must remain, while it changes, *identical with itself*. But if, we must ask, it remains identical with itself, how can it ever change?"

This is the puzzle we must solve if we are ever to measure anything, for to measure means to compare differences. If what we want to measure are rates of change, the aforementioned gradients, we must find a position, a point which is not undergoing change. David Ricardo began but could not complete a search for an invariant measure of value. Later economists concluded that there could be no invariant, that is, absolute measure of value. But the belief that we can somehow measure value persists, though just how we are to do this is not spelled out. We want the value of our savings to persist, even though we ourselves are changing.

Undaunted, economists still believe that the value of savings can be measured in a market, just like everything else. Undaunted and unembarrassed, economists devise a market for savings that does not function at all like their model for the equilibrium of supply and demand of commodities. The market for savings must incorporate a gradient, a rate of change, and this rate is measured by a rate of interest. (Preview of coming attractions: when we come to bubbles, we will find that the market which incorporates interest rates is grafted onto another market which treats assets which bear a rate of interest as if these assets were tradable commodities.) How are interest rates determined? As I said, this is a contentious issue. The work which economists now regard as laying the foundation for later expositions was Irving Fisher's *The Theory of Interest, As Determined by Impatience to Spend Income and Opportunity to Invest It*. We need not delve into Fisher's exposition except we must note that he assumes a fact not in evidence, that we have produced an income in excess of our immediate needs. To do this we must not only defy nature to achieve a technically adequate productivity, we must discover the value of doing this. Fisher assumes that savings have a value, and that all we have to do is find the price which expresses that value and then we can exchange our savings to our mutual delight and profit. The opportunity to invest. Or, have I got a deal for you!

If interest is simply the payment by a borrower to a lender for the use of a sum of money

for some period of time, which it is, the determination of this payment should be no more nor less complicated than determining any other price. We ought then to look for the values which must be found in order to determine the price, a price which is the rate of interest in any given circumstance. "Impatience to spend income" is a matter between each of us and our needs and temptations. However, averaged over time and over whole economies, patterns develop which can be related to factors which are not entirely subjective. We will look at some of these conditions further on. We do need to take a close look at this notion of "opportunity to invest" before we can proceed.

To grasp opportunity we must go through possibility. It must first be possible to do something; an opportunity is the chance to do that something; that is, the conditions at a particular place and time be such that the possibility can be realized. We will find later on that opportunity and probability are intimately connected; in order to form any notion of either we must go through possibility.

A possibility (let us say flying) may be limited by an opposing possibility (let us say falling) or excluded altogether by an impossibility. Here or there: we cannot be in two places at the same time. An opportunity may bear a cost. If we want to be 'there', we must give up 'here'. We cannot have our waffle and eat it too. Opportunity costs are conceded by economists. Indeed, some economists almost dote on them, since it seems to be a tidy way of determining value. Alas, when we come to 'now' versus 'then' we find an opportunity cost that cannot be fitted into a model of exchange. We may indeed try to exchange consumption 'now' for consumption 'then' (I'll trade my waffles today for your jam tomorrow) but we cannot do the reverse. (I cannot trade my waffles today for your jam yesterday.) The opportunities of 'now', once past, are gone for good. So we may be torn between the need to provide for tomorrow, and the fear that if we do not seize the opportunity of the moment it will be gone forever. Opportunity costs loom large in the valuations of bubbles.

As was stated above, there would be no economic problem if anything could be transformed into anything else at any time. Nature, so we observe, resists transformations. Separation in space and separation in time remain differences, not just because what is separated may be different, but because separation itself cannot be eliminated without cost, and in the separation of 'now' and 'then', not at all. The greatest economic benefit comes from the use, the exchange, of the greatest differences. If we are faced with a difference that cannot be eliminated, but the value of which we cannot neglect, then we may try to come as close to eliminating the difference as we can.

I will hazard a generalization. Differences that cannot be eliminated, which arise from irreversible processes, carry very high opportunity costs. Reducing opportunity costs would be of great value if we might then retain the benefit of utilizing differences: To strike while the iron is hot. If we had some way of learning what was happening 'there' without having to give up 'here' we could determine whether the cost of giving up 'here' for 'there' was worth it. (I see you reaching for your cell phone.) So communication, the information about differences, may reduce the irreducible differences of opportunities. We cannot communicate with the future, of course, and even information arriving in the present may arrive too late to enable us to seize a good opportunity or evade a bad one. The more widely separated our here and now is from there and then the less reliable, or even possible, will be the information that can be communicated. We are left to imagine, guess, predict, hope or pray. What we hope for may not come to pass, and what does come to pass may exceed our wildest imagining. We long for certainty, but who really

knows what will come or remembers what we used to have. Stretched far enough, we find our beginnings and endings in paradise lost and heaven to come.

We reach for the cell phone and hope there is someone to answer our call. As far as communication is possible, 'here' and 'there' are closer together today than they have ever been. The Greeks depended on the stamina of runners. Admiral Nelson at the battle of Trafalgar devised semaphore flags. The invention and extension of the telegraph changed economies forever. But there is no one in the future to answer our call. We can still only imagine, guess, hope or pray, and then predict. Opportunity is wrapped in uncertainty.

A market is the field within which differences are utilized to mutual benefit. Among the perceptible differences are the imperceptible ones, the differences of experience and knowledge. Even if someone answers our call in the present, will she tell us what we need to know? When information begins to influence the market, our desires, our yearning must be accompanied by learning. We must begin another more difficult process. Information, the discovery of change, does not necessarily lead to knowledge; knowledge does not necessarily lead to judgment.

We will, on a later occasion, examine this process. In the next part of this inquiry, we will pursue the connections among information, opportunity and money that lead to financial bubbles and their bursting in air. We must remind ourselves, and particularly the economists among us, what Hayek pointed out in his essay *Economics and Knowledge*. "Clearly there is here a problem of the *division of knowledge* which is quite analogous to, and at least as important as, the problem of the division of labor. But while the latter has been one the main subjects of investigation ever since the beginning of our science, the former has been as completely neglected, although it seems to me to be the really central problem of economics as a social science."

What if the division of knowledge in an economy produces false information? What if the money we use to link to the future is not the result of saving?

Having wonderful time. Wish you were here.

Stephen Kresge

Big Sur, California

A complete list of bibliographical references will be provided at the conclusion of this extended essay.