The Hypothesis of Economic Evolution

Q: What’s the difference between economics and sociology?
- Economics is about how individuals in a society make choices (given scarcity, constraints, and information).
- Sociology is about how society leaves no choices for individuals to make.

The real questions…

Q: Do people choose their economies (including institutions, technologies, and government policies), or does their history choose for them?
Q: Are economies optimal in any sense?
Q: Can we take a well-accepted theory that applies to biology — to DNA, cells, genetic traits, and species — and apply it instead to economies and human cultural behavior?

The Biological Theory

- Charles Darwin’s theory of natural selection.
- Darwin was inspired by Malthus.
- The pressure of a population upon limited resources must lead to competition among individuals.
- Given the variation present in any population, those individuals who are best adapted to their environment have the greatest chances of survival.
- Given enough time, this leads to new species emerging from old ones (particularly if populations are isolated).
- Spencer: “survival of the fittest” and Social Darwinism (largely discredited).
Evolution requires:

1) variation of individuals in a population;
2) a selection mechanism (competition) which leads to those whose variation is less successful in a given environment to survive in lesser proportion than those more well-adapted;
3) a transmission mechanism (heritability) which allows surviving parents to pass on their better-adapted characteristics to their offspring; and
4) lots of time (iteration).

If these four conditions are met, then evolution is hard to argue with. In spite of religious discomfort and constant scientific debate on the minor specifics, evolution is fundamental to all natural sciences.

Is evolution the same as “progress”?

- A simple view of evolution tends to equate it with progress, as if objectively superior beings were replacing inferior ones.
- Modern evolutionary theory is much more complex: great variety and interdependence among and between organisms; many strategies for adapting to the environment (e.g., simple and complex organisms, parasitism and co-evolution).
- As Stephen J. Gould once said, history is contingent. Adaptation to the environment depends on the specific context. Often called path-dependence.

- So evolution is not the same as progress.
- Evolution is also not the same as adaptation. Individuals may adapt to new environments, and some species are more adaptable than others (e.g., humans and high elevation).
- In complex organisms, mutation and variation most often reduces fitness.
- Essential randomness: genetic drift in small populations can overwhelm selection.
- Populations evolve, not individuals.
- This analysis does not only apply to species, but can be applied to any population.
Macro vs. Micro Evolution

- Biologists and geneticists who study evolution at the micro level tend to see evolution as a gradual process, unpredictably random at a predictable rate over long periods of time (e.g., DNA mutations). Evolution is observable.
- Macroevolution is unobservable but inferred based on observed microevolution and an incredibly diverse fossil record. Characterized by punctuated equilibrium, catastrophic events, relatively sudden evolution.
- Combining the two parallels the general Marxian theory of change.

Do Economies Evolve?

The Austrian View

- Schumpeter’s creative destruction is an inherently evolutionary model, and the entrepreneur is an evolutionary agent.
- Von Mises and Hayek: the capitalist economy developed its institutions in a quasi-rational fashion – a sort of spontaneous order out of chaos – and institutions and behaviors which work best survive and are adopted by others.

North studied the emergence of institutions like private property rights, the scientific method, the ideology of the market, and the state. Information dissemination, transactions costs, and the free rider problem. Societies choose among available alternatives best solve their particular problems.

- Alchian argued that bankruptcy would lead to profit maximization by firms over time even if managers did not intend it. Firms must innovate, imitate, or die.
- Buchanan: political institutions like constitutional democracy may be a rational answer to problems which vex the individual, but its choices are not themselves rational. (Fits with social choice theory.)
Economic evolution is not just an idea that economic and social change occurs over time; it is a theory about how and why those changes occur. It must include the four elements: variation, selection, transmission, and time.

In practice, it is hard to distinguish it from simple incentive and learning, where people try different things and then choose what works best.

One recent approach is that individual preferences can evolve, but individual choices adapt. Economists usually assume that preferences are just given. But if certain preferences lead to more success in mating, and if these preferences can be passed on to your kids, then over time we would see certain preferences become more likely.

**Economic Evolution as a Metaphor for Selection**

- Technologies, products, and institutions which are otherwise hard to change.
- If bankruptcy acts as an artificial selection mechanism to weed out investments which, in hindsight, were inefficient, then evolution occurs because we are then left only with relatively efficient choices.
- Nelson argues it explains many specific technologies (QWERTY keyboard, VHS, gasoline engine).
- Increasing returns (positive-feedback loops) are not consistent with equilibrium systems.
- Evolution is thus path-dependent, co-evolutionary, and very non-deterministic.

Economic evolution is inherently different from biological evolution. Individuals and firms can adapt and learn, while a species can only change over long periods of time from accumulated mutation and selection.

The rational selection of institutions is always contextual. An economic system cannot simply be transplanted from one society to another and work as well. Perhaps such institutions must evolve on their own, and evolution is by nature a very slow process.
Applications to comparative economic systems:
- Economies which allow inefficient firms to go bankrupt are more likely to have faster economic evolution, while economies which prevent bankruptcy (perhaps because the state owns the firms) do not waste productive assets but also do not face evolutionary pressures.
- Economies which have more competition are more likely to evolve faster than those with less (this artificial selection, of course, is in addition to the improvement in managerial incentives that competition adds).
- Economies which are open to trade, finance, and interaction with other nations have both more variation and more competition. (Of course, economies with greater incentives to adapt may also find that learning and imitation occur more rapidly as well.)

If evolution is contextual, then different economies cannot be compared easily:
- An economy that works well in one context may not work well in another situation.
- Economies may work well in niches.
- This may determine whether economic systems will converge or diverge over time.
- If one type of economic system consistently performs better, if one particular set of economic, political, and social institutions tends to lead to better economic performance, then over time economies may converge to this type of system.
- Economies can find a niche, if societies can adapt to a contextual environment, then perhaps economies may continue to diverge.

Questions:
1. In studying dynamic changes within capitalism, what did Schumpeter and the Austrians argue are the most important elements?
2. What four conditions are necessary for evolution to occur?
3. What implications does the modern theory of economic evolution have on economic development and structural change?
4. How does it differ from the old view of evolution as gradual progress?
5. How does economic evolution differ from mainstream economic thought in terms of whether we choose our economy, our institutions, our technologies, or our policies, or whether history chooses for us?
6. How does the notion that competitive selection creates evolutionary change contrast with its effect on incentive and learning?