Core Conceptions I: Economic Evolution

2) Misconceptions of Evolution

- (1) *R. Malthus*' "naturalistic" population and production "laws"
- *Ch. Darwin*'s reference to Malthus (and thus in turn *K. Marx's* skeptical view of Darwin's achievement)
- (2) "reductionist" interpretations: evolution as *pure selection* and "*survival of the fittest*" – and racist variants;
- "*Panglossian*" variant: What is, is "right", "fit", "optimal", because it has survived (circularity), "*optimal*" selection as *axiom*
- similar: the *neoclassical* axiom of maximization behavior
- but: inconsistency between neoclassical "perfect-market" theory (GET) and the conception of selection – where does *diversity* (to select from) come from when *information* is *perfect*?
- affinity of Austrian theory for *evolution as (optimal?) "market selection"* (Hayek's spontaneous order?) → laissez-faire
- implication: the larger a firm's *profit* the greater its *fitness*?

2) Misconceptions of Evolution, Cont'd.

- (3) the „*fundamental theorem of (natural) selection*" (s. below)
- equivalent (has same logical structure) to a *replicator mechanism* (i.e. pseudo-*learning*)
- may be supported by an *imitation* mechanism (s. below); (*selection*, *imitation*, *replication* have *same logical structure*)
- (4) but yields a *teleological* end-state if used as the only mechanism: uniformity (e.g. same price, same costs, same profits), (quasi-) monopoly
- pure selection: end of history, stable "optimal" "equilibrium"
- (5) a first *counterexample* against an "optimal" outcome (of "optimal" individual decisions): the *collective-good/social-dilemma* problem: *fallacy of aggregation* (or: "fallacy of composition", Samuelson/Nordhaus, Economics); also: "improving oneself to collective extinction" (J. Elster, s. G.M. Hodgson, Art. "Evolution and Optimality" re the iterated *Prisoners' Dilemma* – PD, or PD supergame) → *unintended consequences* of interdependent individual behaviors.

2) Misconceptions of Evolution, Cont'd.

„fundamental theorem of natural selection“:

i = 1 ... n individual agents, "strategies", sub-populations or sub-cultures

p_i = success or "fitness" indicator (pay-off, profit, etc.)

p_r = reference success indicator (weighted *average* success, *maximum* success in the population, interaction *partner* pay-off, etc.)

s_i = "market" share, population share of i

α = selection/replication intensity parameter

$$ds_i/dt = \alpha\ (p_i - p_r)\ s_i.$$

If $p_r = p_{av}$ = *average* success in the population, then:

$$dp_{av}/dt = f[\sigma^2(p_i)] \geq 0$$

=> uniform maximum fitness!

If $p_r = p_{max}$ = *maximum* success occurred in the latest decision or interaction round, then

$$ds_i/dt = \beta\ (p_i - p_{max})\ s_i$$

= *imitation* mechanism, with β: imitation intensity parameter.

Selection can be *accelerated* through *additional* imitation, selection and imitation can add up.

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