WHAT *IS* OPPORTUNITY COST?

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OPPORTUNITY COST IS IMPORTANT ISN'T IT?

Opportunity Cost is defined by the Economics Network "Handbook for Economics Lecturers" as a *discipline threshold concept.*: "Understanding of other subject discipline ideas (including other threshold concepts) integrated and transformed through acquisition of theoretical perspective."

It is defined by most textbooks as being an important concept.

However, it is rarely used beyond introductory level economics.

OPPORTUNITY COST IS OBVIOUS ISN'T IT?

You won a free ticket to see an Eric Clapton concert (which has no resale value). Bob Dylan is performing on the same night and is your next-best alternative activity. Tickets to see Dylan cost $40. On any given day, you would be willing to pay up to $50 to see Dylan. Assume there are no other costs of seeing either performer. Based on this information, what is the opportunity cost of seeing Eric Clapton?

A. $0   B. $10   C. $40   D. $50

(Ferraro & Taylor 2005)

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A. $0   B. $10   C. $40   D. $50

A: 50 responses; B: 43 responses; C: 51 responses; D: 55 responses

OPPORTUNITY COST IS OBVIOUS ISN'T IT?

Potter and Sanders (2012) argue that all the answers are justifiable.

Part of the reason for this is because the WTP could be seen as variable (otherwise Clapton concert would never be chosen).

However it is also because the concept is too vague.

DISTINCTIONS BETWEEN DIFFERENT DEFINITIONS

i)   Foregone opportunity vs Full costs

ii)   Value versus quantity (various definitions! Value can be price, utility or willingness to

      pay)

iii) Next- best vs Not-best

This gives a minimum of 8 different possible definitions

DISTINCTIONS BETWEEN DIFFERENT DEFINITIONS

Examples:

"The opportunity cost of an activity is the value of what must be forgone to undertake the activity." (Frank and Bernanke, 2009: 7)

"The [opportunity]cost of something is what you give up to get it." (Mankiw, 2019: 27)

"What we give up is the cost of what we get. Economists call this the opportunity cost." (Parkin, 2016:9)

"Opportunity cost is the (net) value of the best rejected alternative." (Begg et al. 2014)

WHY IS THIS IMPORTANT?

Different definitions give different answers- maybe leading to different decisions.

Some definitions may result in ambiguous or multiple answers.

It raises the question of just how useful it is:

i)   Is it just supposed to be a heuristic or a genuine tool?

ii)   Can something so imprecise be a genuine threshold concept?

iii)   Does it just cause confusion among students and researchers alike?

HOW CAN WE CHOOSE BETWEEN THESE DEFINITIONS?

One possibility- don't bother.

i) Opportunity cost is not necessary for an understanding of modern economics (aside from its heuristic value).

ii) It is not an integrated part of economic theory (its origins are Austrian rather than neoclassical).

iii) There are no *a priori* reasons for preferring one definition to another.

HOW CAN WE CHOOSE BETWEEN THESE DEFINITIONS?

I would argue that there *is* a best definition of opportunity cost based on *explanatory power*.

The best definition, in this view, is:

"Opportunity cost is the (net) value of the best rejected alternative."

"net"- rejecting Austrian view of cost.

"value"- insists on a valuation function of some kind (e.g. Utility)

"Best rejected"- highlights next most important.

HOW CAN WE CHOOSE BETWEEN THESE DEFINITIONS?

This can be formalised as follows:

$$C(S) = \{x \in S; TB(x) - TB(C(S - \{x\})) \geq 0\}$$

Where S is a set of alternatives, x is an alternative, C() is a choice function and TB() is a total benefit function.

This function can be shown to be equivalent to set valued WARP or, equivalently SARP.

HOW CAN WE CHOOSE BETWEEN THESE DEFINITIONS?

Alternatively, we can look at the situation where opportunity cost is for all other alternatives.

$$C(S) = \{x \in S; \forall y \in S; TB(x) - TB(y) \geq 0\}$$

Where S is a set of alternatives, x and y are two alternatives, where y can be any alternative in S, C() is a choice function and TB() is a total benefit function.

This function can be shown to be equivalent to set valued WARP or, equivalently SARP. However, because any y can be selected, this is indeterminate as to the value of opportunity cost.

HOW CAN WE CHOOSE BETWEEN THESE DEFINITIONS?

Alternatively, we can look at the situation where opportunity cost is for a fixed other alternative that is not second best:

$$C(S) = \{x \in S; y^* \in S; TB(x) - TB(y^*) \geq 0\}$$

Where S is a set of alternatives, x and y are two alternatives, where y* is a particular alternative (not the next best) in S, C() is a choice function and TB() is a total benefit function.

This function can be shown to be equivalent to element valued WARP but not SARP.

This is determinate as to the value of opportunity cost, but one cannot ensure an ordering.

PARKIN'S DEFINITION OF OPPORTUNITY COST

This follows on from Parkin (2016):

$$\frac{\Delta Y^*}{\Delta X} = \frac{U_X}{U_Y} = \frac{P_X}{P_Y}$$

MRS is defined as the quantity of Y willingly forgone for X. This is defined as the opportunity cost of X for Y.

Claims that this equates the value and quantity based approaches.

However, this assumes that one is in equilibrium i.e. that one has already maximised ones utility.

{Also- in what sense is there a change here?: the LHS should be a differential...)

PARKIN'S DEFINITION OF OPPORTUNITY COST

$$\frac{\Delta Y^*}{\Delta X} = \frac{U_X}{U_Y} = \frac{P_X}{P_Y}$$

How powerful is this as an explanation?

Note that choices are made between bundles rather than quantities of X and Y. Given that $\frac{\Delta Y^*}{\Delta X}$ is in equilibrium, it suggests that the two bundles that the change is made between are indifferent to each other.

This suggests that this definition satisfies element valued WARP but is not implied by it (Since it says nothing about choices outside equilibrium.).

OTHER ISSUES

The distinction between value and quantity in opportunity cost has few defenders.

Quantity suffers from the "Apples and Oranges" comparability problem. Parkin's defence of it still relies on being in equilibrium with values so that comparisons can be made.

Net versus gross. The latter is an Austrian viewpoint whereby all costs are opportunity costs. This is rarely accepted in mainstream economics.

CONCLUSIONS

Opportunity cost, far from being obvious and easy to understand, is highly complex and is not well understood.

It is *not* ubiquitous within economics, in spite of its role as a "threshold" concept.

The best definition in terms of explanatory power seems to be one where the value of the current alternative is compared to the next best. This gives the most useful definition as it is explanatorily powerful and gives a unique answer.

Whether opportunity cost is worth "rescuing" is an open question that needs to be debated.