

The Evolutionary Theory Of Value

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Revision 2, 2018-09-12

Abstract

We propose the first economical theory of value that actually works. We explain evolutionary causes of trade, and demonstrate how goods have value from the evolutionary perspective, and how this value is increased with trade. This “Darwinian” value of goods exists before humans assign monetary value (or any other value estimate) to traded goods. We propose objective value estimate expressed in energy units.

1 Introduction

The modern economics has very few theories of value: Labour theory, Monetary theory, Political Power theory, Utility theory, and Exchange theory.

Monetary theory has huge practical utility in analyzing markets, but does not attempt to explain the origin of value (although being habitually misused for this exact purpose).

Utility theory provides a great insight into market actor’s motivations, but leaves the question of quantification the utility open. It recognizes the subjective (situational) aspect of value and IMPLIES the objective (utilitarian) aspect, but fails to recognize the crucial importance of this duality (described in Section 2), which results in the famous “paradox of water and diamonds” [3, Chapter IV].

Labour theory (with all its variations and upgrades) has no connection with reality at all. Ironically, Marx in his own words explicitly refused to relate value with utility: *use-value [utility] as such lies outside the sphere of investigation of political economy* [4, p.276], at the same time acknowledging that consumers are valuing utility: *nothing can have value, without being an object of utility* [5, Ch.1, Section 1] – thus you can cite Marx himself in order to show his total irrelevance.

Exchange theory tries to improve Labour theory by debunking it, while remaining formally Marxist (with a predictable outcome). The value of this theory is in the admission of the objective/subjective duality of the value, but the theory fails to elaborate it and confuses everything. [6]

Political Power theory describes merely one pathological case of value assessment, although in a social setting it could be seen as a special case of Evolutionary theory (as “political power” being advantageous from the evolutionary perspective).

Marx wanted to measure “intrinsic value” of goods by the amount of invested labour. Which is obviously irrelevant to any sensible notion of value from the consumer’s perspective. We can immediately destroy the Marxian theory of value by producing two identical shoes: one made by a skilled craftsman in his shop, and another made by him in the same shop with prison moons attached to his legs. The weaselly correction “socially necessary labour” does not remedy the stupidity of the labour theory of value. The socially necessary labour to build Titanic in Himalayas is much higher than the socially necessary labour to build Titanic in Belfast – according to Marx, Titanic is more valuable in Himalayas. Apparently, Marx completely failed to capture the idea of value, therefore will be ignored from now on.

The monetary value of goods is the only value estimate practically available to us. Markets use prices with great success in order to establish tolerably unfair exchange rates of goods. People successfully use prices to reason about the value of goods and the value of transactions. However, it is a huge mistake to say that the price is the value. Imagine you need a pair of shoes. Imagine it now. If you succeeded then my point is proven. You just evaluated your need for shoes WITHOUT THE KNOWLEDGE OF THE PRICE.

Generally speaking, when you enter a marketplace you pay attention to the properties of goods before you learn their prices, the very decision to enter the marketplace and the decision to approach a particular supplier is usually made regardless of the pricing information. Prices may limit your trading options, by they do not affect your internal estimate of the value of goods. Moreover, you decide whether to make a transaction according to the discrepancy between the price and the value. Therefore, if the price IS the value, then you must commit all transactions within your financial capabilities, and you have no reason to deny any deal you can afford – which is apparently ABSURD.

According to Adam Smith, you can use the price of a massively traded item as a substitute for its “global” value, which is calculated by markets (very accurately in many practical cases), this result is calculated from the aggregate demand. THE PRICE IS CAUSED BY THE DEMAND, so you need the demand first.

We suggest that the demand is the expression of how much people VALUE goods.

2 The Approach

The major debate about value has always been about whether it inherent in things, or is a function of human desires. Plato regarded value as inherent in a commodity, but Aristotle attributed it to a commodity’s utility, and he said the standard of value lies in wants. [7]

We insist that the both sides of this debate are... right in their positive argumentation and wrong in the refutation of another side, and consequently any theory that adheres to either side fails to grasp the whole idea of value.

We recognize the fact that individual customers value goods differently. Moreover, this fact is necessary for a market to exist. If two people value an item equally, they have no motive to trade this item. If the value of goods is 100% intrinsic then all well informed people value all things equally, then no honest trade is possible, which is contrary to the observable reality.

At the same time the very existence of any demand on a market suggests that goods do have intrinsic value. Shoes make your life objectively better by being shoes them-

selves. Shoes have a valuable function which is enabled and defined by the physical properties of the shoes. The attribution of the shoes' value to the physical property of the shoes is easy to reveal by merely wearing several different shoes – by being able to compare these shoes you admit that your evaluation depends on the physical properties in question.

Thus, the value is “objective” and “subjective” at the same time – it depends on both intrinsic properties of goods and the customer (alongside all his local circumstances). In other words, the economic value is a function of two variables: a customer in a particular local situation, and a goods item of certain properties.

A proper theory of value must reflect this fact.

3 The Inescapability Of The Intrinsic Value

Every phenomenon existing within a biological system must have been evolved in the Darwinian sense.

Markets exist within a biological framework: the extended phenotype of Homo Sapience. [2]

Therefore markets have to have an evolutionary “reason”, simplest and likeliest of which is the survival value (in the Darwinian sense) or more precisely the reproductive advantage.

A market is merely a collection of transactions, so it must derive its survival value from its transactions.

Thus transactions must have objective intrinsic Darwinian value.

Whereas transactions can only derive this value from the goods that are being exchanged (keeping in mind the subjective value aspect).

Here we make a tiny leap of faith focusing on the survival value and dismissing “indirect” evolutionary “reasons” such as side effects of other evolved traits, or preservation of neutral traits, etc. Further reasoning (section 4) supports this assumption by demonstrating the presence of real survival benefits.

The requirement of the survival value for an evolved phenomenon has two weak spots: sexual selection (which happens to be arbitrary in many cases) and parasitic memes (such as religions). However, a religion shapes human behaviour in a way that creates “artificial” survival value, e.g. killing infidels, whereas sexual selection provides value in and of itself. That means markets require a Darwinian explanation involving aforementioned “intrinsic value” anyway.

4 The Source Of The Intrinsic Value

A pair of shoes gives you certain reproductive advantage comparing to not having shoes at all. You save some energy on heating your feet, some energy on healing inevitable damage to your soles, lots of energy on thickening your soles, and all this is compounded with the energy required to acquire extra food that is your only energy source. Your life with shoes is visibly more efficient. All in all you use some animal skin INSTEAD of growing your own – you shifted the expenses to another animal.

The vast majority of all things traditionally traded in the world's markets provide reproductive advantage to buyers. Before anything else, it is FOOD; then clothing; then tools; then housing; then fuel; then medicine – all these things one way or another prolong your life and save your labour, which translates almost inevitably into greater reproductive opportunity (not only more offspring, but also better reared ones).

Naturally, the buyer's perception of the goods value is not perfectly accurate and his psychology is exploitable and the market (as a finite knowable aggregate of human strategies) is also exploitable. This fact allows for fake-value goods (e.g. rhino horns, eye-phones, fridge magnets) to be traded. These goods do not affect our reasoning for two reasons: (a) fake-value goods are vastly outweighed by real-value goods, food alone trumps all "gadgets" combined (b) market exploiting strategies are secondary to the market, a market exploit, in order to evolve itself, requires its victim market to evolve earlier. As we are comparing (from the evolutionary perspective) the "no-market" situation vs a situation of arbitrarily early phase of market development (reasoning about the cause of the market itself), we can safely discard these issues.

A second pair of shoes gives you much lower reproductive advantage relative to the first pair, because you can only wear one of them at a time. The aggregate value of these two pairs of shoes is lower than the double value of one of them. A man having no shoes does value your second pair as high as you value the first pair. If you sell your second pair to him you receive from him in compensation as much value as he acquires with these shoes – as the result you end up having the double value of a pair of shoes, which is much greater than the value you had before the transaction. Since the motivation of the buyer is symmetric to yours, he must be having some comparable profit from the transaction (e.g. he could have had two identical items of clothing). You both profited from the same transaction. This is how a transaction itself has value derived from the value of traded goods.

The cost of production adds more motivation for trade. If you spend less energy/labour to produce a pair of shoes than another man does it is advantageous for him to buy shoes from you rather than manufacture them – this is how end up having two pairs of shoes in the first place.

5 The Basic Transaction

A simple transaction consists of: $User_1, User_2; Item_1, Item_2$

where $User_1$ owns $Item_1$ and $User_2$ owns $Item_2$, then the items change hands.

Users value items with the value function: $Value(User, Item)$

The aggregate value before the transaction is:

$$Value(User_1, Item_1) + Value(User_2, Item_2) = V_b$$

The necessary condition is:

$$Value(User_1, Item_1) < Value(User_1, Item_2) \text{ and } Value(User_2, Item_2) < Value(User_2, Item_1)$$

The aggregate value after the transaction is:

$$Value(User_1, Item_2) + Value(User_2, Item_1) = V_a$$

The condition explains PURELY SELFISH motives of the transaction participants, they do not care about the "global" aggregate value, they both increase the value of goods they personally own. Nevertheless, corollary to the necessary condition the aggregate value $V_b < V_a$, i.e. the transaction increases the aggregate value of goods in the market.

This is the intrinsic value of the market. Since this value is an expression of the reproductive advantage of the participants, the market provides reproductive advantage to those engaged in trade over those not engaged.

6 The Measure

Apparently the intrinsic value of goods is multidimensional. Food alone has many dimensions of value (and humanity keeps discovering new ones): sugars, fats, proteins, multitude of vitamins and microelements, essential amino acids, and something we do not know yet – all these are required in certain proportions rendering one-dimensional comparison between different food types impossible. Shoes and axes add some more completely independent dimensions of value... However, food is consumed for some purpose, tools are used for some purpose too. From the evolutionary perspective this purpose is ultimately the reproductive advantage. From the multitude of properties through the several intermediate goals (satiation, resting, lust, etc) to merely one measurable parameter the reproductive success.

We can compare goods (being consumed/used by people (remember the value is a function of two arguments)) by how much they affect the consumer's reproductive success (perceived or potential success or the expected value of the success in the probability theory terms).

Somewhat counterintuitive we propose to use energy units for this measure, i.e. translate "reproductive success" into the amount of energy saved (compared to what competitors have spent or might have spent). This makes sense because the energy saved by a person does translate into reproductive success of this person – the less energy you spend for a unit of food, the more/better offspring you can rear.

Another reason to use energy units is that we can express in energy units the cost of an item of any level of refinement. Because all we harvest or manufacture costs human labour, which is ultimately what we eat, and all we eat is ultimately stored sunlight, the cost of converting sunlight and storing it in chemical bonds is again energy. The forms of stored energy (different fuels and foods alike) are all interconnected with energy conversion paths of certain specific cost for each – it allows us to use single abstract energy unit for all forms of energy.

Example: to extract nutrients and energy from grass you need to spend some energy (some in form of digestion, some in form of labour (to harvest and chew the grass), and some in the form of waste); a cow can do the same job much more efficiently with much less waste; by eating a cow you save plenty of energy – you shifted the largest part of the expenses onto the cow; and by taking care of a domestic cow, you save energy that you would otherwise spend on hunting a wild one; and by manufacturing tools involved in the process you save your labour (which is also a form of energy). Although it is difficult to compute the exact amount of energy invested in an item and the exact amount of energy it provides to the consumer in a general case, it is fundamentally possible. More importantly, the energy measure can be used for "local" comparison without knowing the absolute energy value.

7 Caveats

We excluded from the scope all pathological market phenomena. However, the conspicuous consumption does not destroy the reasoning above, it does provide reproductive advantage through sexual selection.

The aesthetics and entertainment value require more research to understand how they could be (if at all) represented with the present theory.

8 Conclusion

The reasoning provided in the paper could be seen as an improvement an synthesis of all existing theories without contradicting Adam Smith's findings. It also solves the "paradox of water and diamonds" [3, Chapter IV] without specifically targeting it.

The popular belief that the value is fundamentally unmeasurable is now totally refuted.

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