Uncertain Potentialities and Exchange as Evolution
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Abstract: Douglass North (1990) invokes Alchian’s (1950) concept of evolution to show that societies weed out inefficient institutions by “generating a maximum number of trials,” a concept credited to Hayek. North’s principle concern is to uncover the way groups cope with change. The Austrian entrepreneur theory has long required a type of uncertainty as one of the major tenants in its argument against central planning. The transfer of successful institutions across groups of people must indicate that static rules can be found by this process. The Austrians give us reason to believe that the success of these transfers would be limited if not impossible. This theory highlights the role of the economist as endogenous in the debate over the institutional change. By isolating a chain from Alchian, Hayek, and North the issue of the articulation of institutions is explored in the Austrian context, and the role of uncertainty can be placed properly among economic ideas.

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“The highest there is to know, that all that is existing already has a theory, man searches not after the phenomena, it itself is the teacher.”

I. Introduction

Evolution, as embodied in Charles Darwin’s *Origin of the Species*, presents one of the coherent arguments in modern thought supporting the idea of materialism. Through biology we understand the ultimate physical check on species survival. In Douglass C. North’s monumental work on *Institutions, Institutional Change, and Economic Performance*, he makes use of a type of evolution coming from two thinkers: Armen Alchian and F. A. Hayek. North, by invoking these writers, moves outside of the strictest understanding of the material use of evolution associated with its usage in the biological sciences and discusses evolution among human institutions. This is either a flawed analogy or a nuanced one. The nuanced interpretation of evolution has room for the subjective preferences of the agents in the model. By moving outside of strict materialism the concept of evolution necessarily changes. We cannot, as Hayek warns, look at evolution as merely the survival of individuals. He saw this failure of the social Darwinist movement of the late 19th century (1973, 23; 1991, 24-26). It is therefore necessary to understand how exactly the new institutionalists use the concept of evolution when they apply this concept in their writings.

Armen Alchian’s 1950 paper represents a broader analytical device. His is deliberately outside of the strict neoclassical framework of economics prevailing at the time his paper was written. He rejects the usefulness of the concept of “profit maximization” for problems existing at some distance from equilibrium. While stating that survival and profit maximization can look

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similar in the strict neoclassical assumptions, he posits that as these assumptions are relaxed the survival constraint binds and the profit maximization constraint is not binding. Alchian’s paper is in the tradition of Coase (1937) whose construction takes issue with a stylized analysis of the firm existing under the assumptions of perfect competition. The trade-off benefit is a higher level of correspondence to reality while sacrificing some of the coherence compatible with the tautology of neoclassical equilibrium analysis. By rejecting the logic of perfect competition, Alchian is important in the discussion comparative economic institutions surviving until today.

F. A. Hayek wrote about the institution of common law, which in his view seeks to formalize and translate the subjective part of the human mind into stable and predictable rules governing the relationship of men to one another (Fleetwood 1995, 42). It is this subjectivism which stands in stark contrast to the materialism associated with modern debates over evolution in the biological sphere. This side by side comparison is where the analogy between evolution and social change breaks down. Reason applied to reason interacts under different assumptions than survival in the strictly biological sphere. The analysis of institutional change must stand apart from biological survival, but this does not mean that the analogy is vacuous.

While man does not exist outside of the animal kingdom, and rightly comes under the purview of biological restrictions, he also is unique in his ability to apply reason to his path of evolution. The evolutionary checks which operate despite man’s reason do bind, but the discussion within the sphere of man’s reason is not so clearly material. In Section II Alchian’s model is explored in its relation to the concept of the firm written by Coase. The firm is used to model both organization and institution. Section III then relates this concept of evolution to the discussion of human institutions. Hayek’s understanding of common law and the space allowed for stare decisis are both important examples in this respect. Section IV discusses how trade, as
a subjective, even immaterial, form of evolution preserves a unified rational, way to resolve the problems presented by the use of evolution as a concept in the realm of social institutions.

Section V concludes.

II. Evolution of Institutions

Armen Alchian (1950) expands on the analysis of the firm which was created by Ronald Coase in 1937. (Demsetz 1988, North 1990, 77) Coase’s argued that economics could not explain the existence of the firm in the context of a perfect market. By stating reasons (including transactions costs) why participation in a market gives incentives for the creation of a firm Coase asks the question: “Why is not all production carried on by one big firm?” (1937, 394). Coase creates a model whereby the marginal cost within a firm of producing an additional unit must be less than the marginal cost of buying that unit on the market. This includes the cost of that unit plus one of ten specified categories of transactions costs which Coase identifies (394, 296-7). For Coase, existence outside of a highly competitive market atmosphere requires some concept such as transaction costs to explain the functioning of the firm. Each of these transactions costs imposes either a material cost or a cost related to Knightian Uncertainty (399-401). Observed Firms therefore are as large as the conditions of the market require them to be to overcome these cost.

Knight’s concept of uncertainty depends on an array of choices all of which are not articulated (1921, XX). The consideration of a set of alternatives uses scarce resources including time and imagination. By recognizing this, Knight sees that choice is made in the limited cognitive space relevant to a particular decision. Further, nothing historical determines the outcome of exchange. Subjective preferences are unknowable until articulated. Lacking knowledge about the actions of others further restricts ability to weigh alternatives. It is in this
sense that Coase recognizes a cost related to uncertainty by contracting outside the firm. For example, inability to control the supply of inputs gives an incentive to produce the required amount of inputs within the firm. Given these costs of transacting in the market, the firm would grow in size. Increasing the predictability of supplier choices would increase certainty and thereby lower this cost.

Alchian, accepting the existence of the firm, creates further room for ambiguity. By arguing that firms do not have perfect information about the world around them, the only relevant information entering the decision is whether the returns to entrepreneurial activity are enough to justify the actions. Alchian admits that as the market becomes more competitive, this assumption looks more like the profit maximizing one, but does not insist that the perfect competition assumption binds. Alchian therefore allows minimal necessary conditions to direct the actions of firms. The firms who fail to justify their opportunity costs fail. The ones that do not fail have no way of knowing if they are maximizing profits. This is not a predictive model. Alchian specifically creates a system which does not require the elimination of uncertainty (1950, 221).

In this way, the new institutionalists make the same move as Coase in creating an analysis with a tendency towards an ideal concept. The word institution is ambiguous in the way that the word firm is ambiguous. One can say that each is known when they are seen. The movement from the general to the specific occurs when discussing the firm when a specific function is considered. Similarly, by abstracting from the culture and the other large general

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2 Demsetz 1988 calls this managerial activity. For a useful distinction see Kirsner, 1973, XX
3 Mirowski (2000, 180) states, “Alchian’s approach reflects the recognition that Darwinian theory’s claims about individual responses to the environment are hard to establish, impossible to generalize, and therefore without predictive value for other organisms in other environments.” This statement notes that evolutionary theory is not prescriptive. Mirowski argues that this removes the applicability of evolution to economic science, but another alternative is that it simply nuances it sufficiently to limit the derivation of general certainties. “Alchian was properly limited in his expectations.” Mirowski (2000, 181).
III. Human Institutions

A fitting description for our biological group is the human animal. At one level humans are animal and subject to the same biological limitations as the rest of the animal kingdom. On another level, however, human reason adds a layer of complexity not existing among broader categories of life forms. If evolution acts, “as if” it were reasoned, a more sophisticated human reason is not needed to explain what is observed.\(^4\) This view forces a tighter fit between biological and institutional evolution. If man actually applies reason this is both a solution and source of uncertainty.\(^5\) This second framework is the necessary nuance needed to justify the use of language, specifically evolution, in looking at diverse cultures. The larger biological constraint, physical survival, acts in a general sense to bind all living creatures. The narrower constraint, survival of a cultural norm, adds to this material check a subjective component. The evolution of the subjective component, institutions formed by reason, is the subject of North’s theory.

North (1990) invokes two concepts in his theory of institutional change. On the one hand he explains that there are human institutions. These institutions are general and encompass a

\(^4\) Friedman 1953 is famous for the “as if” description of market efficiency.

\(^5\) Further discussion contrary to this point in Penrose (1952, 811-6): “If the operation of natural selection through competition is made the guiding principle of the analytical technique, than an assumption equivalent to profit maximization must be made and the professed raison d’etre of the viability approach disappears.” Alchian (1953) replies: “…[M]otivated purposeful behavior was introduced—without implying profit maximization because this could not be defined.” Alchian has uncertainty, of the Knight variety in mind.
large bundle of human actions imposing endogenous constraints (4). His other distinction, organization, is relatively more focused and exists to satisfy defined “objectives” (5). In terms of their own goals North’s organizations can be evaluated according to how they satisfy these goals. North’s word for this is “efficiency.” He then proceeds to question how human institutions could be evaluated in contrast to this notion of efficiency. The theory establishes a link between institutions and organizations as points on a continuum from general to specific. North constructs a nuanced version of evolution that is needed as a descriptive tool for the way that human institutions change.

Institutions do not lend themselves to the type of simple analysis possible when analyzing organizations. The difference rests on the presence or lack of an articulated efficiency standard. Institutions, by nature of their general construct are bound to encompass large, distinct, and conflicting goals. The fundamental problem solved by institutions is one of coherence. These institutions, similar to a firm, in-source necessary functions for which external supplies may not be reliable. This means that a general theory must have wide applicability. An example of a coherent system, the theory of Darwinian evolution, creates first approximation for understanding the evolution of species. In this case a certain perspective greatly simplifies the world. This theory is coherent in that much of the lifting can be done with a few relatively simple ideas.

Another coherent theory, such as religion, differs in its exposition yet competes over the same descriptive space. Similar scope is achieved, but the perspective and application are different. Correlation is defined as the necessity that the theory relates to some truth in the world. The criterion of the sciences is predictability or replicability. This gives us an efficiency

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standard. Other criteria are as diverse as the institutions which have been formed around them. Assuming that man chooses the theory best explaining reality as he perceives it, correlation is subjective. Two coherent theories could compete over the same group.\footnote{This point is explored in a conversation between James Buchanan and Warren Samuels, in a volume edited by Peart and Levy, forthcoming} The result from this process would be a Kuhnian paradigm shift.\footnote{This term is not applied to social science by Kuhn and therefore is also out of place in the strict Kuhnian sense applied to human institutions. The term evolution is also a scientific term used out of context as well, so one can proceed however cautiously.} Institutions, therefore, which weave coherence among a general population based on some endogenous criteria, cannot be evaluated on such a clear requirement that they correspond to some objective reality. In biological evolution competing species can solve the same evolutionary check without eliminating each other. This can be seen in the case of the Kittiwake and the rough winged swallow. The birds come from different ancestors but both respond to the same evolutionary check and adapt features facilitating their survival (Alcock 2001, 191).

Seeking to evaluate organizations in this manner creates a tension between the coherent system of scientific rational evaluation often applied to the task and the status quo coherence of any vestigial institution in question. A Schumpeterian Martian observer could comment on relative success along certain vectors, but could not choose, or prescribe, an objective large enough yet coherent by which to capture the complexity across both groups. This metric can only come from within each. North observes the following tendency in the development literature, which he rejects. (1990, 51):

The evolution of polities from single absolute rulers to democratic government is typically conceived as a move toward greater political efficiency. […] But it would be wrong to assert that the result is efficient political markets in the same sense that we mean efficient economic markets.

North rejects efficiency, here defined as ability to achieve stated goals using minimal resources. Democracy, for what it has achieved can be credited, but for what it has not yet achieved it
should not be attributed. Whatever goal is desired by the outside observer, imposed democracy is not an efficient system for achieving that goal, it is an end unto itself. To the extent that it comes from the outside, it cannot preserve the preferences of the endogenous agents (the data, or gene). It therefore is a distortion of the concept of evolution to fit it into this system more aptly titled breeding.\(^9\)

F. A. Hayek is well known for defending the common law system. In defending the status quo, he does not find received institutions as superior to potential constructions. He posits that a coherent system requires marginal change on an isolated vector, to justify the evolution of the whole system. This conservatism, which he points out is distinct from political conservatism known at his time, is a method of forcing adaptation of human institutions into a gradual process.\(^{10}\) It is exemplified by the legal phrase: *stare decises et non quieta movere*. Hayek notes that reason allows a much faster evolutionary process than biology, and he sees advantage to slowing this process down (1991, 23-4). Hayek creates the meta-framework for the analysis of institutional change which helps to answer North’s motivating question.\(^{11}\) North invokes Hayek in “the maximum generation of trials,” a process needed to realize the potentialities in institutional change. Human reason can adapt quickly, but speed alone does not always yield a positive return. This grants a positive characteristic to diversity.

Hayek warns that the prospect of change must be understood in the same character as the biological potentialities in a “germ” and not as prescriptive stages which society must pass through (1973, 24). Applying reason to the process of evolution changes the nature of the problem. Rather than random adoption, human involvement maximizes the adaptation of

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\(^9\) In evolution the limited numbers of animals competing allows for genetic drift. Between limited numbers of firms or institutions this is also a potential problem (Mirowski, 187). When competition does not provide the infinite numbers required by natural selection to preserve beneficial adaptations, efficiency is not guaranteed.

\(^{10}\) Hayek’s “Why I am not a conservative.” (1960)

\(^{11}\) North (1990, 4): “Why are societies dissimilar?”
humans to their environment. In 1877, the trial of Anne Besant and Charles Bradlaugh gives Darwin an opportunity to address the difference in his approach and the ideas of the social evolutionists (Peart and Levy, 9-10). Darwin, in a letter, worries that widely available birth control threatens to weaken the institution of marriage and has potential adverse effects on society. Preventive checks, or the application of reason, are quite different than positive checks, or the biological survival of a species. Prudent restraint, considered evidence of reason, is genetically unsuccessful in a biological sense when prudent activity gives rise to fewer children. The solution, by the social Darwinists, was to lower the costs of birth control to the imprudent and through education make them more prudent.

The process whereby reason adapts to survival removes reason from a strictly biological setting. The ability for human institutions to change outside of a biological check makes them more or less successful relative to one another, not specifically relative to base survival. It cannot be merely given that a particular level of prudence is efficient. Prudence can be evaluated only on its relative value by adoption. The Austrian method requires recognition of a dynamic process rather than static point and this process is articulated by comparison to evolution in a highly stylized sense. A sharp criticism of the evolutionary analogy is that it cannot predict the outcome of uncertain events therefore there is no improvement over the profit maximization vision (Mirowski 2000; Penrose 1952). From the Austrian tradition this failure to predict is precisely evolution’s descriptive appeal. Need rises, from this understanding of a subjective competition however, for a particular metric so that relative fitness can be reconciled between institutions. The next section offers one such metric, trade, which resolves these problems.
IV. Exchange

Knight’s uncertainty concept, invoked implicitly in Alchian and explicitly by Coase creates a significant problem for the theory of perfect competition. Rather than seeing the world as a system seeking to reach equilibrium, Knight recognizes a process. This process oriented vision of the world drove Austrian school economists. As long as the present world exists outside of perfect competition, Smith’s pin-makers find it advantageous to organize their activities within a firm setting. This minimizes uncertainty and its related costs. Coase addresses this point in his article. It is not given or certain that chaos would ensue in perfect competition when the pin-makers choose to be independent entrepreneurs.12 A set of ideal conditions, like perfect competition or anarchy, does inform the process. However, understanding is not driven by coherent models which do not correlate to the world out the window. Analytical Anarchy takes this process driven approach to new frontiers. (Boettke 2006)

It is only in the world of transactions cost, a distinction from perfect competition, which the pin-makers assemble inside the firm setting to reduce Knightinan uncertainty. It is very probable that with the reduction of the various types of transactions costs institutions closer approximate perfect competition and the related abstract ideal referred to as Anarchy.13 The project of the Anarchists (Austrians) seeks to understand movements in the direction of competition capturing returns to the entrepreneurial exchange function (Boettke and Lesson 2007, Boettke 2006, Bauer 2000). A unified vision of Austrian and evolutionary theorizing through exchange and rules concerning that exchange is described in Potts (2007, 125, 128-30). Potts, by recognizing the commonality in various approaches to exchange as a process, preserves

12 Demsetz also comments on this point (1988, 142).
13 Boettke 2006 outlines anarchy as a progressive research program. It is this type of approach of anarchy as an ideal which is approximated in successive tries at lowering transactions costs which is meant by the word anarchy. Boettke frames the recent history of anarchism into a class called “analytical anarchism.” (208-9)
room for the evolution analogy.\textsuperscript{14} The benefit of this type of view could be found, according to Potts, in models of cultural exchange advanced by Tyler Cowen (Potts 132-3).\textsuperscript{15}

As trade is introduced, and Smith’s division of labor is utilized, the general costs, including those types of technological change reducing transactions costs occur. The pin-component-maker who exists in a world of many pin-component-makers benefits from a predictable world of exchange relationships. The uncertainty coming from the instability in the external participants (relative to the firm) is reduced. As the regularities and rules adapt to facilitate predictability the costs to all of the participants fall. Conditions with relatively more products being traded allow for more distinctions. The mal-adaptive parts of the bundles can be isolated by competition and new processes can win-out among specialized competition. The great synergy following from Smith’s division of labor reduces the complexity of institutions from general categories of operation to specific products.

This has been a reoccurring theme in economics. Smith offered religion as the common man’s teaching institution. He offers the ultimate goal of competition to provide “pure and rational” results even over ideology (1776, V.1.197). In Coase’s language this reduces the firm size. In North’s this is a move from institutions to organizations. As the process that each firm takes on shrinks in size due to the reduction in transaction cost and an increase in competition, the bundle which the firm produces becomes more specific. Salient features competing with one another focus survival pressure onto specific vectors rather than on bundles. Denzau and North (1994) state that increased feedback mechanisms improve the signal. Feedback is clarified with simplification. The consumer faced with reduced complexity gives clearer feedback. In an

\textsuperscript{14} Plotts (2007, 131) says: “…A market is both a variety-generating mechanism and a selection mechanism, or in other words a process.”

\textsuperscript{15} Cowen shows that rather than globalization eliminating diversity it actually increases it through trade. Products which are valued are available over a much wider region.
Alchian sense this is the convergence of survival and profit maximization. Here his nuanced sense of evolution is defended.

Evolution far from apologizing for homogeneity gives understanding of symbiosis (Watkins 1998, 97). Trade relies on comparative advantage. Animals and bacteria live in symbiotic relationships with each organism performing a task which relies on the functions of the other. Evolution, far from predicting homogeneity among species relies on diversity. An uncertainty related to a specific type of operation is reduced, but uncertainty over what will be the long-run result is not. This model therefore can be applied to the diversity of institutions seen throughout human history. Coherent groups can live side by side, each benefiting from the presence of the other. The religious groups which specialize in cooperation and the rational groups which seek to explain existence in terms of scientific theory offer a model of this symbiotic relationship. Each would have purview with overlapping areas of trade. Rather than predicting convergence, this theory would predict diversity. Only a response to certain survival checks would create convergence, but a specific convergent evolution maintaining properties of the historical organism survives.

V. Conclusion

Institutional change is a process of adaptation similar descriptively but distinct to evolutionary adaptation. Authors resorted to a comparison between human institutions and the biological world because of the intuitive appeal. The Austrian perspective departs from a materialist understanding of the world and includes the subjective input of agents. These are the data which form the mechanism of choice. In a purely material vision of the world the action of choice is deterministic. The preservation of subjective data, and the reconciliation of this data with the binding constraint of scarcity can only be accomplished through trade. The imposition
of alternative human structures into a society by other means would be a form of coercion which distorts the underlying mechanism.

This predicts that Individuals reject criteria for change which are exogenous to their coherent system. This insight allows us to understand the rejection of rational manipulation of existing institutions. The alternative mechanism works in favor of marginal changes which bring about some sort of evolution equivalent through trade. One important insight included in biological evolution, and preserved in the analogy, is that the potentialities of any process are unknown. With the concept of uncertainty Knight, Coase, Alchian, Hayek, and North all reject the possibility that this potentiality is derived only from a historical context. The Austrian school holds this view of unknowable potential as a key tenant. The culling, or weeding out, of seemingly mal-adaptive human behavior distorts the genetic potential of alternatives. Evolution, because it teaches us that potentials are unknown, and gives us a simple mechanism to understand a wide variety of situations is an effective descriptive tool applied to the changes in institutions.
Works Cited


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