

Rethinking the Meaning of Economic Value

Arturo Cifuentes

Clapes UC, Santiago, Chile

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**"A cynic is a man who knows the price of everything,
and the value of nothing."**



Oscar Wilde, 1854-1900

“Traditional drivers of value have been shaken”

Mark Carney, Governor, Bank of England

“Capitalism as we know it will likely be changed forever”

Leon Cooperman, billionaire and hedge fund manager

“Companies must benefit all of their stakeholders, including shareholders, employees, customers, and the communities in which they operate”

Larry Fink, CEO & Founder, BlackRock

“All stakeholders must participate in the gains and losses of any particular situation”

Christine Lagarde, European Central Bank President

“Unless we change capitalism, we might lose it forever”

Jamie Dimon, CEO, JPMorgan Chase

Professions “unproductive of any value...”

“... the most frivolous professions: churchmen, lawyers, physicians, men of letters of all kinds; players, buffoons, musicians, opera-singers, opera-dancers, etc.”

An Inquiry into The Nature and Causes of the Wealth of Nations,
Book II, Chapter III, *Of the Accumulation of Capital, or of productive and
unproductive Labour*



Adam Smith

See also **Bullshit Jobs** in References

A very brief, somewhat biased, and utterly incomplete history of the concept of value

- **Objective approach**

Labor theory of value

Smith, Ricardo, etc.

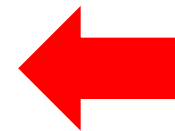
Recently revised by Sraffa

- **Subjective approach**

Incorporates demand,
marginal utility concept

Walras, Jevons, Menger, etc.

Richard Cantillon, introduced the concept of "opportunity cost" in *Essai sur la Nature du Commerce en Général*, published in 1755



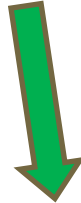
The Situation Today

Price, P



P^*

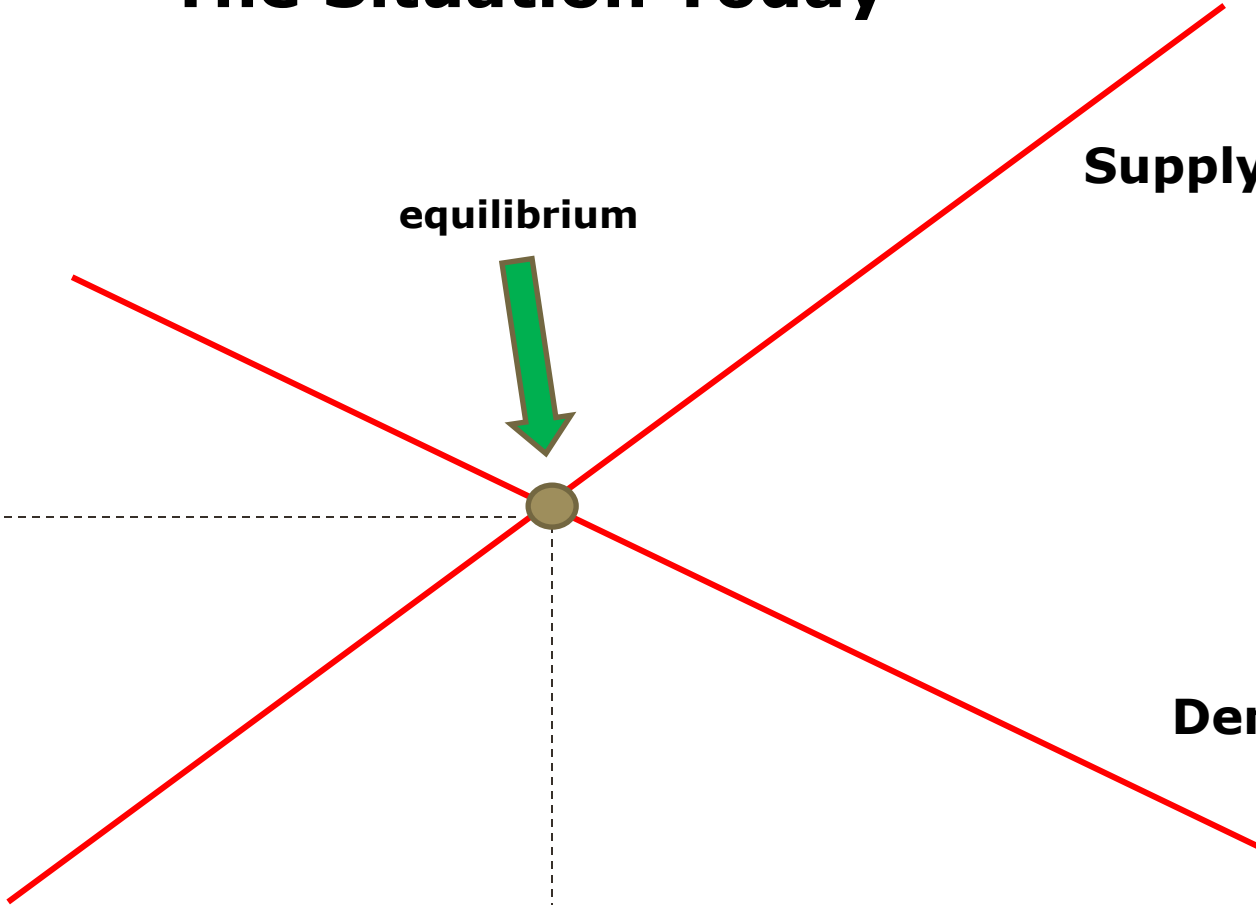
equilibrium

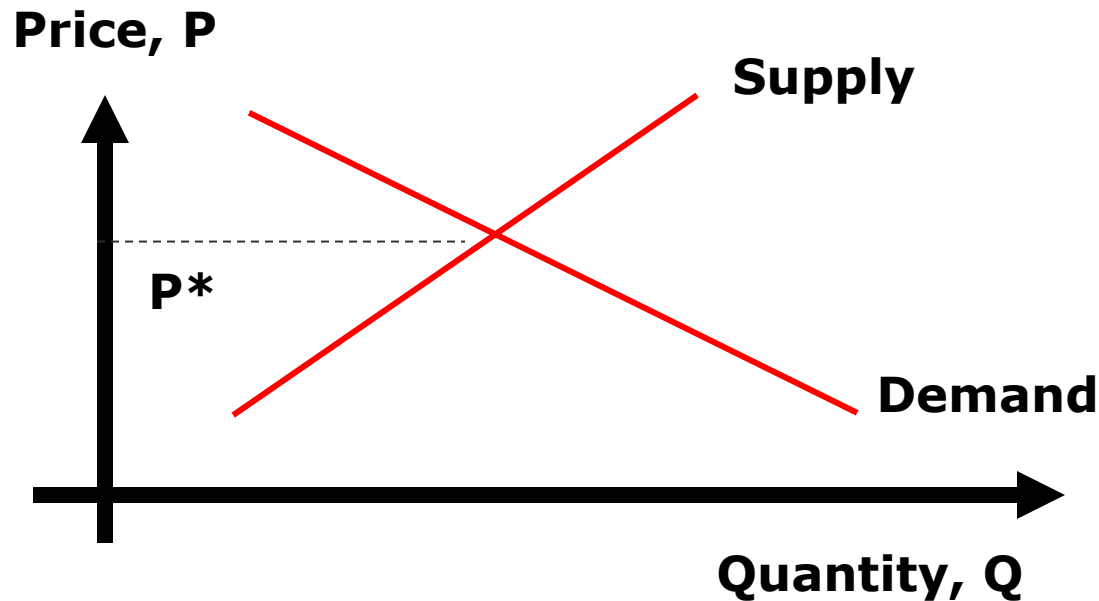


Supply

Demand

Quantity, Q





QUESTION: Does P^* capture (reflect) value?

REALITY: We have no idea...

Supply and Demand are completely distorted by:

- Taxes
- Trade restrictions
- Regulatory constraints
- Monopoly effects
- Societal norms, etc.



Murray Gell-Mann

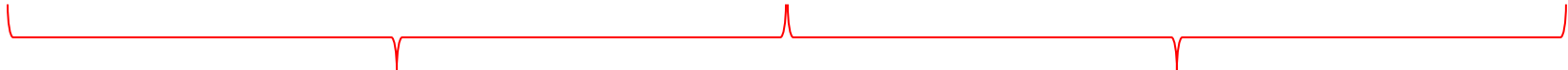


Seth Lloyd

Effective Complexity (EC) = a measure of information content

'ABC' repeated 50 times

ABCABCABC.....ABCXRWOPUFRSSAVHGLP... Etc etc etc



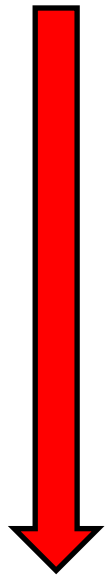
Regularities

Random

EC, it focuses on the length of the shortest computer program that can print this string and then stop *Print 'ABC' 50 times*

What we (humans) value:
activities that tend to create
and/or preserve complexity

Effective complexity is a measure
of "information content" or
"meaningful information"



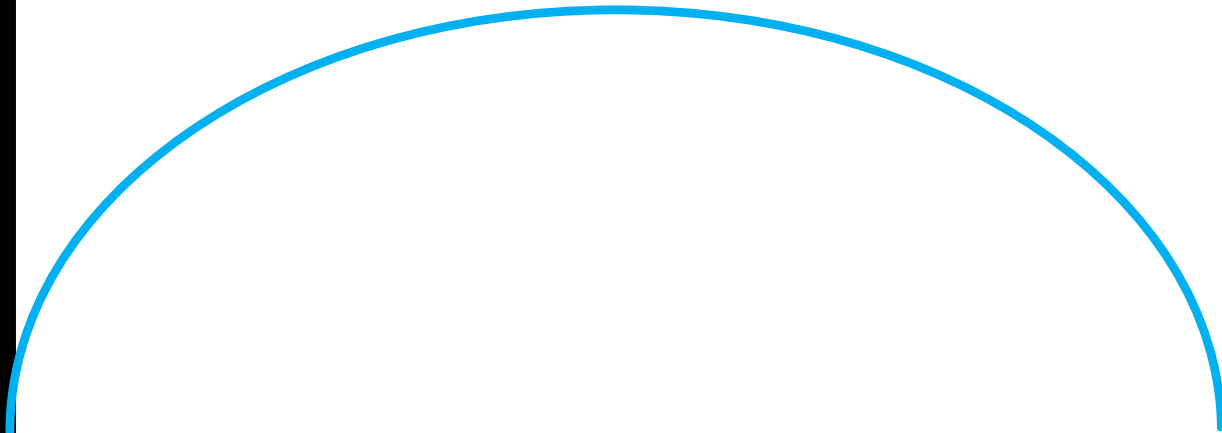
Complexity



ENTROPY

Rigidity

Chaos



Complexity + Capitalism = Complexalism (*)

- ❑ Humans are constantly engaged in activities aimed at *creating and preserving* complexity
- ❑ The creation and preservation of 'effective complexity' is built into the human *raison d'être* and can be interpreted as a measure of what we, as humans, value
- ❑ The economic value of an object should reflect both its intrinsic value and its instrumental value
 - ❖ The intrinsic value correlates with how much embodied complexity the object has at present
 - ❖ The instrumental value correlates with how much complexity the object will engender in the future

(*) REFERENCE: Quantifying Value with Effective Complexity, M. Murialdo & A. Cifuentes, *Journal of Interdisciplinary Economics*, May, 2020

The Total Complexity (TC) attributable to an “object” (a measure of its impact on the world) can be computed as...

$$TC = \int_{t_0}^{t_f} (C_{o+s}) dt - \int_{t_0}^{t_f} C_s dt$$

Instantaneous effective complexity (EC)
of the “object *plus* its surroundings
(environment)”

Instantaneous effective complexity (EC)
of just the “surroundings” (without the
“object”)

Analogously, we can compute with a similar simulation the Complexity Opportunity Cost (COC) of replacing the “object”

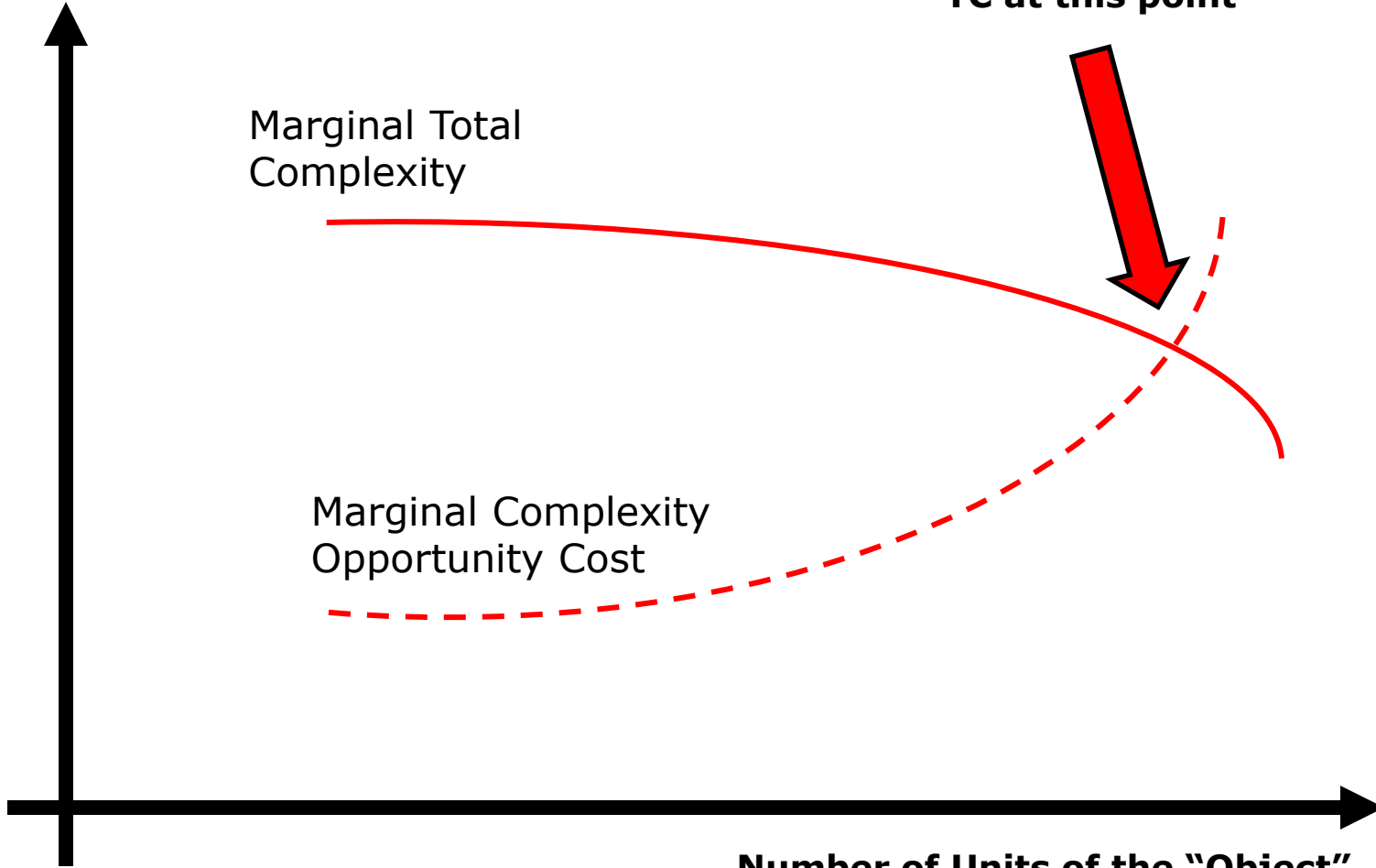
**Effective
Complexity**

**Value ~ Marginal
TC at this point**

Marginal Total
Complexity

Marginal Complexity
Opportunity Cost

Number of Units of the "Object"



Every coherent economic system must be based on some theory of value

In summary:

1] We need to be able to define “Value”

and then

2] We need to figure out how to measure it

Finally, how do we know if prices and value converge, or diverge, and by how much?

Is *Price = Value* ?

OR

Price



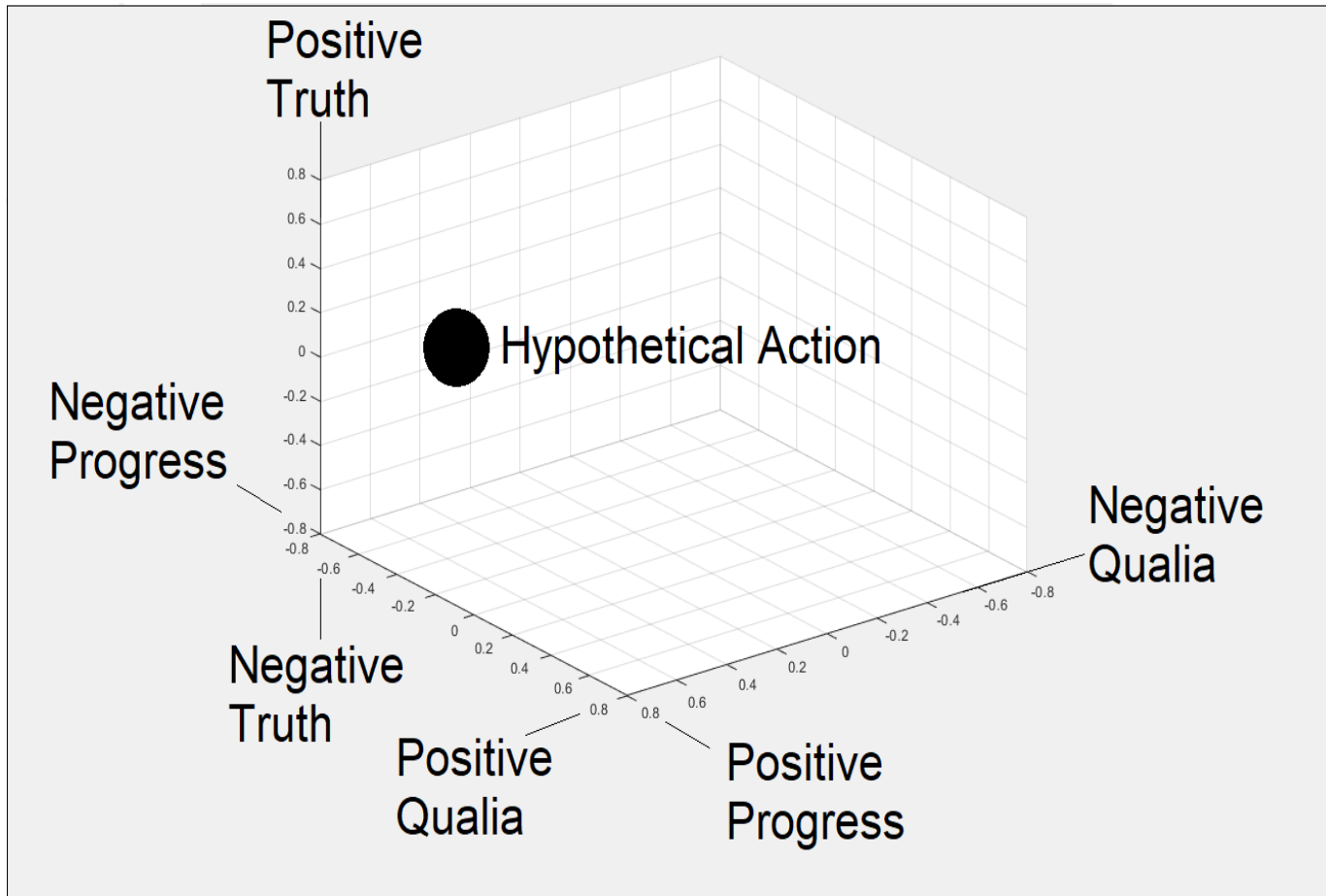
Value

"Price is what you pay, value is what you get"

Benjamin Graham, The father of "value investing"



APPENDIX



The value-point of a hypothetical action plotted in three-dimensional value space

SOURCE: M. Murialdo & A. Cifuentes, Quantifying Value with Effective Complexity, *Journal of Interdisciplinary Economics*, May, 2020

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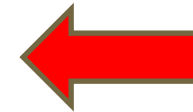
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ARTURO CIFUENTES

www.arturocifuentes.com

Currently, he is a Research Associate at CLAPES-UC, a research/public policy center affiliated with the Catholic University (PUC) of Chile. Previously, he taught at the University of Chile in Santiago, and Columbia University in New York.

Additionally, he served three years as a member and President of the Chilean Sovereign Fund investment committee (US\$ 25 billion); and four years as a member of the Advisory Board of the Division of Humanities and Social Sciences of the California Institute of Technology (Caltech).

As a result of the subprime financial crisis, he was invited twice to testify, as expert witness, by the U.S. Senate. He has also been consulted by the U.S. Congress, the U.S. Treasury, and the Connecticut State Insurance Commissioner. He has written many peer-reviewed academic articles as well as several op/ed pieces for the Financial Times.

Arturo holds a Ph.D. in applied mechanics and a M. S. in civil engineering from the California Institute of Technology (Caltech); an MBA in finance from New York University (Stern scholar award); and a civil engineering degree from the University of Chile.