At The Margin: The Economics Of Teaching Forest Economics
by
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Abstract
Instruction in forest economics occurs mostly in public land-grant universities, and mostly within departments or schools of forestry. A model of forestry education as part of the larger university operation reveals some conclusions that are supported by what little data exist. The teaching of forest economics is largely an unimportant enterprise. The general conclusion is supported by five hypotheses or guides derived from the model: that course contents may be variable without penalty to student or faculty, that grades should be high, that traditional teaching methods are least costly, that professors should cater to student evaluations, and that individual courses may usefully be oriented around or toward an individual faculty member’s research.

INTRODUCTION
Forest economics is taught in most forestry programs in the U.S., usually at the undergraduate level, frequently at the graduate level. These courses have existed for several decades in some forestry departments, and we will guess that virtually every accredited forestry program has a forest economics course. Given this history, it’s probably true that most of us have taken and many of us have taught such courses. (At the Sofew presentation, about 90-100 percent of the audience indicated they took such a course, and about 25-33 percent indicated they taught such a course at least once.)

At the same time, there is very little writing about teaching forest economics. From recent SOFEW meetings, there is only one paper on teaching, which is by P. Dress (1994). (At the 1997 meeting, no one in the audience indicated they had ever written about teaching forest economics.)

Wisdom (1991) characterized forest economics as being too wedded to the neoclassical paradigm. The slim body of literature on the teaching of forest economics is consistent with Wisdom’s characterization: teaching forest economics, which is almost completely a nonmarket phenomenon, would be hard to approach with neoclassical models. He recounted a brief history of forest economics and argues that forestry will be richer if forest economists broadened their methodologies to include institutional and public choice perspectives.

Only one other article seems to exist in the literature. Sendak (1988) discusses the results of a survey of forest economists to learn what literature they used in their courses. His principal conclusion was that there was an unexpectedly large heterogeneity in the literature used in forest economics classes. Sendak’s results are discussed more below.

The brief, exploratory analysis in this paper follows the recommendation of Wisdom in that it takes an institutional view of teaching forest economics. The model developed produces results consistent with those reported by Sendak. Most forestry programs are in land-grant universities. The model begins in that context, describes selected institutional characteristics, then concentrates on results or guides from the viewpoint of the producer of forest economics education, which is the faculty. The analysis is both personal and objective in that we use our personal observations and experiences as teachers and students of forest economics to generate hypotheses that in principle could be objectively tested. The principal conclusion, or observation, is simple: at the margin, teaching forest economics is largely an unimportant activity. We mean this in the sense of positive economics: when we observe the world, we see people behaving as if teaching forest economics is largely an unimportant activity. An irony: almost no one admits it publicly—though as the reader will see, that irony is consistent with the model.

One caveat is important. Economics is often called the dismal science because economists use the postulate of self interest and look at the incentives presented by various systems of organization. That is our approach today, and we apologize up front to those who think this approach cynical or arrogant. We don’t intend those attitudes. Both of us truly enjoy teaching, especially forest economics. And both of us devote much more energy to the task than is probably warranted. But we are forced to admit that we are not acting economically.

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THE SERVICE AND MARKET
Land-grant universities are intended to be closely connected with the practical arts of agriculture, engineering, and forestry. They incorporate the idea that learning should be useful. This may help account for their unusual attentiveness to outside clientele. W. Flick has been associated with—as student or teacher—eight universities, 3 land-grant, and 5 others. All three of the land-grant schools were more attentive to outside clientele than the non-land-grant schools. M. Dunn has attended two land-grant and two non-landgrant schools, and concurs that land-grant schools are more attentive to outside clientele.

Their principal products are degrees to enrolled students, research findings, and education to various clientele through extension. These products are notoriously difficult to measure and evaluate objectively. It may include a collection of attributes, points of view, inclinations, and personal habits that defy simple objective measurement.

Land-grant universities are often a little self conscious. Their connections with the practical arts of agriculture and engineering, their service to farmers and others, often makes them “country cousins.” Faculty sometimes have those big stomachs and strong, thick fingers so common among working men.

Because of their closeness to outside clientele and their sensitivity to being “country,” land-grant universities are very conscious of reputation for quality. If they can create the aura of superior quality, they can attract more and better students, raise their fees, and justify more appropriations from state legislatures. Land-grant universities should be expected to pay particular attention to public relations.

The reputation for quality enhances a university’s income in other ways as well. It helps induce gifts from wealthy alumni and others. Further, it enhances the ability of its faculty to secure research funding from outside sources. Research sponsors are keen to have a university’s reputation surround the research results. A study from the state land-grant school, or from one of the best in the region or Nation, is more likely presumed to be of high quality.

The principal determinant of a University’s quality is the perceived quality of its faculty, and this is primarily a function of research and scholarly output. Research output can be counted and its quality can be directly appraised by readers. The perception of teaching quality is often a derived measure—a faculty member who does good research is given the benefit of the doubt on teaching. How many of us have heard the old saying that “good research begets good teaching” because the faculty are more likely to bring cutting edge ideas to the class and to be enthusiastic about their subjects. Never mind that all of the research we have seen shows either no relationship or a very weak, positive correlation (Burke and Lauenroth 1997, Feldman 1987, Voldwein and Carbone 1994).

Teaching performance is often measured in terms of courses, credit hours, contact hours, or numbers of students. But these are mostly measures of input, not output. Such difficulty of measurement is not restricted to education. It infects the performing arts and other service sectors (Baumol 1967, Baumol et al. 1989).

In more recent years, and especially for internal monitoring, student evaluations have become an important measure of teaching quality. Many faculty at first deplored the evaluations, but most have now become accustomed to them. Student evaluations have disciplined faculty—even the most recalcitrant—to teach in a way that pleases students.

Research is more easily measured. Universities and forestry schools count dollars coming in and publications coming out. Many faculty have adapted to this measure too. As with student evaluations, there was widespread frustration and disapproval among faculty when such counting started, perhaps the 1970s, but now there seems to be little discussion of it.

In summary, forestry schools offer professional education, are very concerned about perceptions of quality, push faculty for research, argue in public that good research begets good teaching, measure teaching output in units of input, and use student evaluations to measure teaching quality.

THE INDUSTRIAL ORGANIZATION OF THE PUBLIC LAND-GRANT UNIVERSITY
The University
The most widely accepted measure of university teaching output is the degree, which is a collection of highly specialized subjects taught by highly specialized faculty. Specialized faculty are organized into departments. There are significant benefits from such specialization. It reduces competition through product differentiation, which leads to analogues of monopoly rent. Specialization reduces the likelihood of a faculty member’s research or teaching being judged low quality. Peer review is a hallmark of higher education, and the more narrow the specialization, the fewer the number of peers, with greater likelihood that peers are mostly at other institutions. The relevant peer group functions much like a club with all members sharing in the benefits of being judged high quality. Each member is usually eager to support other members of
the specialization for tenure and promotion. And peers at other institutions know each other primarily through research and writing.

Extreme specialization could mean irrelevance, placing one’s job in jeopardy. Academic tenure prevents that risk. Tenure, with its lifetime employment guarantee, greatly reduces a university’s ability to reallocated faculty to meet changing demand. In private businesses that produce several versions of similar products, there is input flexibility. Universities are notorious for their inflexibility, which applies to faculty and other resources. An English professor with a broken slide projector will very likely need a personal friend in another department to secure the loan of a projector. Departmental barriers are simply too high and thick to permit fluid loaning and use of equipment among departments.

If the demand for forestry degrees increases, there is virtually no opportunity for redeployment of faculty from other departments who may have the ability to help in forestry classes. Forestry faculty simply teach bigger classes, curtail enrollment, or lobby for additional faculty.

Alchian (1958) argued that tenure arises because of lack of private property rights in nonprofit universities. Universities give in to demands for tenure because the inefficiencies and costs created thereby are not born by the decision makers, as they would be in for-profit institutions that were privately owned.

Budgeting procedures of modern universities reinforce these rigidities. Each department is set up as a separate cost center. There are no incentives to share resources among departments. By sharing resources with other departments, any one department loses a little of the ability to effectively compete with rivals in the next budget cycle. As in other bureaucracies, university departments typically seek to grow, and they do so by justifying the need for more service from that department, which would be hard to do if it had a history of freely sharing its resources.

Rather than confront the rigidities to reduce costs and gain efficiencies, universities generally seek additional funding from the legislature. There is little incentive to fight existing faculty and departmental traditions when the potential gain from the legislature is much bigger. Too much infighting, too much pressure on existing, tenured faculty, and administrators may lose their jobs.

The Forestry Program
Forestry faculties generally reflect the heritage of forestry in that most faculty members are natural scientists (biology or closely related specialties), physical scientists (wood products, perhaps engineering), or biometricians. Few are educated in economics or other social sciences. Also, many forestry faculty members are on split appointments: teaching, research, and extension. Forestry faculty are forever involved in balancing their time at the margin among their assigned functions.

Forest economics faculty offer forestry schools one important attribute that is often overlooked and that bears on the time a forest economist has for research. Forest economists can be used flexibly, for a variety of things, because most are trained in both forestry and social science. They can help out in statistics, biometrics, management, policy, capstone courses, research methods, recreation, industrial forestry, courses in consulting, and others. This is generally not true of other forestry professors. Forest biologists, for example, are less often asked to teach outside their specialties, while forest economists seem to bear such requests routinely.

At the same time, forestry students tend to be rural and more interested in the forest than the economy. Many are also intensely practical (economical), and want to achieve their degrees at minimum cost. Parents tend to share the motivation. For such students, forest economics is an unwanted burden, and they care little about the course. An entertaining teacher may stimulate their interest, but few forestry students seem to cultivate an abiding interest in economics.

Forestry administrators pay most attention to finance, which is a main responsibility. Academic matters are usually shared with faculty. Oriented to finance, administrators are keenly interested in the school’s reputation and relations with clientele.

HYPOTHESES OR GUIDES
A number of guides follow from the analysis offered above. First, it really doesn’t matter what specific topics are included in a forest economics course. Most peers will be at other institutions and will never know what a particular teacher includes. Most administrators and students are uninterested, and they probably feel unqualified to judge. The contents of a course are often thought to be particularly within the jurisdiction of the individual teacher, even though the course is part of a curriculum that may receive prolonged discussion at departmental levels.

Our preference is for marginal analysis and finance (valuation, capital theory). Both lead nicely to the optimal rotation. Then, if there is time, we like to teach material on the history, structure, and performance of the forest economy. We believe these
topics are useful, and at least in the case of finance, expected of us. Compound interest has been one of our staples for decades, and it is difficult to justify abandoning it. Surprisingly, there are some data relevant to the first guide. Sendak (1988) reported a survey that the SAF Economics, Policy, and Law Working Group did of teachers of forest economics and policy to see how the forest economics and policy literature was being used in classes. Forty-one schools responded with information about 108 courses.

Undergraduate forest economics presented the widest selection of textbooks. Many courses use textbooks on forest management. Textbooks for undergraduate courses in forest policy were “more focused.” That policy courses are more focused in their choice of texts than economics courses seems to me to support the point that it doesn’t matter what you teach.

Also, the author measured “overlap” in the assigned reading in the courses, and came to the conclusion that it was only 27 percent, which to him was “surprisingly small.” It indicated that three-quarters of the cited forest economics reference material were used in only one course. Mike and I immediately suspected that we forest economists were requiring our own articles in our courses. That we know is a tradition in general economics. Overlap was smaller in graduate courses in forest economics.

Let me (W.A. Flick) mention one other story that confirms this point that it doesn’t matter what you teach. One day after a football game at Auburn, Hubert, a graduate of 5 or 6 years earlier, came bounding over to me as we left the stadium area. We hadn’t seen each other in all those years, yet Hubert had something definite on his mind.

Immediately after saying hello, how are you, and before I could say anything, Hubert blurted out what was on his mind.

“You know, Doctor Flick, all that crap you taught in forest economics?” Hubert asked.

“Yes,” I said, “I know that stuff.” I didn’t want to use Hubert’s appellation.

“Well,” Hubert exclaimed triumphantly, “I haven’t used any of it, not a single bit.”

I asked Hubert whether that was my fault or his. He wasn’t quite sure.

Second, forest economics professors should give high grades—plenty of As, some Bs, and a few Cs or Ds. Fs should be reserved for very special occasions or students. Students, parents, university administrators, and employers are all pleased with high grades. High grades reduce the “cost” of education for both students and parents. They help with public relations for administrators. And they help convince employers of the quality of the educational product.

A faculty member who uses the old bell curve with the mode at middle C is an anachronism, someone who has not caught on, who is out of step. Two incidents at Auburn support this observation: (i) tactfully, in Auburn’s University Bulletin a couple of years ago, the University changed the name of C from “average” to “acceptable”; (ii) the University Central administration notifies department heads of all courses that reported 40 percent or greater D and F grades, but there is no similar report for As and Bs. The department heads were at one time asked to inquire with faculty about such large numbers of Ds and Fs.

Third, the best method of teaching is the lecture method. Lecturing is easiest for teachers and students. Lecturing can be done with the aid of a standard textbook in forest economics, which reduces the need to prepare individual material. Professors have the opportunity to be encouraging, to tell humorous stories, and to set the pace of the class. Students can listen easily, take a few notes, and supplement the lecture with the text. The basic performance required of the student is largely passive and often involves memorizing important material.

The principal alternative teaching method is “student centered, problem based” learning, often used in collaborative models of class work. There are many excellent examples, and there is a growing literature on these methods. Generally, they involve a great deal of interaction in the classroom, among students, and between students and faculty. The environment is less controlled, more open. We have tried such methods, and our personal experience is that they work quite well (students learn as measured by performance on tests and papers), but they require more work of both faculty and students. Faculty must prepare their own teaching materials because none of the forest economics textbooks are organized around collaborative learning. Students must engage themselves in the classroom and learn more actively. That requires more preparation, more uncertainty, and more variability of performance. From both faculty and student viewpoints, a course tends to be less objective. For faculty balancing time at the margin between teaching and research, collaborative learning involves potentially substantial costs.

Fourth, pay attention to student evaluations. They are often an administrator’s principal tool for evaluating teaching quality. Faculty with good evaluations do not pose a public relations problem. Faculty should acquire the evaluation form before the term begins, study it, and plan specific measures in
their courses to meet the criteria measured on the form. Students, too, will be inclined to think they are getting a good education if they can read down the form and agree that the professor has met the stated criteria.

Student evaluation forms also generally militate against collaborative learning techniques. Most questions on the evaluation implicitly assume a lecture method of instruction, and they can be most easily met with that method.

There is one significant problem in trying to meet both the third and fourth guide. Most of the forest economics books concentrate on models and theories, and it is most easy to lecture on those topics. But most forestry students like facts, and evaluations may be higher if the course contains more facts that students can learn. Some states have readily available factual material about forestry in the region or state, and these can be used to supplement a text.

Fifth, faculty should orient their courses in the direction of their research. Preparation time will be reduced because a faculty member is likely to be quite expert on the topics. Also, a faculty member is likely to have factual material to share. And discussing modern research ideas with students helps implement the idea that administrators want verified—that good research begets good teaching. Such discussion helps stimulate ideas for additional research and helps define points that can be included in publications. By using the forest economics class to further thinking about research, a faculty member is responding to the overall incentive structure of the university, which means he or she is presumably working in the larger interest.

RESEARCH—IN CONTRASTION

There is a related reason for including research in forest economics classes. We believe forest economics research has revolutionized forestry. We think forest economics has become the central theory of forestry and infuses it with relevant meaning. To a large extent, in law regarding public lands, and on private forests, the forestry profession has embodied the economic model of forestry as the central theme of the profession. This is not the place to outline this argument, but we believe a very persuasive case can be made for the idea.

CONCLUSIONS

Let us again add some appropriate idealism to the discussion. Teaching, especially teaching economics to foresters, is an ennobling activity. Economics is immensely useful, and foresters are real, wonderful people.

It's more than the sum of economics and forestry. Teaching engages us person to person. Real students with real, immediate needs are helped by our efforts. We help them enlarge their collection of workable ideas, and we share a little of ourselves. If we are generous with them, they appreciate it and remember it—some of them do.

When one looks back over several years of work, and if in that scenery of the mind's eye there are several to many young people who learned one or two ideas, shared a little of the magic in life, and left looking forward and upward, then your teaching is justified and your paycheck, at least that part of it coming from the teaching budget, has been earned.

But let us not forget that research and extension are ennobling also. Contributions to knowledge, helping landowners or other foresters—surely it is as inherently worthy as teaching. We are therefore, left with the economic problem of where, at the margin, to spend our time and effort. The principal guides presented here—

- that course contents may be variable without penalty to student or faculty,
- that grades should be high,
- that traditional teaching methods are least costly,
- that professors should cater to student evaluations, and
- that individual courses may usefully be oriented around or toward an individual faculty member's research—

seem consistent with major aspects or characteristics of the forestry school environment. They are also consistent with the major conclusion stated at the outset (teaching forest economics is largely unimportant) and with the corollary that people involved seldom talk about it. It is more comfortable to talk as if teaching forest economics were genuinely important, but to really focus on research. The comfort is with good public relations among constituents, and also with the idea that good research in forest economics has been central to the development of forestry in the twentieth century. The allocation at the margin between teaching and research/extension that forestry faculty and schools have selected may be inherently quite good.


