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300 Anniversary of Smith' Birth

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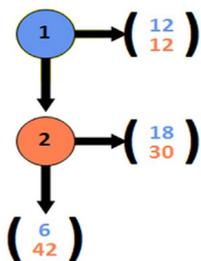
Thousand-word brief on key quotes from Adam Smith's two books (TMS, WN) modelling Society and Economy

"Though it may be true...that every individual...naturally prefers himself to all mankind...he dares not look mankind in the face, and avow that he acts according to this principle...If he would act so as that the [fair and]¹ impartial spectator may enter into the principles of his conduct, which...of all things he has the greatest desire to do, he must upon...(all)...occasions, humble the arrogance of his self-love, and bring it down to something which other men can go along with." Smith uses "go along with 41 times;" it is why common knowledge that all are self-interested is essential to understanding other-regarding social action." (TMS-p83)

Unlike the neoclassical utilitarian diversion, Smith distinguished the roots/origins of action from the consequences of action: "Actions of a beneficent tendency, which proceed from proper [intentional] motives, seem alone to require a reward; because such alone are the approved objects of gratitude, or excite the sympathetic gratitude of the spectator. Actions of a hurtful tendency, which proceed from improper [intentional] motives, seem alone to deserve punishment; because such alone are the approved objects of resentment, or excite the sympathetic resentment of the spectator." (TMS-p78)

To implement these propositions, predictive of other-regarding action, *requires common knowledge that benefit means more and hurt means less of a good thing.*

Hence in the trust game, if all are self-interested *and act self-interestedly*, *no Player1 will pass to Player 2:*



¹ Fair is a *unique English word untranslatable into any European or other language*, meaning fair-play whose opposite is foul, not unfair.

Predictably by Smith's beneficence proposition, in large replicable paired-samples, majorities, 55% of Players₁ pass to their Players₂, of whom 2/3rds play right in defiance of this universal-behaviorally-accepted logic of play-action. Although behavioral-experimental economists have recorded these observations for 30-odd years, none predicted, only explained it, ex post hoc, with "social preferences" or reciprocity theories; and established, but did not predict, that "intentions" mattered. Smith's other propositions predict novel results unpredicted by current theory.

Smith's important distinction between roots/origins and consequences of action, and common knowledge of self-interest carries over into WN:

"When the quantity brought to market exceeds the effectual demand, it cannot be all sold to those who are willing to pay the whole value of the (cost)...which must be paid in order to bring it thither. [Sales are limited by demand] Some part must be sold to those who are willing to pay less, and the low price which they give...reduce[s] the price of the whole. The market price will sink more or less below the 'natural' price, according as the greatness of the excess increases more or less the competition of the sellers, or according as it happens to be more or less important to them to get immediately rid of the commodity. The same excess in the importation of perishable, will occasion a much greater competition than in that of durable commodities; in the importation of oranges, for example, than in that of old iron."² [price falls when there is negative excess demand] (WN-p74)

If, on the contrary, the quantity brought to market should at any time fall short of the effectual demand, [purchases are limited by the offered supply] some of the component parts of its price must rise above their 'natural' rate. [Price rises if there is positive excess demand] (WN-p75)

Consequently, Smith's law of a dynamic market is NOT market clearing at a stable price. His two-part theory, is fundamentally mathematical in its form:

(1) price change has the same sign as excess demand, $e(P)$; (2) short-side rationing, at any price the contracted quantity is limited by minimum of amount demanded or supplied.

Hence,

1. $e(P) \frac{dP}{dt} > 0$ if $e \neq 0$. Transaction $t = t' + T$ (trade t' in period T)
2. We supplement WN: Let $V(P) = \text{integral of } -e(P)$; $dV/dt = -e(P) \frac{dP}{dt} \leq 0$; i.e., $V(t)$ is non-increasing.

² Note that Smith DOES NOT confine his analysis only to long-run "natural" price!

3. For discrete values and costs $V(p) = \sum_i (v_i - p)di(p) + \sum_k (p - ck)sk(p)$

So, V = overall (weighted by profitable values-costs) distance between price and the traders' reservation valuations.

$V(p)$ is a measure, in profit space, of the distance of price from traders' valuations-costs.

4. Short-side principle) Quantity traded is the minimum between quantity supplied and quantity demanded, or $Q = \min[s(P), d(P)]$.

$TS(P)$ = surplus constrained by short-side rationing = surplus (profit) realizable at market price P . V is a Lyapunov function, and $P(t) \rightarrow P^*$, (converges nonparametrically) where price change is zero.

P^* = Center of Market Value = $\arg \min V(P) = \arg \max TS(P) = \arg \max (\min [s(P), d(P)])$.

Principle of maximum information: "Market price evolves so as to reflect value better and better": $\Delta V(t) \leq 0$. The distance between price and value decreases through competition. Thus, we have the classical foundations of Hayek, Hurwicz-Reiter-Radner on informational efficiency.

THEOREM : Assume a competitive market (in the classical sense, not price taking!). Assume no re-trading takes place (hence no speculation). Then price converges to minimum price-value distance, maximum trade, and maximum surplus.

Illustration: a large market with values and costs drawn from an exponential distribution

