Department of Economics

Working Paper

Douglass North, New Institutional Economics,
and Complexity Theory

By

John B. Davis and Mauro Boianovsky

Working Paper 2024-01

College of Business Administration

**Douglass North, New Institutional Economics, and Complexity Theory**

John B. Davis

Marquette University and University of Amsterdam

with Mauro Boianovsky

Universidade de Brasilia

*Abstract:* Douglass North was central to the emergence of New Institutional Economics. Less well known are his later writings where he became interested in complexity theory. He attended the second economics complexity conference at the Santa Fe Institute in 1996 on how the economy functions as a complex adaptive system, and in his 2005 *Understanding the Process of Economic Change* incorporated this thinking into his argument that market systems depend on how institutions evolve. North also emphasized in the 2005 book the role belief played in evolutionary processes, and drew on cognitive science, especially the famous ‘scaffolding’ idea of cognitive scientist Andy Clark – the idea that the brain and the world ‘collaborate’ to address our computational and informational needs. This chapter discusses how North’s thinking about institutions and change reflected these later investigations. It concludes with comments on his late thoughts about the problem of violence.

*Keywords:* Douglass North, New Institutional Economics, complexity theory, cognitive science, scaffolding, Andy Clark, violence

*JEL codes:* B20, B30, B41, B52
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1 Introduction: North’s turn toward complexity theory

Douglass North is a central figure in the emergence of New Institutional Economics. He argued that neoclassical economics does not explain economic development, pays little attention to institutions, and does not address the incentive structures that institutions possess that either facilitate or impede market processes through their effects on transaction costs in market exchange. In his 1993 Nobel Prize Lecture he argued

Neo-classical theory is simply an inappropriate tool to analyze and prescribe policies that will induce development. It is concerned with the operation of markets, not with how markets develop. How can one prescribe policies when one doesn’t understand how economies develop? The very methods employed by neo-classical economists have dictated the subject matter and militated against such a development (North, 1993, sect. I).

What did this then call for? Emphasizing the importance of time that he believed was neglected by neoclassical equilibrium theory, but which had been central to the earlier Veblenian institutional literature, North went on to argue that

the beliefs that individuals, groups, and societies hold which determine choices are a consequence of learning through time – not just the span of an individual’s life or of a generation of a society but the learning embodied in individuals, groups, and societies that is cumulative through time and passed on intergenerationally by the culture of a society (Ibid.)

This “learning through time” was embodied in an historical evolutionary account of institutions and cultures (see Zouboulakis, 2005; Alston and Mueller, 2014; Greif and Mokyr, 2017; Ambrosino, Fontana, and Gigante, 2018; Greif, 2021). Understanding this involved explaining how the passage of time had accumulated effects on markets and economies. In effect, the past laid down institutional structures that shaped the present and the future. Thus, North was not only critical of neoclassical economics, but contributed to the revival of the Old Institutional Economics. Yet with such a large agenda, how was one to proceed?

One pathway North became increasingly interested in was complexity theory which made time central. Where North saw time being systematically investigated was at the Santa Fe Institute in Santa Fe, New Mexico, which had undertaken a multidisciplinary investigation of complex adaptive systems. Complex adaptive systems were neither chaotic and random nor deterministic like equilibrium systems. Complex adaptive systems exhibited structures that evolved slowly over time but also changed over time. This fit North’s understanding of how market systems depended on institutions that evolved.

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1 Special thanks go to Mauro Boianovsky with whom this paper was conceived and developed.
While the Santa Fe Institute initially only focused on sciences other than economics, a new program on complexity economics was initiated in 1987 when Nobel Prize economist Kenneth Arrow and Nobel Prize physicist Philip Anderson brought together ten economists and ten physicists to investigate how parallels between complex adaptive systems thinking in physics and economics. The conference produced a volume of essays entitled, *The Economy as an Evolving Complex System* (Anderson, Arrow, and Pines, 1988).²

Yet one of the conclusions of the conference was that there was virtually no thinking in economics that saw the economy as an evolving complex system. Indeed, physicists at the conference were surprised that neoclassical mathematical analysis, essentially optimization theory, fell well short of the kinds of mathematical analysis physics employed. This led to the development of a new program at Santa Fe on complexity economics in 1988. Arrow invited his Stanford colleague Brian Arthur to direct that new program, and a second conference in 1996 at Santa Fe was organized to which North was invited. That conference produced a second volume of essays, *The Economy as an Evolving Complex System II* (Arthur, Durlauf, and Lane, 1997), to which North contributed a chapter.³

The shared assumption of this second conference and volume is that complexity economics involves a distinct approach to economic analysis. It investigates how economic agents’ actions, strategies, or expectations change endogenously with the patterns and structures they create, and was thus recalled North’s Nobel Prize lecture emphasis on the importance of institutions and complaint that economics did not address the role time played in economic life. In contrast to neoclassical economics’ equilibrium approach, a complex adaptive systems approach is a ‘nonequilibrium approach’ but also one that investigated the emergence of order in processes that might seem chaotic. For North, institutions could thus function as the basis on which adaptive processes operated.

Though North did not write much about complexity theory over the rest of his career, the Santa Fe conference occasioned new themes and arguments in North’s thinking. He emphasized these in his 2005 *Understanding the Process of Economic Change*, drawing specifically on the thinking of two individuals, Paul David and Brian Arthur, who had made the concept of path-dependence central to how complex systems functioned.

David (1985), an economic historian, had famously emphasized the importance of the concept of path-dependence to describe in how markets often developed, using the arbitrary QWERTY organization of the typewriter keyboard as his example. This demonstrated that technical choices often exhibited ‘lock-in’ effects on later technological development and thus were key to how markets developed. Moreover, ‘locked-in’ technological changes were not necessarily the

² The contribution most distinctive in describing a complexity approach came from John Holland, who had pioneered the use of genetic algorithms and simulations to explain complex systems. He referred to complex systems as adaptive non-linear networks, and assigned them seven characteristics: the overall direction of the economy is determined by the interaction of many dispersed units; there are rarely global controls; the economy has many levels of organization and interaction; these building blocks are continually revised; there are many niches in which adaptations occur; niches are created by new technologies producing novelty; economies operate far from any optimum (1988, pp. 117-118).

³ See Fontana (2010) for the history of origins and development of the Santa Fe economics program.
most efficient. This echoed North’s change in position regarding the efficiency of institutions. His original view was that “competition in the face of ubiquitous scarcity dictates that the more efficient institution ... will survive and the inefficient ones perish” (1981, p. 7). Yet in his most cited publication using the concept of path dependency, he had argued inefficient institutions could persist, even with competitive markets, because of the costs and difficulties of moving from one developmental path to another locked them in (1990).

Arthur, with training in economics, engineering, and mathematics, and a long-standing interest in technology change and innovation, had emphasized the principle of increasing returns and the idea of positive feedback loops to argue that small changes in technological and economic processes could later be magnified, especially in industries where technology was important and significant network effects existed (Arthur, 1988, 1989, 1994). He subsequently developed a theory of the evolution of technological change (Arthur, 2009).

There are many currents in complexity thinking both in economics and other fields (Rosser, 2021), but North drew on David and Arthur as his point of entry. What he integrated with this complexity framework was his own institutional approach and Hayek’s emphasis on cognition, drawing on recent developments in cognitive science especially associated with the idea influentially advanced by Andy Clark that institutions provide a ‘scaffolding’ for economic agents’ cognitive behavior (Clark and Karmiloff-Smith, 1993).5

This chapter discusses how North’s later thinking about institutions and change was influenced by his exploration of complexity theory. Section 2 reviews his thinking about institutions and markets prior to his developing an interest in complexity theory and visit to the second Santa Fe Institute conference on complexity and economics. Section 3 discusses what North drew upon from complexity thinking, and connects it to his argument that understanding the central role of belief in evolutionary processes needs to draw on cognitive science, especially the ‘scaffolding’ idea of cognitive scientist Andy Clark. Section 4 looks at an important challenge to economic thinking about the nature of economic agency advanced by Clark and David Chalmers. Section 5 identifies North’s hesitations about complexity thinking, notes his view of the difference between economic and political evolution, and suggests this may both address potential problems in applying cognitive science to his approach, and provide a fuller understanding of his view of complex evolutionary processes. Section 6 concludes with brief discussion of North’s late thinking about social violence.

2 North on institutions and markets prior to his interest in complexity theory

Some of North’s early intuitions about institutions were stimulated by his travels and observation of how institutions in different societies emerged and evolved. One particularly clear example of this was his 1961 visit to Brazil where he served as an expert on regional economic growth and history and delivered four lectures in Rio de Janeiro, and on a subsequent visit to Latin America

4 Though note that he also added, “in a world of non-market decision making inefficient forms of political structure do exist for long periods of time” (Ibid.)

5 Also see Clark’s influential and more extensive discussion of his ‘scaffolding’ idea (1997).
in 1980 when he was asked to take part in measurement of transactions costs in Peru.\textsuperscript{6} He was struck by several things: the persistence of inefficient institutions in many countries, Latin America’s comparative backwardness relative to Western economies, and its divergent paths of economic development. This all provided him a very specific focus:

I’m putting more and more stress in my talks on the nature of economic efficiency as the essential ingredient in development. The more I see of Brazil the more I’m impressed that they simply have no concept of efficiency. Their hodgepodge of economic organization does not permit a price system to work well and they don’t know how to plan efficiently either. The result: a gigantic mess (North 1961a, p. 14).

What, indeed, for someone trained with a neoclassical background could be more central to standard economic reasoning than the concept of efficiency?

In North’s Rio lectures, the third issue was also provocative. There he interpreted divergence as especially occurring between private and social benefits and costs, and rejected the application of the subsequently highly influential Coase theorem to all countries (Coase, 1960).

While one can conceive of a legal structure in which firms and groups could recapture the gains or incur the costs which affect other groups and therefore in which external economies and diseconomies would for the most part disappear, the facts of life in the social-political legal structure of society makes such external economies and diseconomies very real and therefore makes for a different optimum where such effects do exist. (North 1961b, p. 41).

Quite early in his career, then, North had begun to investigate tensions between standard economic theory and what had happened in different national economies, especially those in the developing world. His early thinking can consequently be characterized as a balancing of what economics argued held and a number of questions about how this applied to the world.

What North had initially studied and was the subject of his doctoral degree was American economic growth, as influenced by Simon Kuznets (see Greif, 2021). In his first book he developed an export-based growth model using US history (North, 1961c). From there he began to investigate what influenced technologies, and this led to his emphasis on institutions, property rights, and transactions costs. His view was that ‘good’ institutions were important to growth because they produced low transactions costs, and this spurred innovation, specialization, and capital accumulation.

This in turn made the role and evolution of institutions a subject of research, which North then undertook in a book with Lance Davis (Davis and North, 1971). Institutions, property rights, and political developments affecting them became a focus for North, both in the case of countries where he believed growth had been strong and in countries where it had not. This position was

\textsuperscript{6} See Boianovsky (2018) for a detailed account of North’s visit. I own much of the discussion in this section to Boianovsky.
further made clear in his book on the rise of the West with Robert Paul Thomas (North and Thomas, 1973). What was argued now was that good institutions that secured property rights and lowered transactions costs had efficiency effects on relative prices. Institutions, then, with these foundations made for a more effective market process.

From this standpoint, North began to investigate what caused departures from this state of affairs, examining in a remarkable shift in thinking how ideologies, social norms, and social values came into the picture. Importantly, this created a role for different historical pathways, which were also affected by geography (North, 1981, 1990). In a general sense, this meant, as the Veblenian tradition argues, history mattered. In a more specific sense, it meant path-dependence, which was now beginning to be discussed by economists, needed to be taken into account. This was the point of entry into North’s later views and his introduction to complexity thinking, which later brought cognitive science to his attention.

### 3 North’s later views drawing on complexity and cognitive science

As an historian, North found David and Arthur’s attention to path-dependance particularly important since it suggested a pattern, perhaps even a causality, by which historical events came about. The lock-in idea and David’s keyboard example illustrates this, and Arthur’s expression of the idea in terms of a well-known economic law of increasing returns and positive feedback loops gave an economic interpretation to it. What more they shared was the idea that small, often seemingly unimportant changes could have significant long-term effects, redirecting economic development. This was contrary to economics’ reliance since at least the beginning of the twentieth century (if not also earlier) on the principle of diminishing returns and the marginalist view that the economy changed in predictably small increments. Given its deep philosophical attachment to that thinking, North was contemplating an all-but revolutionary change in thinking when he determined that economics needed to think more about complexity. Perhaps it was ironic to him since his career achievements and Nobel honor had been carried out without any systematic reflect on what he now saw in David and Arthur. It is not unreasonable, then, to say that this represented a turn in his thinking and a new excitement about what could be said about history.

What else was important to North about David and Arthur was that their focus was technological change, a factor underlying neoclassical reasoning but not much examined by most economists. These ideas, then, began to be further developed in North’s 1999 “Understanding the Process of Economic Change” lecture and then in his 2005 book of the same title.

Though it may be too strong to say that standard thinking was essentially functionalist about technology – that markets generally always functionally put resources to be best use – North nonetheless made a point of criticizing accepted thinking about technology in his 1999 “Understanding the Process of Economic Change” lecture.

What we do not understand properly yet, however, is that in the process of applying science to technology, we have changed the human environment fundamentally. We live in a world in which interdependence characterizes our very life. The complexities of
dealing with the very different environments are central to our getting a handle on the issues with which I am concerned (1999, p. 10).

Referring to changes in institutional matrices, he argued

The path dependence that results typically makes change incremental, although the occasional radical and abrupt institutional change suggests that something akin to punctuated equilibrium change in evolutionary biology can occur in economic change as well (p. 11).

Technology change worked in far more complex ways than most had thought. How, then, might one begin to investigate more adequately “the process of applying science to technology”? For North, the place to start is with how people construct beliefs about the nature of reality. “Beliefs and the way they evolve are at the heart of this lecture” (p. 13). Paradoxically, while beliefs shape our perceptions of reality, they are also the product of our perceptions. However, together, he suggested, they refer us to a “process of change” that he argued we can conceive of “as a circular flow” which “in turn leads to the creation of an institutional structure, or institutional matrix, which then shapes our ‘world’” (p. 15). Belief formation thus became the foundation of institutional development and evolution.

North emphasizes that this sort of “circular flow” conception and the idea of the feedbacks it involves had not really been investigated by most economists, but had begun to be investigated by “Economists at the Santa Fe Institute, which I have visited a number of times” who “spend a lot of time modelling what we call complexity” (p. 16). Central to this thinking, he found, is the concept of adaptive efficiency, by which “I mean the ability of some societies to adjust flexibly in the face of shock and evolve institutions that effectively deal with altered reality” (p. 17).

Turning to his longer 2005 Understanding the Process of Economic Change, North expands on his circular flow/feedback picture in commenting on the history of the Soviet Union: it is “a story of perceived reality ± beliefs ± institutions ± policies ± altered perceived reality and on and on” (2005, p. 4). He embeds this conceptualization in the assertion that we live with “the ubiquitous uncertainty of a non-ergodic world” (p. 8). Uncertainty is understood as when probability distributions of events are unavailable. Ergodic is understood as “involving or relating to the probability that any state will recur” (p. 19) – non-ergodic as thus the absence of a probability that any given state will recur. Their combination means that we live in an historical world that is changing all the time continually producing novel, path dependent-generated environments.

If his argument, then, had originally been that institutions, and in particular well-specified property rights, were the product of an “effort by humans to structure the environment to make it more predictable,” North now emphasizes that “this effort can and frequently does make for increased uncertainty for some players” (p. 15). This meant that “an essential question we must ask is who makes the rules and for whom and what are their objectives” (Ibid.). To this he added: what is their perceived reality and their consequent beliefs? In keeping with his critical analyses of Soviet attempts to organize their economy according to a single plan, North saw this as a hopeless, unrealistic endeavor. Yet in contrast to many who had argued the same, North’s
concern was instead how the perceived reality and beliefs of those who attempted to impose their over-arching plans told us important things about how uncertain, non-ergodic economies evolve.

This forms the basis of North’s increasing interest in cognitive science, a relatively recent domain of thinking in psychology at the time. North had emphasized this in his London lecture where he said it is important that “we delve into how the mind and brain work, the subject of cognitive science” (1999, p. 13). He repeated this in his 2005 book saying that “the way we perceive the world and construct our explanations about that world requires that we delve into how the mind and brain work – the subject matter of cognitive science” (2005, p. 5). In both cases he notes that Hayek was exceptional early on in recognizing this, especially in connection with his argument that economies were inherently decentralized processes, but in 2005 North also draws special attention to more recent contributors to cognitive science, particularly Andy Clark.

What North drew from Clark was the idea that the brain and the world ‘collaborate’ to address our computational and informational needs, and that this collaboration generates material structures in the world that act like ‘external scaffolding’ for human decision-making. North quoted Clark as follows.

> When the external scaffolding of policies, infrastructure and customs is strong and (importantly) is a result of competitive selection, the individual members are, in effect, interchangeable cogs in a larger machine. The larger machine extends way outside the individual, incorporating large-scale social, physical, and even geopolitical structures (North, 2005, p. 37; Clark, 1997, p. 182; emphasis added).

North’s earlier thinking had made rules, formal and informal, the foundation of institutions, and had examined how they created incentive structures that facilitate or impede market processes. His attention to complexity theory made the perceived reality/beliefs connection an important determinant of rules and institutions. His attention to complexity theory also increased his concern that uncertainty and non-ergodicity left historical change and the evolution of economies more chaotic than he had hoped. Complexity economists’ response to this concern was that economies could produce unexpected changes taking the form phase transitions, but they were still best understood as complex adaptive systems.

Clark’s scaffolding idea offered a way to explain this, were institutions seen as externalized products of people’s past perceptions of reality and beliefs, and North used this idea as a frame for the second half of the book. Broadly, he argues that while the world is continually changing and people’s plans and policies often (if not always) do not achieve what was intended, institutions nonetheless have an anchoring character that made change adaptive rather than chaotic. At the same time, Clark’s thinking put the focus on beliefs, to which North gave central importance – “Beliefs and the way they evolve are at the heart of theoretical issues of this book” (North, 2005, p. 18) – while tying beliefs to institutions as their manifestation in the world.

Clark was influential in psychology and cognitive science because he explicitly located human cognition outside of human bodies in its tangible embodiment in social structures. The idea that human cognition occurred only inside human bodies goes back hundreds of years to Descartes,
and continues to motivate much thinking in contemporary psychology. However, Clark rejected this assumption and proposed we see thought as also embodied in the world, an embodiment which is the result of human efforts to create cognitive structures to facilitate people’s thinking, allowing the brain and the world to ‘collaborate’ to address our computational and informational needs. This collaboration was also motivated by people’s need to economize on their own limited, cognitive capacities and the advantages of creating a division of labor in cognitive processing in an increasingly complex world. For example, our hand calculators have taken over and ‘scaffolded’ many mathematical activities we formerly did in our minds, allowing us in effect to ‘off-load’ these activities and focus on other cognitive tasks. Much the same applies to statistical analysis and our reliance on computers in empirical research.

For North, the economizing and division of labor motives made traditional economic reasoning central. If standard economic reasoning seemed to ignore belief formation, nonetheless the processes behind how beliefs were formed depended importantly on these two economic principles. Yet while North’s acceptance of uncertainty and non-ergodicity could be fit into an economic analysis of institutions framed in complex adaptive system terms, Clark’s ambitions regarding what human beings are raised philosophical issues that potentially challenge long-held arguably foundational assumptions in economics regarding individuality and *Homo economicus*. This issue is discussed in the next section.

4 Cognitive science’s challenges to fundamental assumptions in economics

Clark not only argued that cognition occurs outside individual minds in structures external to individuals, but also that individuality/agency itself exists outside individual minds in structures external to individuals – what he and co-author David Chalmers termed an ‘extended self’ conception. In a provocative paper, they ask: “What, finally, of the self? Does the extended mind imply an extended self?” (Clark and Chalmers, 1998, p. 18). Their answer is:

> It seems so. Most of us already accept that the self outstrips the boundaries of consciousness; my dispositional beliefs, for example, constitute in some deep sense part of who I am. If so, then these boundaries may also fall beyond the skin” (*Ibid.*).

This view was not really radical in the cognitive science community already critical of Cartesianism. Indeed, to say that the self spills over into the world is also a view also held by many in social science, particularly in sociology and social psychology. What is potentially radical about this idea is the prospect that individuality or agency exists in the world outside of human individuals in a relatively independent way. The self not only spills over into the world but conceivably takes up an existence there in an active way separate from individuals. Descartes, recall, had famously said, ‘I think, therefore I exist.’ Yet if thinking/cognition also occurs outside in cognitive structures individuals have created to ‘off-load’ various types of cognitive activities – an economizing, division of labor sort of process – then why not say that thinking and cognition outside of individuals also refers us to these ‘individual agents’ alongside human individuals as traditionally understood?
In fact, this idea is hardly unfamiliar in economic life since existing legal structures in most countries treat firms as individuals. Economics since the marginalist revolution has accorded these sorts of ‘individuals’ a status secondary derivative of human individuals by arguing that collections of individuals functioning as individuals should be seen to be constructions out of individuals. Ontologically speaking, only individual people are real individuals. Yet at the same time economics explains the behavior of collections of individuals such as firms using the same optimization analysis it accords to individual people.

However, Clark and Chalmers’ thinking has a possibly even stronger import. Thus, it might be said that not only does individuality and agency spill over into the world creating new types of individuals, but those new types of individuals conceivably take over and supplant the roles played by individuals in the traditional sense. This possibility is implicit in the ‘off-loading’ idea, which draws on the economizing-division of labor rationale. When we ‘off-load’ cognitive activities onto structures external to us, we not only accord them individuality and agency but do so in a way that diminishes the formerly exclusive role played by human individuals.

This, then, becomes an issue for North since he strongly embraces cognitive science and the ‘off-loading’ idea in his later institutional thinking. Indeed, his 2005 book uses the idea extensively to show how societies work in the manner of complex adaptive systems. The mechanism he emphasizes is the evolution of social beliefs seen as an ‘off-loaded’ driver of institutional change. If social beliefs then take on an existence independent of individual beliefs, do they command them as well? And does this consequently change the role of human individuals in economic life?

Anticipations of North’s grappling with this issue are present in his long held view that one of the clear changes in the evolution of markets was the shift from personal exchange, where people “know the other parties to the exchange, and when there are small numbers,” to impersonal exchange, where “you do not know the other party, you are never going to see him or her again, and neither side has any particular further hold on the other” (1999, p. 21). That impersonal exchange and a market organization of economies has been successful is due to the creation of economic institutions which constrain cheating, lying, and stealing. In keeping with the idea of impersonality, enforcement is structured so as to treat people the same irrespective of their personal characteristics and differences.

Thus, one might infer that what happens in the increasing importance of impersonal exchange is that human individuals, identified by their personal characteristics, are more and more supplanted by institutionally constructed individuals, identified by their market characteristics. As the latter individuals gain in weight and importance, the former diminish in this regard. However, this seems to be at odds with the traditional conception of Homo economicus seen as an agent with personal characteristics that interacts in markets and grounds the market process. Is Homo economicus, then, a casualty of the ‘off-loading’ and the cognitive science emphasis on beliefs in North’s “perceived reality → beliefs → institutions → policies → altered perceived reality” evolutionary logic (2005, p. 4)?

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7 The Clark-Chalmers view is discussed in connection with cognitive science’s embodied and distributed cognition literature in Davis (2024, ch. 8).
That it might not entirely be so can be argued in connection with what North had doubts about in the Santa Fe complexity program. What, then, were his hesitations regarding that approach? And what possible implications did they have for his understanding of evolutionary change?

5 Complexity thinking North set aside

One thing North saw as over-reaching in the Santa Fe approach was its strong mathematical bent – a complaint he also had regarding the postwar development of neoclassical economics. This came in part from the influence that physical and natural sciences had on the early development of complexity thinking, for example, at the first Santa Fe conference. Thus, physical environments appear more conceptually tractable than the “vastly complex human environment,” and there “do not appear to be any fundamental ‘power laws’ in the social sciences comparable to those in the physical sciences” (2005, p. 16). Whereas the physical world appears “constant and therefore timeless” our social world is “non-ergodic – a world of continuous novel change” (Ibid.), and so our methods need different foundations.

Note that in describing the Santa Fe approach, Fontana (2010) distinguishes between three interpretations of complex dynamic systems: dynamic complexity that is essentially a mathematical approach, computational complexity that focuses on the cognitive foundations of the economy and the computational and cognitive skills of decision makers, and connective complexity that emphasizes social interaction (2010, pp. 187-8). North clearly favors the second, sees little opportunity for economics in the first. The third is arguably too fine-grained to capture his interest in institutions. The special advantage of the second, then, is that it allows one to argue that the direction and character of evolving economic systems is highly open, albeit with some steadying properties created by economic institutions and the rules they generate.

Consider, then, chapters 4 and 5 of his 2005 book which build on North’s emphasis on cognition and go on to discuss the nature of economic change. Chapter 4 focuses on intentionality or consciousness, which North sees as having two levels: a primary level or immediate awareness and a higher order level that involves agents’ awareness of their actions and attitudes (p. 39). The latter level distinguishes human life but is not susceptible to lawlike analysis in an uncertain world of constant institutional change. How did North think we can understand this? “The place to begin such an explanation is with the genetic architecture that evolved in several million years that humans evolved as hunters and gatherers” (p. 45). By this, North suggests that what human beings have begun from their earliest beginnings to display a particular path of cumulative change. That cumulative change has materialized in how institutions have been built more or less successfully upon one another and have become increasingly determinative of how human life proceeds.

Chapter 5, “The Scaffolds Humans Erect,” refers us to institutions made up of rules and their enforcement characteristics. They change and evolve but continually determine the ‘rules of the game’ across endlessly changing cultural contexts (p. 48). Concomitant with these rules are belief systems that support “norms, conventions, and internally held codes of conduct” (p. 50). These must, however, be learned, as North notes Hayek (1960) had emphasized. Nonetheless, this learning is not smooth nor free of ideological conflict (see Ambrosino and Fiori, 2018). Nor
are there any guarantees of “evolutionary progress or economic growth – only of change” (p. 61). “Individuals from different backgrounds will interpret the same evidence differently and in consequence make different choices” (p. 62), and this means that the path of institutional development is always open to a certain degree.

From this understanding, in the last part of his book North provides his interpretation of this scaffolded but open world. He returns to how the shift from personal to impersonal exchange overcame an important “stumbling block” to institutional change, but also emphasizes how giving up people’s repeated dealings with the same individuals places a special burden on the construction of political institutions that undergird economic ones (pp. 117-118). What do political institutions involve? The particular virtue of liberal, democratic societies is that their “creation of a stable consensual polity” can “put in place the formal rules for [addressing] disappointment, not to say disaster” (p. 161). Specifically: “Where the essential conditions for a consensual polity exist, the development of institutional rules that provide for greater transparency in the polity will enable more effective monitoring of the polity” (p. 164). In contrast, authoritarian societies are likely to be produce political institutions that produce chaotic and disruptive kinds of change.

One way, then, to understand North’s thinking about complexity is that the historical emergence of impersonal forms of exchange produced two types of evolutionary processes, one involving economic institutions and one involving political ones. In liberal, democratic societies, economic institutions exhibit a relatively clear cumulative development of rules, norms, and enforcement procedures. In authoritarian ones, the cumulative development of rules, norms, and enforcement procedures is at the least less stable and at worst subject to chaotic reversals and change. In liberal, democratic societies, political institutions possess the same cumulative development of rules, norms, and enforcement procedures; in authoritarian societies the same less stable, often chaotic development occurs.

However, it is important to see that North does not see the evolution of political institutions duplicating the movement from personal to impersonal conceptions of individuals he sees occurring in the evolution of economic institutions. In fact, in liberal, democratic societies the goal is to build political institutions that treat people in the same way irrespective of their different characteristics but also respect their different personal characteristics. Putting the evolution of economic and political institutions together, we have two interacting, reciprocally supporting pathways for evolutionary change. The evolution of economic institutions in effect determines the ‘rules of the game’ for everyone while the evolution of political institutions preserves how “Individuals from different backgrounds will interpret the same evidence differently and in consequence make different choices” (p. 62).

What, consequently, North likely saw in the thinking of the Santa Fe participants was the idea that complexity analysis envisions only a single evolutionary process rather than his idea of two interacting evolutionary processes. Fontana’s history of the Santa Fe economics conferences describes the second North attended as strongly heterodox and motivated by a critique of neoclassical economics. Thus, what may have been important to many of the participants was demonstrating how the economy per se worked as a unitary complex evolutionary process. Indeed, not only does a distinction between economic and political evolutionary processes seem
to be absent from the conference, but the idea that different processes interact in complex ways seems to be as well.

From this perspective, let us go back then to the potentially radical implications of Clark and Chalmers’ view of individuals and agency. For North, a case can be made that the shift from personal to impersonal modes of exchange indeed works to supplant human individuals from economic processes. Yet his view of the evolution of political institutions preserves a key role for human individuals with their personal differences from one another. How the evolution of economic and political institutions work together or in tension with one another is a subject for further investigation. What we can say regarding North’s hesitations about complexity theory is that what he believed needed to use complexity thinking to explain institutional evolution was more complex dynamically than it appears most of the Santa Fe participants imagined. We can put this difference between North and the others as a product of his historical sensibility and their natural and physical science orientations. History is certainly complex, but North thought institutional thinking provides broad guidelines for its explanation.

North, of course, was well aware that the evolution of political institutions has often been full of reversals and conflict. One way he captures this is in saying that human intentionality is a both a source of “the wonders of human creativity” and also of “intolerance, prejudice, and human conflict” (p. 42). A recurring manifestation historically of the latter are outbreaks of disruptive social violence. This issue was one he gave attention to in his last work, to which the chapter turns in closing.

6 Concluding remarks: The problem of violence

North shows particular concern for the problem of violence in a final, co-authored volume with John Joseph Wallis and Barry Weingast (North et al., 2009). They first explained how political elites emerge and how their sharing power among themselves works for a time to reduce social conflict and generate rents they monopolize. They termed these states of affairs termed ‘limited access orders’ and were associated them with systems of property rights, rules of law, and enforcement systems that worked in their favor. Yet these social orders could generate instability when rival elites sought to acquire power. When they were successful, this often came through violent measures and social conflict. North, Wallis, and Weingast then argued that many modern societies had also created ‘open access orders’ that both promoted economic development, and that minimized violence in changeovers of dominant elites.

Thus, the evolution of political institutions was an important determinant of economic progress. At the same time, it was in many ways a more complex and problematic sort of process than was involved in the evolution of economic institutions, since their evolution was not governed by reasonably clear principles such as could be said of the evolution of economic institutions where (if not always relative prices) determinable costs and benefits had a clear role. This difference was especially the case in light of North’s later cognitive science emphasis on beliefs, or ‘ideology’ as he sometimes put it. Beliefs regarding political institutions were by nature

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8 North’s 1990 conclusion that in a world where path dependency existed enduring economic institutions were not necessarily the most efficient still left no role for social violence in the transition from one set to another.
conceptually less well-structured and thus less governed by clear principles of action as was generally the case with economic evolution. Moreover, the long human history of ‘limited access orders’ in authoritarian political systems showed that recourse to violence when one elite challenged another not infrequently added to their less well-determined pathways.

Nonetheless, North and his co-authors had grounds for optimism in the emergence of democratic political systems and ‘open access orders’ in modern society. They had rarely and at best temporarily existed in much of human history, but they had become increasingly successful and appeared to evolve and change with more limited recourse to violence in recent centuries. They may, then, offer an answer to the potentially radical implications of Clark and Chalmers’ ‘off-loading’ view of individuals and agency. Where in authoritarian societies the ‘off-loading’ of agency may be susceptible to manipulation by elites intent on maintaining ‘limited access orders’ that serve their interests to the exclusion of others, in democratic societies the construction of agency outside of human individuals can in principle be designed to sustain individuals’ agency and well-being in the world.

In this case, the premise that underlies the more complex and problematic sort of process involved in the evolution of political institutions – the idea that “Individuals from different backgrounds will interpret the same evidence differently and in consequence make different choices” (2005, p. 62) – can be accommodated. That is, in contrast to governance systems associated with economic institutions that emphasize impersonality, the governance systems associated with political institutions combines impersonality – that people are treated the same – and personality – that human differences are important. To the extent, then, that economic and political evolution follows the path of democratic societies, social violence may then well be reduced.

This seems to be an important part of North’s final thinking subsequent to his late career interest in complexity thinking and cognitive science. It is an optimistic view, but one still tempered by a sense that evolutionary processes are largely unpredictable and often socially disruptive. His thinking was arguably sharpened by his reflection on complexity thinking and cognitive science emphasis on the role of beliefs, but his conclusions also went beyond his earlier views and offered new avenues for investigation of evolution and institutions.
References


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