A Conversation with Douglass North

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INTRODUCTION BY DEAN LUECK

Douglass C. North won the Nobel Prize in Economic Sciences in 1993. The Nobel Committee stated that the motivation for this prize was for "having renewed research in economic history by applying economic theory and quantitative methods in order to explain economic institutional change." The committee further stated that his contribution "shed new light on the economic development in Europe and the United States before and in connection with the industrial revolution. He emphasized the role of property rights and institutions." North shared the prize with Robert Fogel, another giant in economic history, whose work was quite different. Whereas Fogel was squarely a neoclassical economist, North brought the transaction cost economics of Ronald Coase (who won the Nobel Prize in 1991) to bear on the old and important questions of institutions and economic growth.

For all his influence, felt well beyond economics into political science, law, and other social sciences, ² North's focus on property rights and institutions has had relatively little influence on natural resource and environmental economics, at least directly. This limited current influence is perhaps even more surprising because North was at the University of Washington (UW) for more than three decades. There North spent 12 years as chair of the department, where resource and environmental economics was an important, if not leading, field, producing a long string of influential scholars. This short essay examines the influence that North had on resource economics and suggests that resource economists can gain from incorporating his approach into their work.

Born in 1920, North went to Berkeley for undergraduate and graduate degrees (earning his PhD in 1952) and became acting assistant professor at UW in 1950. He became professor in 1960, was the department chair from 1967 to 1979, and left for Washington University (Wash U) in 1983, where he remains, although he also spends time at the Hoover Institution as Senior Fellow.

From the 1960s through the 1980s, resource economics was developing, and the group at UW was an important part of this development. At roughly the same time, North began his important work on how the institutions of property rights, law, and political organization affected economic growth (particularly North 1981). North's ideas on institutional change were also developing at approximately the same time as Coase's (1960) work on transaction costs and property rights spread through the profession. Coase's work was influencing industrial organization, political economy, law and economics, environmental economics, and economic history.

It is almost self-evident that institutions—economic, legal, political, cultural—have great implications for the management and conservation of natural resources. Examples are fisheries regulations, water rights, endangered species regulations, land use, and the current debate over climate policy. It is also clear that agriculture (Allen & Lueck 2003) requires strong property institutions and that the same is true for natural resources used to drive the Industrial Revolution (Scott 2008). Yet North has devoted almost no attention to natural resources and the environment in his exceptional career.³ One must look hard to find any mention of resources in his writings. Indeed, in his Nobel lecture (North 1993), he says nothing about how institutions affect natural

¹See http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1993/north-facts.html, accessed June 15, 2015.

²North has 94,000 Google Scholar citations as of June 15, 2015 (see https://scholar.google.com/citations?user=-LcMZqMAAAAJ&hl=en). This number compares with 179,000 citations each for Eugene Fama and Oliver Williamson, 164,000 for Gary Becker, 116,000 for James Heckman, 96,000 for Elinor Ostrom, and 94,000 for Jean Tirole. Ostrom was greatly influenced by North, and her work (particularly Ostrom 1990) ultimately influenced many resource economists.

³Perhaps the closest he comes is his examination of "the first economic revolution" in North (1981, chapter 7), where he discusses the transition from hunter-gathering to agriculture.

resources or how the characteristics of resources affect institutions.⁴ Except for Lee Alston and Terry Anderson, almost none of his students have worked on these issues, and for Alston and Anderson, their movement to resource topics came well after their graduate work with North.

North was already 62 years old when, in 1983, he became the Henry Luce Professor at Wash U. Shortly thereafter he became the Director of the Center for Political Economy and became an intellectual leader in the social sciences at that university. At a time when many scholars see their productivity decline, North rather remarkably ramped his up, often working with Barry Weingast (then at Wash U, now at Stanford). In the past three decades of his career, his work has focused more on political institutions and how belief systems affect and are determined by institutions (e.g., North et al. 2009). In 1997 North cofounded the International Society for New Institutional Economics (now the Society for Institutional and Organizational Economics)—a new academic association to bring economists, political scientists, and other social scientists together to share and advance work on institutions. Because Wash U has historically had limited interest in resource and environmental issues, North has had even less direct impact on resource economics while there than while he was at UW, where he was routinely in contact with faculty and graduate students working in the area.

Historians of resource economics will note that before North's prominent work—and sometimes before Coase's (1960) famous work on property rights—scholars (all Canadian) like J.H Dales (1968a,b), H. Scott Gordon (1954, 1958), and Anthony Scott (1955)⁵ were examining property rights to natural resources. A geographic exception was Ciriacy Wantrup, who wrote about water rights in 1955 (Wantrup 1955). These works stressed the lack of resource ownership as a prominent cause of environmental problems and suggested that policy be guided by changes in property institutions. Thus, although early work in resource and environmental economics had a strong institutional focus, by the 1970s, as North's work was gaining prominence, the field tended to focus on (a) theoretical models of resource use (e.g., Brown 1974) and (b) valuation of nonmarket environmental goods. Lee Alston, Terry Anderson, Robert Deacon, and Ronald Johnson were UW graduates who began to examine the institutions that govern natural resources. A major scholar to take North's approach to resource questions is Gary Libecap, who was not a student of North. Indeed, Libecap (1993) takes a historical property rights approach to the evolution of the institutions that govern natural resources, and more recently Scott (2008) takes an even broader approach.

The reasons for so little overlap between economics of institutions and resource economics are not easy to statistically identify, although they are rather easy to suggest. At UW, although surrounded by resource economists, North was focused on the broad sweep of history. At Wash U, his focus turned to political institutions and away from resource economics. Early resource economists, in contrast, tended to pay little attention to history and were generally Pigouvian, rather

⁴In this essay, North does not mention land, natural resources, fisheries, forests, water, pollution, or externalities. The environment is mentioned only in the context of a general setting or surroundings. Agriculture is mentioned just twice in the context of the fraction of human history before industrialization and growth.

⁵Scott passed away on February 17, 2015.

⁶North's UW colleague Steven Cheung (1970) published a paper that extended the work of Gordon (1954) and Scott (1955) by developing a contractual model to analyze the mechanism by which open-access dissipation occurs. Although this was an important extension in property rights economics, it had limited direct impact on resource economics.

⁷Relevant work includes Alston et al. (1999), Bohn & Deacon (2000), and Johnson & Libecap (1982).

⁸Anderson & Libecap (2014) extend this historical approach to a broad range of topics, including water markets and climate policy. Anderson & Hill (1975) is an early work on the evolution of property rights. A less well known connection between North and Libecap is that Anderson and Libecap were undergraduate classmates and friends at the University of Montana.

than Coasian, in approach. That is to say, resource economists tended to view environmental problems as optimal tax problems rather than as comparative institutional problems. There may also have been an ideological selection bias that separated most resource economists (leftish) from most property rights economists (rightish), and this ideological segregation may have limited collaboration. Specialization forces and catering to journal editors may also have played (and likely still do play) a role in this segregation. In this sense, the history of academic institutions matters just as North would expect it to. In the areas in which resource economics focused on institutions—notably fisheries and water rights—the research has tended to examine the consequences of institutions rather than the dynamic causes for or changes in institutions. The latter has been North's focus. In cases in which property rights were rather strong—notably mines and commercial forests—resource economists have ignored institutional subtleties and have tended to pursue purely neoclassical analysis.

One area in which North's influence has been felt is in political economic analysis of many critically important resource problems. His work sets the foundation for land reform, conjunctive water resource allocation, and transition economies in Eastern Europe and former Soviet republics (Clague & Rausser 1992). The institutional lens of North is also a core element of political economic analysis, and his recent emphasis on governance structures can inform what role they play in natural resource and other commodity systems. The emphasis in this work is to select the "right" governance structure instead of the "right" policy (Rausser et al. 2011).

The gap between North-style research and traditional resource economics still exists to some degree today, but as implied by North's work, this gap suggests gains from trade. The Northinspired work of Daron Acemoglu (e.g., Acemoglu & Robinson 2012) and others on institutions and economic growth has been an important development in the last two decades in economics generally. This modern empirical approach would seem to have the potential to examine questions concerning the relationship between economic growth and resource use that go beyond the environmental Kuznets curve literature. North stressed the importance of property rights for growth generally but left open the door to examine how the details of resource ownership can influence outcomes over time. Those who study natural resources are well aware of the important and large differences in modern institutions. For example, there are large tracts of government land in Canada and the United States, whereas in Europe nearly all land is private. Yet, in both North America and Europe, the demand for environmental goods has led to parks and preserves, although they are governed by different institutions. In South Africa, wildlife are owned and managed largely by private landowners, whereas in East African countries like Kenya, wildlife are public property and primarily inhabit large preserves. 11 The economic forces for these differences are not well understood, nor is the importance of historical parameters in the establishment of these institutions. Moreover, the traditional neoclassical approach is not well suited to comparing outcomes generated from discretely different institutions.

North understood the importance of historical forces in shaping institutions and the costs of changing institutions, and both issues are relatively unexplored by resource economists. Recent work, notably by Richard Hornbeck (e.g., Hornbeck 2010), is a modern fusion of North-style

⁹One of the authors here, Gardner Brown, believes this factor to be important. Interesting too on this point is North's admission that, when he arrived at UW in the 1950s, he was a Marxist.

¹⁰The differences in approaches can be seen in two recent papers on bison. Taylor (2012) focuses on the effects of open-access exploitation, whereas Lueck (2002) examines the variation in bison ownership across time and space. In his Nobel lecture (North 1993), North argues for a theory of institutional dynamics and notes the importance of time.

¹¹Property rights for large-scale conservation of landscapes and wildlife are increasingly becoming understood as important.

economic history and resource economics. Given that the economics profession has a renewed recognition of the importance of institutions, the time seems right for resource economists to assimilate the work of North and others and to apply it to the problems that confront societies today. The "Northian" perspective should be especially fruitful when resource economists are examining resource problems in developing countries, where weak institutions (due to, for example, a lack of rule of law, corrupt bureaucracy, or ill-defined land rights) often dominate but where the potential for institutional improvement is also great. North's more recent focus on the importance of cognition, beliefs, and ideas in shaping institutions is a provocative challenge for resource economics.

CONVERSATION WITH DOUGLASS NORTH12

Douglass North: My mother's father came from Italy. The best part of me is Italian. My father came from Kansas and before that was English. They met because my mother lived in Brooklyn, where her father was an importer of things from Italy. My father played football with her brothers. That's how they met.

Brown: Where did he play football: in a college or street?

North: Just a pickup game. My father worked for the Metropolitan Life Insurance Company as an agent.

Brown: Was your mother a good cook? Is that why you developed a taste for food?

North: My mother was a very good cook, yes. She was first rate. She never had a formal education. She never went to college. I think she finished high school, but I'm not sure about that. She was a fascinating woman. Almost all of the things that I attribute that I like about the past come from her.

Brown: But your father played some role.

North: Oh yeah. He played a big role. My mother, for example, didn't think much of education in America. She took me to Europe, and we lived in England, France, London, Paris, and we moved to Geneva and to Lausanne. I went to school in Lausanne. I learned French, and in fact I learned French the hard way. You went to this school in Lausanne, and you wrote out 20 pages of French grammar if you spoke a word of English. Well, the first week I nearly starved to death because I didn't even know what "pass the salt" was in French. I would point to things, and they said, no, no, you've got to *say* them. I got quite an education.

Brown: Where did you go to high school?

North: Well, I finished up in Choate School in Wallingford, Connecticut. My father eventually brought us back, and he went to the Metropolitan New York office. Before that we had lived in Ottawa, Canada, because he was head of the Canadian office. After New York, we moved out to the west coast, and he was head of the west coast office. We moved to San Francisco.

Brown: Was there a particular teacher at Choate or a particular activity that you found compelling?

¹²North was interviewed by Gardner Brown on July 11, 2014. Additional insights into North's life and work can be seen in North's short autobiography written for the Nobel committee (http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1993/north-bio.html).

North: Well, Dudley Fitz was there. Dudley Fitz was an English major and an amazing man. He had a big influence on me as I was evolving.

Brown: Was he a student or faculty?

North: He was a faculty member there. I was supposed to go to Harvard because he went to Harvard, but at the last minute my father moved out to the west coast, and in those days travel from the east to the west coast was a big activity. I went to Berkeley. I did my 4-year undergraduate work at Berkeley before World War II came along. Then in 1942, I went to the Merchant Marines.

Brown: Did you choose the Merchant Marines, or were you—

North: I was a conscientious objector. I didn't want to kill anybody. I picked something where other people would shoot at me but I wouldn't shoot back.

Brown: So you were an informal conscientious objector and just strategically chose the Merchant Marines?

North: Yeah.

Brown: I'd say well done.

North: Iloved it. I had a wonderful time. We had been at sea for 4 days when the Captain called me up on the bridge, and he said, North, you went to college. I said, yes, sir. He said, well, we're lost. I'll give you 24 h to learn to navigate. Because what they were doing was they were taking ships that came out of Kaiser Shipyard, but they were stocking them with seamen who had never been to school, much less navigated. The seamen were being promoted to captains and first mates and so on, and nobody knew how to navigate the ship. We were on our way to Australia. I stayed up all night and learned how to navigate. Navigators were so scarce that when we were in New Caledonia in the first year of the war, I got offered a job to jump ship to other ships all over the place because they needed navigators and they were short of them. In fact, at the end of the war, I taught navigation for a couple of years at the west coast versions of the maritime school.

Brown: Was that before you went to graduate school?

North: That was before I went to graduate school. Yeah.

Brown: But you returned to Berkeley, right? To go to graduate school.

North: Yeah. Oh yeah.

Brown: And was that propinquity, or was it because you were on the west coast or in the Bay Area, or was it a more directed choice to go there?

North: I think probably my mother's choice. My mother said, "You've got to go back to school." I wanted to go back. I had always intended to go back. I had not decided to become an economic historian at that time. I was just going to go back to graduate school and went to Berkeley, and I gradually became a Marxist.

Brown: Where did the economic history develop? When you came to the University of Washington—is there any story behind your choice to come there?

North: It was 1950 that I went there, I guess. I went there as an economic historian. That's what my specialty was. I planned to be an economic historian mostly because of M.M. Knight. M.M. Knight never thought much about formal economic training, and in fact his brother was Frank Knight, and they didn't get along. But M.M. had a big influence on my life.

Brown: Your interest in Marxism—did that begin to fade after you got to the University of Washington, or was it—?

North: I stayed a Marxist for quite a while after that. It faded when I got to know Don Gordon. He was a skeptic about all things that were thought serious in the world. Don would correct me about the fact that I didn't know what I was talking about all the time. He was usually correct. I learned a lot of economics gradually from Don, very, very informally. I resented formal economics when I was a graduate student, and I thought it was all a bunch of crud. It wasn't until I became an assistant professor that I began to become serious about economics and indeed became a neoclassical economist through and through. It's only after that that I began to get skeptical about all things I had learned.

One of the things that I gradually evolved into, which made me a critic of economic history—because economic history aped neoclassic economics—didn't involve formal theory or anything like that. And it certainly wasn't concerned with change over time, which is what economic history should be about. All of that was stuff that I had to unlearn and then relearn for myself. I've been doing that ever since.

Brown: Tell me about the elements that shaped your particular direction in economic history. It seems to me that maybe Don Gordon's emphasis on micro theory would have played a role. You chose particular directions, for example, property rights, that would come back to institutions. Why did you take the path that you did?

North: I evolved gradually—first of all, protesting against formal economics. Then after I became—thanks to Don Gordon¹³—a formal economist and became more neoclassical than the classical economists, it took me a while to get out of that and pay attention to other things.

Brown: Maybe I should ask: If you were to introduce resources more explicitly in the general economic framework, how might that influence our ideas of what we say?

North: I don't think it would be a big influence, because I think that the big influence was to start to think about how human beings have organized themselves over time. That's occupied most of my life. That relates to resources. Obviously not having many resources poses real fundamental dilemmas with respect to how you can evolve. In that sense, I've been always concerned about resources. But the big focus of my life has been on how human beings have dealt with each other. How they learn to evolve more complex structures, institutions, and things like that—that has dominated my life.

Brown: A long time ago, you did write an article in environmental law, political economy, and environmental policies, and that was in 1970. You took a Coasian view, where you said that transaction costs loom large in the account of it, and in the explaining of and the existence of externalities such as pollution, and I was wondering if you like to reconsider or reflect on three ideas. First, you like the idea that gainers should compensate losers; in fact, in order to achieve gains from trade, you thought that the political process would militate against that. So while you thought that there should be compensation, it was unlikely. When I read that, it took me back to Galbraith and his *American Capitalism: The Concept of Countervailing Power* [Galbraith 1993].

And most people think of Galbraith as a liberal, using that word loosely, but what struck me in reading that was an idea he expressed, which later was developed more formally by Robert

¹³Gordon was well known for his oral influence but published rather little; Gordon (1955) is representative.

Aumann, who won the Nobel Prize, an Israeli economist. He was talking about people being concerned about economic power; his example was farm dealers getting control of farm machinery and selling the machinery and earning pure profits. Galbraith wasn't worried about that at all, because the farmers will form cooperatives and produce a countervailing power, and that's a pretty subtle idea—right?—for the time, in the 70s? So you have this issue of: Okay, if people aren't being compensated when property is being taken, do they form organizations to redress that imbalance?

North: I don't think there's a simple answer to that question. It varies all over the place, depending on the setting of the people and what the alternatives are that they face or what they perceive to be the alternatives. One of the things that I've learned over time is that we have a very limited understanding of the alternatives that we face, and they evolve over time. And as we do, the ones that are going to be successful are going to evolve in ways that broaden their horizons, and there come up new ways of dealing with problems.

That's a big problem because we don't understand so many things about the world that we have to understand in order to be able to make sense out of it.

Brown: My mind just went off thinking about Adam Smith saying that there are gains from specialization. And I think that's very true and very important, but we also know that species that become too specialized become enormously vulnerable to extinction.

North: And obsolete and eventually fade out—that's right. My pet peeve all through the last 20 years or 30 years has been the narrowness of economists, in fact of all social scientists, in not opening up whole new areas. I think, for example, transaction costs economics was such an important thing because it forced people to recognize that there were really costs of people interacting which prevented them from opening new doors for themselves. I think that's terribly important.

Brown: I'm wondering, if you had a graduate student who was interested in working in the area of natural resources and environmental economics, where you might steer him?

North: I try to persuade—now that I'm retired I'm not persuading anybody—but I *tried* to persuade my students all the time that they should always be searching for new ways to look at things.

The whole nature of formal training in not just social sciences, I suspect, but physical sciences as well, means you are more specialized all the time. And becoming more specialized keeps on narrowing the focus, when you ought to always remember that we're a little tiny bit of a gigantic process.

Brown: I was just thinking about resource economics. We've done quite a lot of simple models in dynamics and intertemporal maximization. But until very recently we've been pretty silent about space, with very little attention to spatial economics. And surely that's a dimension that counts. You remarked that you were eschewing discussion of economics comparable to general equilibrium theory, and you cited Frank Hahn as an ally. Frank Hahn was my major professor at Berkeley. I read his exceptional piece, and I was surprised to have him claim that the transaction costs and increasing returns to scale, except for trivial cases, resist inclusion to traditional modes of analysis.

North: I'm not sure I'd express it that way. If I understand what he was saying, I think I agree with him.

Brown: What do you suppose he was getting at? Because on one hand, you think transaction costs are important—but how can—does it lend itself to inclusion in the traditional model, or is it—

North: No. It poses real problems for the traditional model. As soon as you introduce transaction costs into things, then you've got to ask why transaction costs exist the way they do, which means you've got to get at how the mind works, how the brain works, and things like that which we

haven't traditionally thought much about—though now in the last few years we have been doing something about it. That's really a big area in which we could do better.

Brown: You began a paragraph stating that institutions are humanly devised constraints and create informal constraints. I'm wondering if to make your argument that's a bit loose—I'll tell you what I was thinking about. I remember reading about a district act in California around 1912, and the neat thing about this district act is that it was extremely flexible. And it allowed, for example, an institution to enclose an externality like a flood control district. And it allowed—if you wanted it—the district to tax and be taxed or not. So this was the case that I quickly thought of where the constraints were removed, not added. It seems that the institutions can play both a role of constraining and allowing.

North: I think that's right.

Brown: Later, you conclude that the most fundamental, long-run source of change is learning by individuals and entrepreneurs. When I read that, I was thinking of Arrow's learning-by-doing article in 1962 [Arrow 1962]. It provides heuristics of thought for increasing returns of scale, which I think enhances growth and is certainly an important element in telling a dynamic story.

North: It was very hard to bring dynamics into it, because dynamics means you've got to figure out what you're closing off and what you're opening up, and you never know whether you're doing the right thing. Maybe tomorrow it will turn out that you did the wrong thing. I think the learning process keeps going on, and it turns out to have surprising implications for the way in which we are evolving at times.

Brown: You said that explaining the pace and direction of economic change throughout history presents a major puzzle.

North: It does because, if you ask yourself back in various times whether you ever would have thought about the way we think about it today, the answer is probably no. You had to build up a certain level of sophistication, and I use that word loosely because I'm usually concerned about the degree to which sophistication becomes specialization and narrowness.

Brown: You mean like sophistry?

North: Yeah. That's right.

Brown: Doug, I think I'm coming to a close. Are there some more comments, omissions, commissions, things that you'd like to add or revise?

North: No. I think you've done very well. I think the biggest thing I want to leave with you is how we've got to study more about how the mind and brain work and how the structure is evolving over time as we get more information, more knowledge, and when it's going in directions that are creative.

DISCLOSURE STATEMENT

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LITERATURE CITED

Acemoglu D, Robinson J. 2012. Why Nations Fail: Origins of Power, Poverty and Prosperity. New York: Random House

Allen DW, Lueck D. 2003. The Nature of the Farm. Cambridge, MA: MIT Press

Alston LJ, Libecap GD, Mueller B. 1999. Titles, Conflict, and Land Use: The Development of Property Rights on the Amazon Frontier. Ann Arbor, MI: Univ. Michigan Press

Anderson TL, Hill PJ. 1975. The evolution of property rights: a study of the American west. *J. Law Econ.* 18:163–75

Anderson TL, Libecap GD. 2014. Environmental Markets: A Property Rights Approach. Cambridge, UK: Cambridge Univ. Press

Arrow KJ. 1962. The economic implications of learning by doing. Rev. Econ. Stud. 29:155-73

Bohn H, Deacon RT. 2000. Ownership risk, investment, and the use of natural resources. *Am. Econ. Rev.* 90:526–49

Brown G Jr. 1974. An optimal program for managing common property resources with congestion externalities. J. Polit. Econ. 82:163–73

Cheung SNS. 1970. The structure of a contract and the theory of a nonexclusive resource. *J. Law Econ.* 13:45–70

Clague C, Rausser GC, ed. 1992. The Emergence of Market Economies in Eastern Europe. Cambridge, UK: Blackwell

Coase RH. 1960. The problem of social cost. J. Law Econ. 2:1-44

Dales JH. 1968a. Land, water, and ownership. Can. J. Econ. 1:791-804

Dales JH. 1968b. Pollution, Property, and Prices. Toronto: Univ. Toronto Press

Galbraith GK. 1993. American Capitalism: The Concept of Countervailing Power. New York: Routledge Gordon DF. 1955. Operational propositions in economic theory. I. Polit. Econ. 63(2):150–61

Gordon HS. 1954. The economic theory of a common property resource: the fishery. *J. Polit. Econ.* 62:124–42 Gordon HS. 1958. Economics and the conservation question. *J. Law Econ.* 1:110–22

Hornbeck R. 2010. Barbed wire: property rights and agricultural development. Q. J. Econ. 125(2):767–810 Johnson RN, Libecap GD. 1982. Contracting problems and regulation: the case of the fishery. Am. Econ. Rev. 72:1006–22

Libecap GD. 1993. Contracting for Property Rights. Cambridge, UK: Cambridge Univ. Press

Lueck D. 2002. The exploitation and conservation of the American bison. J. Legal Stud. 31:S609-52

North DC. 1981. Structure and Change in Economic History. New York: Norton

North DC. 1993. Nobel Prize lecture: economic performance through time. http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1993/north-lecture.html

North DC, Wallis JJ, Weingast BR. 2009. Violence and Social Orders: A Conceptual Framework for Interpreting Recorded Human History. Cambridge, UK: Cambridge Univ. Press

Ostrom E. 1990. Governing the Commons: The Evolution of Institutions for Collective Action. Cambridge, UK: Cambridge Univ. Press

Rausser GC, Swinnen J, Zusman P. 2011. Political Power and Economic Policy: Theory, Analysis, and Empirical Applications. Cambridge, UK: Cambridge Univ. Press

Scott AD. 1955. The fishery: the objectives of sole ownership. J. Polit. Econ. 63:116–214

Scott AD. 2008. The Evolution of Resource Property Rights. Oxford, UK: Oxford Univ. Press

Taylor MS. 2012. Buffalo hunt: international trade and the virtual extinction of the North American bison. Am. Econ. Rev. 101:3162–95

Wantrup SC. 1955. Some economic issues of water rights. Farm Econ. 37:875-85

OTHER SELECTED WORKS OF DOUGLASS NORTH

North DC. 1990. Institutions, Institutional Change and Economic Performance. Cambridge, UK: Cambridge Univ. Press

North DC. 2005. Understanding the Process of Economic Change. Princeton, NJ: Princeton Univ. Press

North DC, Weingast BR. 1989. Constitutions and commitment: the evolution of institutions governing public choice in seventeenth-century England. *J. Econ. Hist.* 49:803–32