LAW AND PRODUCTIVITY IN FORESTRY

by

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April 30, 1992

Keynote Address delivered at meeting of SOFEW
Admiral Semmes Hotel
Mobile, AL

Good morning. It's a pleasure to be here to talk with you about productivity and southern forestry.

Productivity is much in the news, and it is much on the minds of professional economists. It is an important topic. Productivity refers to increases in output per unit of input. Typically we discuss either labor productivity or total factor productivity.

Labor productivity is the economic output per unit of labor input. Labor productivity shows how much increase in output there is available for consumption—the prospective consumption available for an hour of labor. It is a measure of the potential impact of output increases, from whatever cause, on labor. If the proportion of population in labor remains unchanged, then labor productivity will rise and fall as per capita income, hence it will be closely related to our traditional notions of economic welfare (Baumol et al. 1989, 226-7).

Total factor productivity measures the efficiency of inputs. It is the output divided by the sum of all inputs, hence it is a good estimate of the impact of technical change and innovation on our production. It accounts for output increases over and above what can be attributed to changes in input use.

There are technical problems involved in measuring labor and total factor productivity, but we will skip them and concentrate on more general themes.

Two, or perhaps three, general themes dominate discussions of productivity. The first is that America is suffering a productivity decline. The second is that much of the rest of the world is benefitting from faster productivity growth than is the U.S. The third is that while our productivity declines, we are losing our manufacturing base and becoming a nation of hamburger flippers. McDonalds, once a symbol of progress is now a proxy for economic decay.

The conclusions reached from these observations is that America's role in the world economy is much in jeopardy. With our rate of productivity growth declining and that of much of the world greater than ours, eventually, their economies will surpass ours as the world's strongest, and our standard of living will inevitably decline, or at least not rise as fast as others. As their productivity increases, their exports will be relatively cheaper, and our share of world exports will shrink. To maintain equilibrium in world markets, our currency will decline in value, which reduces the price of our products to foreigners. In effect, we will suffer a decline in real wages, and our economy will begin to shift its comparative advantage to products of cheap labor. In addition, we will lose that ineffable quality called "leadership". Economic dominance will pass to others, and we will find ourselves less influential in world affairs.

It's stories like that one that give rise to the title, "dismal science." I figured this stuff out about 5 years ago, and decided to study law instead. I wanted to join a respected, upbeat profession.

Then about 1989 or 1990 I learned that the worst scenarios about productivity might not be true. There has been a decline in productivity growth from post WWII rates, a decline that started about 1970. But long-term evidence suggests that post WWII growth rates were unusually high. When you look at a century of data, no long-term decline is discernible.

And productivity is a long-term issue. The annual rates of change fluctuate markedly, and their numerical values are usually small, typically less than 4 percent, and frequently negative. As foresters, we know that it takes a long time for a rate of 2 or 3 percent to accumulate and translate into significant changes in living standards.

Relative to other countries, our productivity record may be more worrisome. For a long period of time—about half a century—our productivity growth has lagged behind several other countries. Continued indefinitely, of course, we would inevitably fall behind all of those countries who are growing faster.

These dismal international prospects are ameliorated by two phenomena: first, the club of countries growing faster is not always the
same. Countries come into the club and leave it. Compared individually, our productivity lag is perhaps not so bad. Second, there is a convergence theory about productivity that says the little fellows are catching up by using our already developed technology. Given the improvements in communication and technology transfer, it is easier for them to take advantage of improvements that other countries, notably us, have made available. As I read the productivity literature, there is merit to this argument, though perhaps not conclusively so. In other words, productivity is still an issue toward which we must devote policy.

To understand what types of policy might be appropriate, we need to understand the character of productivity change in the economy. It turns out, as one would expect, that not all industries experience the same magnitude of productivity change. In 1967, William Baumol published "The Macroeconomics of Unbalanced Growth" in the American Economic Review. It is an important article which helps explain a great deal of our recent experience. He argued that we can divide industries and activities into two categories based on productivity growth: progressive and stagnant. Progressive industries are typified by the paper industry--those benefitting from continued annual increases in productivity, industries accustomed to innovation and technical change. Stagnant industries are typified by the performing arts or perhaps education. In forestry, lumber and probably timber growing may be examples.

In progressive industries, labor tends to be merely another instrument in production. In stagnant industries labor tends to be identified with the very definition of output. If we think of a solo performance, for example, we can see immediately that it is impossible to improve labor productivity because of the way the product is defined. An hour of solo performance requires an hour of the performer's time--there is no escape. Teaching is another example, though not so clear. If class size grows much above 25, we as parents get concerned. And we also want real teachers in the classroom, not monitors. The quality of our school product is related in our culture to having a live human in front of a small class. Given that notion of product, productivity in education can hardly change rapidly.

There are also manufacturing industries that exhibit stagnant characteristics. The lumber industry has a long history of lagging productivity growth until after WWII.

At any rate, it is the consequences of the division into progressive and stagnant that are important. In progressive industries where productivity is increasing, there is an ever growing fund from which to pay higher wages (this also helps explain the rise of unionism in industrial settings). Given free labor markets, firms in the stagnant industries will need to continually increase wages to attract labor. But those increased wages can't be paid from income from increased output from increased productivity, because productivity isn't increasing. Only increased prices can pay the higher wage. So in
industries with lagging productivity, you would expect to find increasing costs and higher prices. This is the historical experience of stagnant sectors such as education and lumber before 1950.

If the demand for the product of the stagnant industry is elastic, consumption will decline and the industry will wither. But is the demand inelastic, if the outputs of the progressive and stagnant industries remain proportional, then more and more of the labor force will be employed in the stagnant industry and the growth rate of the economy will approach zero.

In a 1985 article, Baumol enhanced his initial approach by including asymptotically stagnant activities: those that use in relatively fixed proportions, inputs from the stagnant parts of the economy with inputs from the progressive industries. These individual industries are mirrors, if you will, of the 1967 classification in that eventually, the costs and output characteristics of these mixed industries will be dominated by inputs and characteristics from the stagnant industries.

- Baumol's approach is appealing and plausible. Indeed, it is very powerful in explaining our economic performance.

The stagnant industries tend to be a subset of services, including government, education, performing arts, and other industries dominated by the manual aspects of serving consumers. The progressive industries tend to be those in manufacturing. The asymptotically stagnant industries are typified by broadcasting, some parts of medicine, and data processing.

The demands for many services are relatively inelastic. Indeed, we hear news stories almost daily about the fact that while Americans deplore the deficit and rant against increased taxes, they want expanded government services. Education and environmental protection are prime examples. How many of us are willing to say to our children that education is simply becoming too expensive and that we will therefore cut our consumption dramatically. To ask the question is to answer it. Similarly for environmental protection. The demands are inelastic. Baumol's model suggests that the costs of these activities will continue to expand and that an ever growing share of the labor supply will be devoted to providing them.

And as the share of labor in stagnant industries grows, so too the problems of stagnancy in those industries. It is simply harder to keep things coordinated and humming. Large, public, labor intensive institutions are expensive to coordinate and manage. And as they grow, and as the wage level in the economy grows in general, costs will continue to escalate.

To a remarkable degree, the predictions of Baumol's model have come true over the last few decades. The relative outputs of
manufacturing and service have remained about the same. But employment and costs of the nonprogressive service sectors is up.

The topic is obviously important, and more policy consideration is given to it daily. How can we turn around America's productivity experience? And what can we do in forestry?

Economists are often short on specifics of policy recommendations. Economists will write wonderfully detailed papers on the statistical relationships among variables contributing to productivity, then turn soft in the final paragraphs on policy prescriptions. It is inevitable. Econometricians are not schooled in institutional design.

Institutional design is much more the province of the lawyer. To a legal analyst, productivity (once you explain the concept) is little more than the byproduct of the rights and duties defined by law. Law can be designed to make traditional economic activity fluid and responsive, or it can be designed to bring it to a virtual halt.

History can illustrate this vividly.

Consider the development of contract law. It is largely a 19th century concept, though it was important before that. After all, our constitution has a clause protecting the sanctity of contracts. Think of a contract as an exchange of promises coupled with consideration. The idea that the State, with its massive police power, will enforce private contracts is, in a sense, quite remarkable. Contracts give free play to individual choice, and they make economic activity wonderfully fluid. When the State enforces them, private parties can count on the promises of others with whom they contract, and this gives a very secure base from which to plan business activity.

The law of damages for breach of contract is also aimed at improving economic growth. Damages for breach are generally restricted to what is a foreseeable natural consequence of the breach, not all damages that may be a consequence of the breach. Limiting damages tends to encourage aggressiveness in business affairs, innovation, and the creation of new businesses.

The role of contract law in economic affairs was greatly enlarged in the 1800s by actions of the U.S. Supreme Court. It gave broad interpretation to the term contract, including a college charter, and legislative grants. This furthered the reach of the contract clause in the constitution and gave the protection and security of enforceable contracts to a large body of private and semi private agreements.

A technical rule of contract interpretation known as the parole evidence rule also favors economic growth. This rule says that evidence outside the terms of the contract will not be admissible to contradict the terms of the contract itself. In other words, the contract speaks for itself. The rule makes it difficult to bring persons into court and claim that while the contract says one thing, the fellow told you
something different. Again, efficiency and productivity growth are served.

Spreading to commerce, contract law has had a major influence on the drafting of the Uniform Commercial Code, which governs the sale of goods in most states. A uniform commercial law across the states is a great incentive to expanded economic growth. Businesses can be secure that their purchases and sales will be governed by uniform, enforceable rules.

At any rate, contract and sales law has traditionally been dominated by the rule of caveat emptor--let the buyer beware. This is in contrast to a competing notion of implied warranty. If caveat emptor had not won out as the dominant idea, then every time you purchased something and it failed to live up to your expectations, you could haul the seller into court and argue that his act of selling the product implied a warranty which was breached in your case. Such a doctrine would have stymied economic growth by encouraging litigation.

Contract law was well suited to a market economy, and it must be credited as a major stimulus to the economic expansion of the last and early part of this century. Now many of the doctrines described here today are subject to numerous exceptions, and in some cases the ideas initially discarded have been brought back in certain circumstances. Nevertheless, it is easy to understand that the dominant themes of this area of law have promoted economic expansion and productivity increases.

Tort law--the law of personal injury--also stimulated economic growth, especially rapid industrialization. As with contracts, this is a relatively new area of law, developing mostly with the industrial revolution. We think of tort law mostly in the auto accident or medical malpractice context, but these are recent applications. In the beginning, tort law grew out of trespass law, and that involved liability regardless of fault. If you injured another person directly through your activity, you were liable. If, for example, a log fell during loading and a workman was injured, there would be no question of the employer's liability (under the old notions of trespass law). Such strict liability, of course would have virtually killed the industrial revolution. The courts could see that worker injury was a necessary cost of industrialization, and courts also saw great benefits from industrialization. Judges generally took up the side of new and growing industries. They did this by making fault a requirement for liability: a person was liable for injury only if he acted negligently, that is, in a way not in conformity with what a reasonable person would have done in similar circumstances. This acts to limit liability because the injured party must show the defendant industry acted unreasonably. Under concepts of strict liability, it is only necessary that the action that caused the injury was that of the defendant, be it reasonable or unreasonable.

But is was not enough. Juries were tempted to side with the individual over companies, so more protection was needed. The doctrines
of contributory negligence and assumption of risk, along with the fellow servant rule gradually grew and expanded until it was virtually impossible to find an employer liable for the injuries to employees. Contributory negligence says that if the employee is partly negligent for his injury, he is barred from recovery. Assumption of risk says that employees assume the ordinary risks associated with employment. The fellow servant rule, perhaps the most pernicious of all, says that if the injury was caused by a fellow employee, then the employer is not liable. The combined influence of these legal doctrines was a principal motivating factor in the design of workers' compensation programs early in this century. These legislatively mandated programs provided for compensation, and handled it efficiently by spreading the risk of injury and limiting compensation.

As a final example of intelligent legal design, let's mention property law. In feudal England, property law was unbelievably complex. It was law for the wealthy and powerful, for those were the persons who owned property. In the 1800s it was a wonderland of executory devises, powers of appointment, contingent remainder, fee tails, defeasible fees, shifting and springing uses; all of them traps for the unprepared. For the most part, American property law swept this stuff aside, replacing them with simple warranty deeds and quitclaim deeds. In America, property was widely owned, and a growing economy required easy conveyances. Land was like a commodity, and owners had an implicit social obligation to put their property to use. Property put to productive use was favored in law. The clearest example of this is western water law—the law of prior appropriation. When you moved out west in the 1800s, you secured a water right by simply helping yourself to public water and putting it to beneficial use. Once you did that, the right was yours, and it often attached to your property. You could sell or devise it with the property.

American property law also adopted the doctrine of adverse possession, under which a person could occupy a piece of land, notoriously and openly, for a number of years, then claim good title. England never had that doctrine. Similarly, England had easements for air and light. A landowner could block action by his neighbor to put up structure that interfered with the landowner's view. That was law for the entrenched elite, and it did not rapidly catch on in America.

The old categories of property law persisted, but they grew to influence mostly the wealthy who turned to the law of trusts to shield wealth from creditors and to dictate its use after death. Today, the old categories become important to estate planners, and it helps explain why that is such a forbidding area of law.

Lest you think that all law is encouraging of economic growth, let's mention also an area that has tended to have the opposite impact, and it is the law of trusts. You can think of a trust as a three-party arrangement: a grantor places property in trust—that is, he deeds it to a trustee who then actually owns the property—for the benefit of a third person. The trustee owns the property, but he must manage it for

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the benefit of someone else. To handle this situation, law created the idea of fiduciary duty. In managing property for the benefit of another, fiduciaries must be loyal to the interests of the beneficiary. They must possess the property, defend it against attack, protect and preserve it, and separate it and earmark it from their other property. If the property is investment, there is the duty to make it productive, to have only approved investments, examine and review the investments, and change investments when they become unpermitted. The duties go on to ever more specifics concerning particular transactions—for example how to deal with rent, payments to beneficiaries, dividends, interest from bonds, allocation of receipts to income or principal, how to deal with sums received in settlement of claims, and so on. In all, the trustee is under a strictly controlled set of amazingly detailed standards which require active, competent, careful, management for the benefit of another (See George T. Bogert, Trusts, 6th ed., (St. Paul, MN: West Publishing Co., 1987) for an excellent summary of trust law).

Beneficiaries can sue if the trustee violates his fiduciary duties, and the law definitely favors beneficiaries. Because of the tight requirements and potential liability, trustees are frequently well paid. It is expensive, and unproductive, to devise an area of law that must directly contravene the natural tendency of people to serve their own interests. When you look through American law, whenever you find fiduciary duties strong, you find fluidity and productivity weak, or so I hypothesize today.

Let us review some of the characteristics of law that enhance productivity growth and economic competitiveness. First, liability in tort should be coupled to some notion of fault or intent. Some culpable mental state should be required for liability, especially as law is applied to emerging areas of economic activity. While this limits liability, unfortunately it expands litigation costs. Once the activity is established and patterns of injury recur, it may be feasible to adopt something similar to workers’ compensation where fault is replaced by strict liability, risk spreading, and limited compensation.

Second, law promoting economic expansion channels or uses self interest. Contract and property law do this. With contracts, firms can make private arrangements and be secure. There is no need to involve the state unless the contract is breached. When law, such as trust law, requires people to manage property for the specific benefit of another, it requires a large number of rules to ensure the desired results.

Third, law needs to provide well-defined property rights. These are rights that are completely specified and enforced, that are exclusive so that benefits and costs accrue to the decision makers (not to third parties), that are comprehensive so that all aspects of property that generate value are represented in the scheme of rights, and that are transferable so that rights holders can contract for their economic improvement.
Yesterday, Con Schallau presented evidence of an enormous regulatory tie up of U.S. timberland. Needless to say, if it continues, we will have a much different industry than we are accustomed to. Without going through details, let me simply state that many of these laws are designed from a different perspective than that of the 19th century when it was the avowed purpose of judges and others involved in law to promote economic activity. Much of the impressive productivity record of this country can be attributed, I'm convinced, to the legal posture that dominated this country from its early years through the middle 1950s. And the developing law tended to have the characteristics outlined above.

Today, economic activity is taken for granted in much of our law, and we worry about how to contain economic forces. In product liability law, welfare and entitlement law, malpractice law, and environmental law, one can easily argue that large-scale economic activity is under attack. While the aims of the law may be admirable, often the design does not include the elements that provide for efficiency.

Economists, I think, agree with the general points I'm making. Economic literature recommends environmental law that involves individual incentives and transferability of rights to achieve goals that are more elusive and costly under direct regulation.

The new clean air act is a model of this kind of economic thinking. I've just started trying to understand this new act, and at this stage I have only a very general understanding of its approach to air pollution. So I cannot deal with specific issues.

But, as I understand it, the new law allows netting in certain instances—that is, a firm can create a new source of pollution in a factory if it cuts an old source. New factories can be constructed in areas where air pollution standards are met so long as the new pollution is more than offset by reductions in old plants.

There is a "bubble" program, similar to offsets and netting, in which all operations of a firm are considered one source of pollution. The total is limited, but the firm can decide how to meet the total by controlling individual sources. The individual sources are not regulated. This gives the firm the opportunity to work trade-offs within the bubble to meet the standards at least cost.

I believe there may also be the ability to bank pollution rights for the future, and to exchange them with other firms. A firm exceeding the standards today could sell its excess pollution rights to another firm or save them for future use.

It appears that the new law builds in the ability to contract for pollution rights. And it is in the early stages of defining property rights in pollution activity so that parties can benefit individually from activity designed to reduce pollution. This is a more thoughtful approach, and it needs to be adopted in other areas of law.
Looking at other areas of law, for example the Endangered Species Act and the Comprehensive Environmental Response, Compensation, and Liability Act one finds a much different approach—one less likely to efficiently promote environmental goals. Without getting into specifics, these laws involve the inability to contract out of liability. Lenders, property sellers who are completely innocent, unknown buyers, can all be liable for environmental cleanup. The risks involved are large, and they add significant costs to property transactions and financing of new economic ventures.

In the Endangered Species Act, there is potential criminal liability for destroying habitat. There is potential taking of private property which would be contrary to the 5th Amendment of the Constitution. There are delays and set asides. In short, there is great uncertainty.

Wouldn't it be wiser to work toward the definition of specific rights to take habitat of endangered species, to make those rights transferable, to allow them to be banked, and to provide for their expansion. I'm convinced the time has come to address environmental problems in the same way we addressed economic problems in the last century. We designed laws that recognized the power of self interest, provided for property rights, and facilitated contract, and linked liability to fault.

As we listen to the papers today, think of ways of using the results of the research to help define new environmental institutions that will promote environmental goals efficiently. Given the productivity record and problems that we face, we can hardly afford a different approach.