Economic Costs (The Ones That Matter)
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Suppose you need to decide whether to start up a plant or shut it down. Whether to eliminate a product line. Whether to produce at capacity or below. The answers to these questions depend on costs. But which costs matter? Cash flow measures of cost exclude some costs that matter (“opportunity costs”) and include others that don’t (“sunk costs”). We refer to the costs that matter as “economic costs,” where “economic” in this context means “the ones that matter.”

More formally, if you are making a decision between two choices — call them A and B — you need to take into account the economic costs of the two choices. To be more specific, suppose B is the default and you are trying to decide whether to switch to A. The costs that matter to this decision are those that differ between the two choices; if they’re the same, then the costs have no bearing on your choice between A and B. A more formal definition of economic costs is:

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\text{Economic Costs} = \text{Actual Expenditures} + \text{Opportunity Costs} - \text{Sunk Costs}.
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This equation is the key to today’s lecture. Actual Expenditures are the actual cash outlays incurred by Choice A. Opportunity Costs are the revenues or benefits foregone by choosing choice A over choice B. These costs are also known as “imputed costs.” Sunk Costs are the portion of Actual Expenses that would be incurred whether choice A or choice B is selected.

Why all this effort to belabor what may seem obvious? The history of business is filled with huge mistakes from an incomplete understanding of them. Opportunity costs involve no payment of money and are therefore easy to overlook. Large sunk costs often come with political supporters, whose reputation hinges on the success or failure of the project. But from a purely economic point of view, there’s nothing you can do about them: they’re gone.

Opportunity Costs

This part of the equation represents the cost associated with the opportunities that are foregone by not putting the resources employed in choice A (e.g. time, money, personnel, equipment) to alternative use. Implicitly the cost is the benefit or revenue obtained from the best alternative for the resource involved. When making decisions we need to consider the opportunity costs as real costs of the activity even though they do not correspond to actual cash outflows.
An example of opportunity costs is going to the movies. Say you are considering going to the cinema on a Friday night and a ticket costs $10. If your alternative to going to the cinema is to sit at home and do nothing, then there are no opportunity costs (presuming doing nothing holds no value to you, that is you are neutral about staying home). Thus the economic cost of going to the movies is $10. Let us say, however, that you have a part time job and you have been offered a four-hour shift delivering pizza for $10 an hour. Assuming that you do not mind the pizza delivery job (that is, not delivering pizza does not have a value for you on that particular Friday) the opportunity costs of going to the movie is the money you are foregoing by not working (i.e. $40). Consequently the economic costs of going to the movie in the second case would be $50. Note that you may have the opportunity to baby sit for those same four hours for $8, but we use the $10 for the pizza delivery job since that is the best alternative use of your time.

Another example of opportunity costs is in the use of Carnegie Hall. Say you are managing the facility and the agent of a concert pianist comes to you and suggests holding a recital. You expect that the net revenue for the recital would be 100. The alternative to holding the concert would be holding a rock concert, which would net 150. The impresario may try to convince you that you would be gaining 100 from this recital, but actually you would be losing 50 (net economic revenue of−50) since you need to add in the opportunity costs to get to the economic costs. Say you had total revenues of 900 and expenses of 800 for the recital. In that case you would calculate the net economic revenue as 900 – (800 [actual expenditures] – 150 [opportunity costs]). Alternatively you can make decisions by comparing the net benefits (i.e. 150 is better than 100).

A third example would be using a part of an NYU building to house short-term visitors such as executive education students. Say that this use brought in 80 in room fees but required 30 in cleaning and other expenses. The next best use of the space is to lease it out for office space at 60. You can look at this in the same two ways as before. In net benefit terms the 80 – 30 would lead to a benefit of 50, which is less than 60. Thus the right decision would be to rent out the space for offices. Similarly the net economic revenue of the student housing is 80 [revenues] – (30 [cleaning, etc.] + 60 [opportunity costs]) = -10. This is less than zero, and thus should be rejected as an option. Thus, either way you look at it, renting out offices is the way to go. This would not be the case if there were further benefits to having housing for executive education students that were not being considered.

All of these examples illustrate a common feature of opportunity costs: it’s not that easy to quantify them. We have to put a value on an alternative use, and such values inherently involve some judgment. Perhaps that’s why financial statements tend to leave them out.

**Sunk Costs**

Sunk Costs are expenses that would be incurred regardless of which choice is picked. These costs are not taken into account when making economic decisions. For example a
prior investment in an asset with no alternative use, a “specific asset,” should not be taken into account when making an economic decision. Say the British Government was trying to decide whether to continue rail service between two cities or instead to change to bus service. The revenues gained by both choices are 120. The costs of the rail company are 30 for interest on bonds used to finance the rails, 50 to lease trains, and 50 for labor (or labour, since we’re talking about the UK). The costs of running the bus service are 60 to lease the buses and 50 for labor. At first glance the government is losing 10 on the Rail Company and would make a profit on the bus company, so it would make sense to switch to buses. The fact is that the British Government is not going to default on the rail bonds, so the interest has to be paid regardless of which option is chosen. The interest cost is a sunk cost, then, and the rail company is not only profitable in an economic sense, but more profitable than the bus company. That is economic profit = 120 – (30 + 50 + 50 – 30) = 20 for the rail company and economic profit = 120 – (60 + 50) = 10 for the bus company. This may not seem to make sense, but it does in an economic sense since you would have to pay the cost of the interest anyway. If you could default on the railway bonds, it would be a different story and it would be worthwhile to do so and change to buses.

Further examples:

- You have spent $15 on a ticket to a football game. Come Sunday, it is raining cats and dogs and there is no way for you to sell the ticket. You should make your decision on how much you value watching the game versus how much you hate the rain. The price of the ticket should not come into the equation since it is a sunk cost. Regardless of the option chosen you will have spent $15 on the ticket.

- A company has built a dam. There was a huge initial investment in the dam that comes out to 5 per unit of energy when amortized over the life of the dam. The operating costs of the dam add 5 to the unit energy cost so that the total cost of power from the dam is 10. Once the dam is completed, a new source of energy is discovered so that the price of energy falls to 7. Should the dam continue to operate since it will be losing 3 on every unit of electricity generated? The answer is that the dam should continue operating as long as the price is expected to average over 5 in the short to medium term (that is it might make sense for the dam to absorb short term losses if there is a cost for shutting it down and reopening it). The cost of building the dam does not come into the equation since it cannot be recovered if the dam stops producing electricity. Thus it makes economic sense to continue to operate the dam as long as the operating costs are covered.

- Say you have purchased a laptop computer for $2,000. A week later a new, improved model is introduced for $1000 that is 3x as fast as your laptop. The company offers to sell you the new computer for $400 if you trade in your old laptop. This seems to be paying $2,400 for a computer that costs $1000, should you do it? In order to decide whether to take the trade in, you need to place a value on the extra speed of the new laptop. You then need to ignore the $2,000 as a sunk cost. The only thing
important to you is if the extra speed is worth $400 or more to you, in which case you should trade the laptop in.

- Airbus is a jointly owned consortium that makes commercial aircraft. The four European governments that own the consortium invested huge sums in subsidies to develop the company as a competitor to U.S. aircraft manufacturers. Currently the company is profitable, but it would have to be enormously more profitable in order to recoup the amount spent on subsidies. If there had been loans made instead of subsidies, the company would not be profitable. What should the governments of the countries do if there had been loans to pay off instead of subsidies? Provided that they are not willing to default, the company should continue to produce aircraft even if loan payments made the company permanently unprofitable. This is true provided there is enough cash to stay solvent (but it would make sense for the governments to inject more cash or to assume the loans anyway). As long as Airbus is covering its operating costs it should ignore the sunk costs of the hypothetical loans and keep churning out aircraft.

- The Eurotunnel between France and England is an idea that has been around since Napoleonic times, but has only recently come to fruition. The project was plagued with huge cost overruns and has resulted in less revenue than expected. As a result, the company has had to completely redo the financing and the holders of debt in the endeavor have been hurt. The operations of the tunnel are profitable, however. As a result, it makes sense to keep operating the tunnel, since the building of the tunnel is a sunk cost. If you knew what was going to happen, however, you would probably not have loaned the company the money to build the tunnel in the first place.

- Haas installed “swing Macs” in their classrooms for academic purposes due to the fact that they could run both Macintosh and IBM software. They proved unable to run this software well, however, and this became an impediment to learning as well as an embarrassment to the staff. A proposal was brought up in a meeting to replace these machines (which cost $5,000) with $1,000, functional PC’s. A faculty member said that this would be fiscally irresponsible since the school had spent so much on the swing Macs in the first place. The economics faculty at this point chimed in that it made no sense not to replace the Macs since they were a sunk cost.

Economic and Accounting Costs

Economic costs are used to make decisions. They tell you whether choice A or B generates higher profits and how much higher those profits will be. They do not replace accounting measures, since it is quite possible to have the amortization of sunk costs bankrupt the firm even though it makes economic sense to keep the firm producing. Similarly, accounting costs are not often useful for making economic decisions. The costs of choice A are defined only in relation to the choice B that it is being compared to. You can look at the costs and benefits in different ways, but they give the same answer. Further differences between accounting and economic costs: Economics ignores the past...
if you cannot do anything about it, whereas accounting costs are backwards looking. Opportunity costs are not reflected in accounting costs. Conversely sunk costs are accounting costs but are not economic costs. Economic profits are revenues or benefits minus economic costs. These differ from accounting profits for the reasons listed above.

**Examples**

Health club. If you own a health club that makes $3800 in revenue, should you stay open? The following is the cost structure of the health club: Actual expenses of $2,500 for labor and $2,000 for lease payments. The lease is unbreakable and bankruptcy is not possible. There is a possibility to sublet the space, however, for $1,200 a month. Thus the $2,000 lease payment is a sunk cost, and the $1,200 is the opportunity costs for keeping the health club open.

With this cost structure, one is losing $700 a month on an accounting basis. On an economic basis however, the economic costs would be $2,500 + $2,000 [actual expenses] + $1,200 [opportunity cost] - $2,000 [sunk costs] = $3,700. The economic profits are thus $100 a month. In this case it makes sense to keep the health club open. If you could declare bankruptcy, though, the costs would be $2,500 + $2,000 + $1,200 = $5,700 and it would make sense to shut down.

Redsyke quarry (real example from UK). There was an expansion of the M6 motorway that required the extension of a quarry, including an 8 hectare plot used for grazing. The quarry offered the farmer approximately 3x the market value of the land. The farmer’s lawyer suggested that the farmer ask for compensation for foregone earnings based on the value from the cows and sheep that would be displaced. The farmer suggested that this was not enough since there was an average profit, not actual profit. What would you give as testimony if you were called as an expert witness (your testimony could vary depending on which side you were supporting).

*Written by Kevin Cassidy under the supervision of Luís Cabral and David Backus. © 2001 Luís Cabral and David Backus.*