RESTRUCTURING THE ECONOMICS OF FORESTRY TO COPE WITH CHANGING TIMES

William A. Duerr

ABSTRACT

The author expresses his personal judgment about the principal recent and prospective changes in the national and world scene that bear upon the economics of forestry and about the restructuring of the discipline that is called for by these changes. He touches upon the highlights of teaching, research, and administration in forestry economics and upon the principal topics in which the field's practitioners may have at least a passing interest.

CHANGING TIMES

Of all things that forest economists might consider restructuring, surely our discipline itself is worthy. I propose to address the restructuring of forestry economics to cope with changing times.

What are some of the changes that call for restructuring?

The market for forest products is a good place to start. It is a scene of revolution. Products other than timber are up in real value. Timber products, lending themselves to shipment among regions, are seeing extraordinary developments. The United States exports logs across the Pacific, while the great log producers in the tropics are running low.

What will become of forest resources and international trade in forest products as east Asia grows more dominant in the world economy and communist traditions dwindle? The world will gain access to the entire length of the northern conifer belt as well as notable hardwood reserves and forest industry and human capital. We will see a continued globalization of forestry and wood industry and consumption—forestry policies less bent upon national self-sufficiency and ascendancy. Among international moves in pulp-paper are the recent joining of Virginia's James River Corporation with a Turkish firm, possibly in anticipation of the European Community's removal of trade barriers in 1992. In Brazil, Aracruz Cellulose plans to complete the world's first million-ton-per-year pulpmill. Three-fourths of the output will be exported as market pulp.

1/ Formerly Distinguished Professor of Forestry in the State University of New York, Syracuse; more recently Thomas M. Brooks Professor in Virginia Tech, Blacksburg. The author is grateful to Jim Granskog, Cliff Hickman, Jay O'Laughlin, Bob Phelps, Dean Quinney, Bill Siegel, Harold Wisdom, and Jean Duerr for thoughtful suggestions on an earlier draft of this paper. None of these critics has endorsed the present draft.
In other developments, our country joined the tropical nations for a time in making heavy use of firewood as a source of heat. Innovations in genetic and manufacturing technology are changing our product mix in the direction of trees that can be grown on shorter rotations and utilized more fully, with emphasis on commodities made from pulverized wood. In the South, the talk is of the fourth forest. Try as we may to emphasize planting pine for this forest, the fact appears to be that hardwood is our future. This despite the highly constructive conservation reserve program, which stresses pine. Already we have the gigantic market for hardwood pallets as a harbinger in eastern U.S. timber forestry.

From the production and marketing of wood products, our thoughts go inevitably to the structure of the industry. Here is a scene of change that has had some interesting effects. Scale economies in manufacturing, distribution, and finance and changed attitudes toward bigness in industry have opened the gates for conglomerates and other large firms. There have been takeovers in pulp-paper and other aggressive product lines. Here again, the theme is global.

In the South as elsewhere, some of the wood-using firms have been reconsidering their policies toward landownership. They have questioned the appropriateness of growing the timber they process. They have leaned toward others as timber suppliers, especially the nonindustrial private forest owners. Meantime the nonindustrials have faltered in their role as a limitless source of supply. Their practices are held partly responsible for the South's diminishing new growth of pine.

Parenthetically, before I leave the subject of forest industry, I must recognize a realm of possibilities that is still only at the research stage. This is the manufacture of materials, not only by macro-producers such as trees and machines, but also by micro-producers such as bacteria. Wood is a complex substance, the potential raw material for a wide variety of useful chemicals. Microorganisms can be bred to make such chemicals from wood by genetic processes safer and probably less costly than those crude methods followed in the chemical industry, such as led to the Bhopal tragedy.

To return to the present, labor, despite its losses in the 1980s, has gained strength in some parts of forestry and wood industry. Women have been recruited into sectors that have extended no welcome to them until very recently. Employees of both sexes in such formerly lowly occupations as young-growth logging have climbed the social scale by virtue of new responsibilities, including control over more sophisticated procedures and equipment. More social advancement will accompany further improvement in the industry's bad safety record. Advancement throughout the industry will result when management bows to a global trend: worker participation in problem solving and related decision making.

And this brings me to the consumer and demand. I refer to demand in the sense of varying human responses to bundles of influences of all sorts. The rise of the consumer may well prove to be the chief feature of our changing times. The consumer's preeminence among actors in the economy is seen in the environmental movement, a consumer movement that dwarfs scattered reversals. One of our profession's significant developments has been
the changing position of foresters toward the consumer. We used to take the consumer for granted as a lumber buyer and forest user. In fact we shunned the consumer, for so many of us were attracted to our profession as communion with nature and not with people. Over recent years, our representatives are seen to be more gregarious, more interested in fellow human beings.

To be sure, the consumer to whom the forester is listening is not necessarily the person in the street, but is commonly a spokesperson. We see this in the procedure for reviewing the national forest plans under RPA-NFMA. The reviewers typically are representatives of industrial and environmental titans, paid for what they do and thus able to afford the painstaking, sophisticated effort they devote to belaboring one another and the Forest Service.

The social-planning process, goodness knows, is not new, but we are seeing conventions and models in macroeconomics and policy that smack of newness. These innovations ask for close, competent evaluation, not only of their procedures, but, more fundamentally, of their appropriateness—their social benefit compared to their cost. How much and what detail of planning is good planning?

Here, then, are a few past and prospective changes in our setting. As I glance back over them, I'm impressed by their wide-ranging implications for the micro- and the macro-economics of forestry.

**CHANGING STRUCTURE**

And now, what do the changing times imply for the structure of forestry economics? I'll mention the scope and the method of our field.

This subject that I'm calling the economics of forestry—I think of it as comprising three functions. One is teaching in our forestry schools and extension programs. A second is doing research along its boundaries. The third function of the field is applying it: putting it to use in solving problems. In brief, our functions are teaching, research, and administration. I propose to touch upon now one, now another as I go along.

I must make clear and then emphasize that when I touch upon the three functions and when I mention their subject-matter content, I am not suggesting that a forest economist ought to be expert in more than one function or more than a few topics. I think of the forest economist as a generalist at bottom, free to call upon specialists in functions and subjects that are unfamiliar. To say this is not to deny that every one of us has at least some interest in all the bounty of our field.

I am purposely avoiding a definition of the field. In fact, the intent of my paper is to view the definition as changing with changing times. My object is not to define, but to raise questions for your thought.

Thinking about markets world-wide, I venture to suppose that we have plenty of room for more emphasis on the economics of world forestry. Here I include resource trends and prospects, international trade and related monetary policy, multinational corporation finance, wood-product industry strategies, and economic growth and development in relation to forests. Our gravest
problems are global. Events abroad are closer to us than ever. As Gregersen and others pointed out recently, we stand to gain by widening our view of forestry research and education: Foreigners can learn from us, but we have a lot to learn from them. The same applies to administration and policy. We have a lot to gain by working hand-in-hand with other nations, eyes set on the common problems and aims of human beings.

In our thinking about the South's fourth forest and about nonindustrial private holdings throughout the East, we come to research questions that extend deeply into teaching and administration. What are the rewards, social and private, from programs of reforestation and rehabilitation? We have looked into the question and come up with the finding that on this quality of site or that, this silvicultural treatment or that will yield at least 1 percent return on investment. But this doesn't answer the question. In the first place, costs have been omitted that are variable and thus relevant where land use and management in their entirety are concerned. A few rewarding projects may be found within any business that as a whole is unprofitable. But in the second place, there are relevant considerations that outweigh profit. Environmental influences are a case in point. When one stops to think of it, one is amazed how little exact knowledge we have about the merits of forest practice, long as foresters have been preaching on the subject.

And how about the economics of wood chemical production by bacteria? Here is a fascinating area of research that ranges from the macroeconomic problem of wood supply to the microeconomics of an untried production process.

Turning to labor and consumers and public relations, I think we have here one of the most fruitful veins that we can mine. In my view, the entryway into this area where people and forests come together is through the discipline of ethnology. I am not suggesting that our undergraduate foresters be subjected to course work in this field. Such courses may be laden with studies of tribal cultures—interesting, but not fully relevant. Our undergraduates—and graduate students, too—can benefit by having impressed on them that American social groups and individuals within these groups differ in what they have been taught to believe is right or good or beautiful or amusing or acceptable. The point here is that forest practices or forest resources cannot be judged on their own merits, by physical or financial standards. The standards that work depend upon the culture of the groups and individual human beings involved.

Foresters can learn as part of their study of forestry economics what culture is and how it is to be taken into account in human relations. Ethnology, in this case, tempers economics, just as corporate finance and accounting and foreign policy and tax policy may temper economics. Is it appropriate to put the economics-of-forestry label on courses with such content? I have had undergraduate students complain to me, "But this isn't economics!" Perhaps not. Perhaps we should get back to thinking of economics and policy as generally inseparable.

And so I want to ask, paraphrasing Robert Kuttner, whose work I'll cite in a moment: How do changes in forestry practice and institutions affect economic growth in developing nations? What forestry circumstances merit public intervention? What are the links between our economic performance and cultural and political values? What does it take for a nation to outgrow a
tradition of authoritarian industrial labor relations? When is the trade-off between efficiency and equity a genuine imperative in the weighing of our alternatives, and when is it only a rationalization for privilege? Which forest-resource markets behave like textbook markets? What really accounts for the wide disparities in the success of forest conservation by different nations in different eras? What really motivates human behavior respecting forest resources, and under what circumstances are the motivations cooperative and altruistic as well as self-seeking? How can we best help to cultivate a global view of forestry economics and policy?

I mentioned Robert Kuttner. Some of you may recall a scholarly and challenging critique of economics that he published in the Atlantic Monthly in 1985. Its title was, "The poverty of economics."

Since 1970, says Kuttner, events have been unkind to the economy and unkind to economists. The world's industrial economies faltered in ways that confounded neoclassical theory. Business and government became increasingly skeptical of economic doctrines. Professionals as well as laymen were decrying the irrelevance of economic theory and saying, "Let's take the con out of econometrics."

The trouble is that economics as it is taught in the schools and researched by its teachers is highly abstract, mathematical, and deductive rather than curious about real life and its institutions. Economists have built elaborate models of a world that doesn't exist. They play in a sandbox of abstractions. If the world is not like the models, so much the worse for the world. Deduction drives out empiricism, the search for reality, and the pursuit of answers to real problems.

When the standard models are given in the classroom, Kuttner states, the impatient freshman protests that they are plainly unrealistic. The reply from the podium is, "Walk before you run; start with simple models; we'll make them more realistic as we elaborate." The models are, in due course, elaborated, but become, not more, but less realistic as a result. Meantime, the student has either drifted away into the empirical social sciences or has taken a liking for the mathematics and become fond of deductive logic and loyal to the economics profession. If the student becomes a teacher, this teacher is unlikely (unable) to risk the promise of promotion and tenure by questioning the received myopic doctrines. Economists are scared to death of being sociologists. Departments of economics graduate generations of learned idiots, brilliant at esoteric mathematics and innocent of actual economic life.

Among noted economists who have deplored the mathematization and computerization of the field is Wassily Leontief, a gifted mathematician and early user of the computer, who devised input-output analysis. I think of him especially because I worked under him in my own graduate program. In his 1970 presidential address before the American Economic Association, Leontief spoke of the increasing "preoccupation with the imaginary and hypothetical, rather than with observable reality." He described what he called a "Darwinian process" by which pure theorists drive out those who study the actual economy. Later, Leontief wrote that "professional economic journals are filled with mathematical formulas leading the reader from sets of more
or less plausible but entirely arbitrary assumptions to precisely stated but irrelevant theoretical conclusions."

Now of course all this criticism of economics is directed at so-called "general economics," not applied economics. The applied fields, to the extent that they are noticed by general economists, are viewed with disdain as third-class empiricism. Yet the third-class people—you and I—have been brought into our lowly estate with the help mostly of first-class economists. Most of us have tried hard to emulate our first-class mentors, to pick up some of the brilliance of their rigid abstract formalism. It's hard to do otherwise, for that would be going against our inbred culture.

In conclusion, I will show my own aristocratic upbringing as an economist by making an unrealistic, impractical suggestion. It would be helpful to our field and to forestry in general if we were to divest ourselves of the trappings that have given economics such a pitiable name. The very nature of our calling demands of us that we dedicate our professional zeal to real problems of people and forests.