Currents

The More Things Change...

We are pleased to announce that Gene Healy is the new managing editor of *Regulation.* Gene is a recent graduate of Georgetown University with a major in government and a minor in politically incorrect activities. As managing editor, Gene is responsible for the letters column, final production editing, subscriptions, advertising, complaints(!), and a proportionate share of your frequent praise.

Brian Doherty served us (and you) well as the prior managing editor, but he decided to go off to La La Land to be an assistant editor to *Reason.* We wish him well.

William A. Niskanen

In Memoriam

Federal regulation of trucking which during its illustrious career provided a competition-free system, guaranteeing huge profits for owners and high wages for unionized workers, died August 26. Three days earlier, its cousin, state oversight of intrastate carriers, sustained a mortal blow as all controls on interstate firms hauling intrastate loads were abolished. Interstate Commerce Commission regulation was fifty-nine years old. Ravaged by the Motor Carrier Act of 1980, Washington's supervision of motor carriers suffered a long enfeeblement, leading ultimately to its demise, despite the heroic efforts of union workers to preserve their benefactor. Unfortunately for the health of federal curbs, a combination of free market economists, shippers' groups, and a surprising group of liberal politicians, including Senator Ted Kennedy and President Jimmy Carter, had undermined its support system and it died, not with a bang but a whimper.

Born at the height of the New Deal in 1935 from the unlikely marriage of federal and state regulators, large trucking interests, and railroads, ICC management of motor carriers had a long and successful career of prescribing prices, enjoining entry, and curtailing competition. By the early 1970s, Washington bureaucrats were forcing trucks to travel empty on return trips; to carry goods on circuitous routes, adding hundreds of miles to their transport; and to distinguish between carrying ordinary horses and those destined for the slaughterhouse. During the nearly six decades of ICC rulemaking, the economy suffered hundreds of billions of dollars in waste, loss and abuse.

In addition to continued controls over household good carriers, federal regulation is survived by its adopted offspring, the International Brotherhood of Teamsters. No services are planned.

Thomas Gale Moore
Senior Fellow
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AALA Wrong!

One of the more valuable services that government might provide is succinct, unbiased information. Accurate information is a public good to consumers, and producers may not provide unbiased information. In many cases, however, the information provided by the government is also biased, and misleading information is a public bad.

Case in point. As of October 1, all new cars and light trucks sold in the United States must have a new label "to enable consumers to take

country-of-origin information into account in deciding which vehicle to buy" (quote from the Department of Transportation press release). This new label was mandated by the American Automobile Labeling ACT (AALA) of 1992, a bill sponsored by Senator Barbara Mikulski (D-Maryland) and passed as part of a large, end-of-session appropriation bill.

Some consumers may value accurate country-of-origin information on new automobiles. If so, they would be misled by the mandated new label for the following reasons:

- The label does not provide information on the percent of value added by U.S. workers in final assembly, distribution, and marketing.
- The label makes no distinction between parts produced in the United States and Canada.
- A part with 70 percent or more U.S. or Canadian content is accounted as 100 percent domestic content.
- A part with less than 70 percent U.S. or Canadian content is accounted at its measured domestic content if produced by a supplier owned by the manufacturer, but at zero domestic content if purchased from an outside supplier. For one specific car, the domestic content could be as high as 53 percent or as low as 11 percent depending on whether the parts were produced by an owned or outside supplier.
- For all carlines produced in both North America and abroad, the domestic parts content is calculated for the entire carline. This substantially underestimates the domestic content of the vehicles from these carlines that are sold in the United States.

On net, I suspect, this new label will have little effect on the distribution of new vehicle sales. It is not obvious that consumers will pay much attention to this label or even if they prefer a higher domestic parts content. For those who may be concerned, however, the new label provides misleading information. Once again, Congress has used its regulatory power, not to help consumers, but to help specific, politically favored producers.

William A. Niskanen

Republican Revolution and Regulatory Rollback

The 1994 GOP election victories usher in crucial years for America's economic future. With their takeovers of Congress and many state houses and legislatures, the Republicans have the authority to enact real, fundamental change in this country's regulatory regime. If they pass the major deregulatory components of their "Contract With America" they could halt the growth of regulations and perhaps begin to reduce the current burden. If they are truly revolutionary, they also will begin to roll back regulations. And where necessary, they will foster an alternative system to protect public health and safety based on private property rights and the rights of contract.

The Will to Change. Many in the new House Republican leadership for years have been concerned over the growing stranglehold of federal regulations on the economy. In the 1980s, Tom DeLay of Texas, the new Republican Whip, tried to mobilize the public and other members to reduce government control of businesses. But with the economy creating millions of good jobs, deregulation had less urgency. However, today, while jobs are being created, real purchasing power remains stagnant. Further, enterprises suffer under the new regulations foisted upon them by George Bush.

Speaker Newt Gingrich of Georgia, in his ten-part taped course on "Restoring American Civilization," highlights the destructive economic and social effects of bureaucracy, and the key role of entrepreneurs in creating new goods and services and economic prosperity. Major components of the Contract reflect legislation introduced by Majority Leader Dick Armey of Texas, a former economics professor and strong free market advocate (See my Current in *Regulation*, 1994, No. 3). And among the new members of the House is David McIntosh of Indiana, formerly the executive director of Vice President Quayle's Council on Competitiveness.

Hearing the problems. The regulatory reforms in the Contract will require congressional hearings. Ideally, they should serve three functions.

First, they should make the case for the reforms proposed by the Contract. One theme should be the lack of knowledge concerning the costs of regulation. Another should be the need to protect private citizens against abuses by regulators. Most important is the need for the federal government to pay compensation for any regulatory takings of property.

Rescuing the victims. Second, the hearings should showcase the victims of regulation and expose the regulators responsible for the victims' plight. Advocates of limited government have succeeded in demonstrating to the public that much government spending is pork and waste. Even the dominant media, e.g. *60 Minutes*, *ABC News*, regularly expose such spending. Now it is time to do same with regulatory abuses.

Contract hearings should include the victims of regulations, from the women who loses her home because of environmental laws, to the entrepreneur who cuts back staff or loses business because of mandates, to the factory owner receiving contradictory orders from different regulators, to local government officials who cannot expand police protection because of the cost of fines for paperwork mistakes in regulatory forms. Hearings broadcast on C-Span will show that there are real, flesh-and-blood victims of regulations in the same way the Left has used hearings to garner sympathy for those to whom they wish to benefit.

Preparing the ground. Third, the hearings should prepare the ground for substantive rollback. Even with the process reforms in the Contract, the economy will remain overregulated. At the end of the hearings, the members and the public must understand that regulations often are costly, confusing, arbitrary, and thus contrary to rule of law. Often, regulations are little more than pork or extortions of wealth by one group from another, with virtually nothing to do with their purported goals. Finally, regulations hinder the discovery of less costly, more effective private means of achieving these ends. At the end of hearings, members should understand that passing the Contract will only scratch the surface—that substantial rollback is needed.

Whether the Contract's regulatory reforms or substantive rollback will become reality is an open question. Senate Republicans are not inclined to be as radical as their House colleagues. Yet the Contract should attract support from at least a few Democrats. Indeed, elements of the Contract's regulatory plank were chosen because they had been promoted by some Democrats as well.

The U.S. might be able to avoid the kind of economic sclerosis that brought down the communist countries in Eastern Europe and that currently afflicts the rest of the democratic, industrialized world. American reformers can best view their enterprise as a smaller scale version of the transformations taking place in the former communist world. They must dismantle the elements of political control in the American system and allow market approaches to flourish.

Edward L. Hudgins

Emerging Issues in Financial Markets

Following a decade in which the debate over public policy toward financial markets has focused primarily on interstate branching, bank powers, and the S&L cleanup, a new agenda is beginning to emerge as a result of market changes and shifting priorities among policymakers. Shaping the new agenda is the decline of traditional banking and the rapid development of non-traditional alternatives. Among the more important manifestations are:

- A well-documented and fairly dramatic decline of traditional deposit-taking and lending activities by depository institutions. In just twenty years, the commercial banking industry's share of U.S. financial assets has gone from about 66 percent to less than 30 percent. Increasingly, borrowers are raising funds directly or indirectly through the securities markets and through finance companies.
- Explosive growth of mutual funds. Since 1980, mutual fund assets have grown at a compound annual rate of 22 percent and now total approximately $2 trillion—not much less than the $2.4 trillion of domestic deposits of US commercial banks.
- A broadening and deepening of the asset-backed securities market. There were $500 billion of new asset-backed securities last year. There is growing acceptance among issuers and investors for securities backed not just by mortgages, auto loans, and credit card receivables, but by assets such as commercial real estate, trade receivables, equipment leases, and even third world debt.
- Rapid development of the derivatives market and other risk management, trading and market-making activities in an environment in

which bank and nonbank dealers compete side-by-side while operating under sharply different legal and regulatory regimes.

The New Agenda

The irony is that the "debanking" of the U.S. economy is, in part, the result of public policy. Over the years, Congress established a legal and regulatory framework for financial services to meet certain public policy goals. These goals included protecting small savers, ensuring financial stability, facilitating the conduct of monetary policy, channeling credit to politically preferred areas, and providing under-served communities with access to financial services.

The framework, which was directed almost entirely toward depository institutions, contained the seeds of its own destruction since the associated regulatory burdens ultimately crippled banks' ability to compete as balance sheet intermediaries with other financial services providers. Other forces contributed to the debanking phenomenon, but the importance of public policy should not be underestimated.

The problem that policymakers are now forced to confront is: how can these goals be adapted to the new realities of the financial marketplace? Are there adequate protections for small savers who have shifted financial assets into uninsured products? Have financial crises become more or less likely? Do policymakers have appropriate tools for dealing with a financial crisis should one occur? What will be the role of banks in the future? How should government promote economic development and ensure access to financial services in distressed communities? Do nonbank financial services providers also have the responsibility to serve such communities?

These issues comprise the "new agenda" to which I referred. Although it is unlikely that significant legislation will be enacted anytime soon, Congress and the administration will ultimately have to deal with these issues because they are driven by fundamental changes in the financial system. The most important issues can be broken down into two groups: (1) safety net issues—i.e., deposit insurance, discount window access, and associated regulatory and supervisory safeguards; and (2) the social policy agenda—i.e., the applicability of CRA and related fair lending laws to banks and nonbanks.

The Safety Net

Commercial banks are subject to an elaborate federal regulatory and supervisory framework in exchange for deposit insurance and access to the discount window. Nonbanks are subject to more limited federal regulation and supervision, and in some cases, none at all, other than that applying to any publicly traded company. They have no deposit insurance; and their access to the discount window is more restricted, though recently liberalized.

There are two major problems with this system. First, regulatory burdens associated with the safety net are choking the banking system. Second, the current structure of the safety net, with its intense focus on the activities of depository institutions to the exclusion of activity conducted outside of banking, is simply not consistent with the new realities of the market.

Safety Net Burdens

For banks, the current regulatory environment is characterized by: (1) a rigid and distorting risk-based capital regime with mandatory penalties for noncompliance that has pushed banks toward operating at capital ratios close to those of uninsured lenders such as finance companies; (2) a relatively high cost of bank equity capital because of a restricted charter and limitations on bank affiliations and ownership structure; (3) significantly higher direct and indirect supervisory costs associated with deposit insurance; and (4) a reduced level of protection from the safety net for bank customers.

One illustration of the relative magnitude of supervisory costs for banks and nonbanks is that the SEC had only 214 staffers for its supervision of the mutual fund industry in 1992 compared to almost 21,000 staffers in the bank regulatory agencies for oversight of banks, thrifts, and credit unions. This amounted to a ratio of $8.9 billion in investment company assets per staff member, as compared to $150 million in bank, thrift, and credit union deposits per staff member.

As regulatory burdens have risen, the safety net has shrunk. The Federal Deposit Insurance Corporation (FDIC) Improvement Act of 1991 and a "depositor preference" provision enacted as part of the Budget Reconciliation Act in August 1993 have both reduced the federal pro-

tection bank customers gain from the safety net.

FDICIA prevents the FDIC from protecting uninsured deposits and other liabilities unless it is "least costly" to do so, and it prohibits the FDIC from protecting foreign branch deposits outright. There is a systemic risk exception to the least cost rule, but it would be difficult to invoke. FDICIA also limits the Fed's discretion to serve as lender of last resort to "undercapitalized" institutions.

The depositor preference provision stipulates that claims of the FDIC and uninsured depositors at domestic branches of U.S. banks have preference over other claims in a receivership. Hence, depositor preference transfers risk from the FDIC and uninsured depositors to general creditors, including derivatives counterparties. General creditors are now, in effect, responsible for the first portion of any loss arising from a bank failure.

These and other FDICIA-mandated changes have virtually removed all taxpayer exposure to the banking system, but their significance is not yet apparent to most people. Public concern remains high. Many people still view deposit insurance, and especially the "too-big-to-fail" doctrine, as a threat to taxpayers. From the banks' perspective, deposit insurance remains the key justification for a host of regulations that have crippled their ability to compete with other providers of financial services.

Hence, although public policy toward banking is predicated on the assumption that federal safety net provides a valuable subsidy to banks, in reality the safety net is now a net burden. The "credit enhancement" provided by safety net is no longer worth the price.

New Realities of the Market

The second problem referred to above is that the safety net has not been adapted to the new realities of the market.

Deposit insurance was established in the 1930s to protect small savers and to limit "contagious" runs on the banking system. As small savers have shifted from deposits to uninsured products, notably mutual funds, government has responded by shifting the focus of small-saver protection from deposit insurance to regulating the adequacy of customer disclosures—making sure that these new investors understand the risks.

Although this is a generally positive development, the disclosure regime has yet to be tested by a significant correction in the bond and/or stock markets, or by an event such as a money market mutual funds (MMMF) being forced to "break the buck"—that is, to lower the share price below $1. It is impossible to know how the vast number of new mutual fund investors would react to these types of events. But the potential exists for "contagious runs" and a market crisis similar in kind to those experienced in the 1930s, which ultimately led to the establishment of federal deposit insurance.

There are a number of possible mechanisms for dealing with such events without involving for the federal government. These range from privately-sponsored insurance pools for MMMF's to common liquidity pools for bond and stock funds. If there is a market crisis and an industry solution is not at hand, however, new regulations and closer federal oversight of the industry are virtually inevitable. Presumably, government policymakers have learned lessons from the nation's experience with deposit insurance and would be unlikely to want to replicate a government-sponsored insurance program for money market funds. However, it is easy to envision calls for such bank-like regulation as reserve requirements, suitability standards, limitations on investments, closer supervision, and other measures designed to protect small savers from financial risks.

In the wholesale markets, the increased importance of nonbank financial institutions in direct finance, trading, and market-making activities, both domestically and internationally, also raises questions about current safety net policies. Today, financial institutions such as Merrill Lynch, Goldman Sachs, AIG, and GE Capital are as deeply intertwined in the fabric of international financial markets as any large bank. If one of these institutions were to get into trouble, how would policymakers deal with the situation? Since the federal government's rescue of Continental Illinois in 1984, the presumption of many financial observers has been that it would be too disruptive to let a large bank fail—the "too big to fail" doctrine. Some still believe this to be the case. Whether they are right or wrong, it is hard to argue that the failure of any of the largest nonbank institutions listed above would be any less disruptive to financial markets than the failure of a large

bank.

In recent years, tremendous progress has been made in reducing the risks to the financial system from the failure of a major participant. The combination of FDICIA, progress in clarifying the legal status of netting arrangements in a number of countries, and recent improvements in domestic and international payments and clearing systems ~~have~~ has made it reasonable to contemplate unwinding a large institution, bank or nonbank, without triggering a major crisis.

Nonetheless, in a crisis, the government could decide that the failure of a large financial institution would pose "systemic risks" and therefore take extraordinary measures to save it. In this regard, the principal difference between banks and nonbanks is that, since FDICIA, there is an explicit mechanism for paying for a big bank bailout if the government decides to do so, i.e., a special assessment on the industry, while for nonbanks the general taxpayer would bear the cost. The general taxpayer is potentially at greater risk from the failure of a large nonbank than from the failure of a large bank.

In sum, safety net policies need to be rationalized and re-balanced to deal with financial change. The elaborate body of law and regulation that has evolved over the years to protect financial stability is overly focused on banks and their customers relative to nonbanks and their customers. It is not as well designed for dealing with threats to financial stability coming from outside the banking system as it is from threats from within the banking system.

The Social Policy Agenda

The Community Reinvestment Act (CRA) was enacted in 1977 to ensure that banks would meet the "convenience and needs" of their local communities. The key rationale for the law was that banks received substantial benefits from the government in the form of restrictions on entry into individual markets, ceilings on deposit interest rates, and access to the federal safety net. These benefits no longer exist today. Banks face fierce competition in virtually all markets; they pay market rates of interest on their deposit accounts; and the safety net, with its accompanying regulatory and supervisory apparatus, is now a net burden.

Nonetheless, policymakers in this administration and some on Capitol Hill remain interested in pursuing social policy objectives through the financial system since there is no money to pay for new social programs. They see CRA and related fair lending programs as a way to channel money into distressed communities and promote their development. Through the bank regulatory agencies, they have stepped up the pressure on banks to be responsive, and banks are clearly feeling the heat. The cost of complying with CRA and related fair lending laws has been increasing. At the same time, some administration officials, members of Congress, bankers and consumer groups are beginning to focus on nonbank financial institutions as a fresh source of community development funding. Increasingly in Washington, there are calls for the application of some type of community reinvestment law to these institutions.

Much has changed in the financial system since the enactment of CRA in 1977. In today's financial markets it would appear hard to justify the application of community reinvestment mandates to either banks or nonbank financial institutions based on the original legislative rationale for CRA, and it certainly no longer makes sense to single out banks for special community reinvestment obligations. Given the needs of some communities and the fiscal condition of government at all levels, however, pressures on financial institutions to participate in the development of needy communities will not diminish, and indeed, are likely to increase. As with access to the safety net, the steady erosion of the distinctions between banks and nonbanks suggests that we need to rationalize the social obligations of the financial services industry in the open and competitive marketplace that exists today.

The Need for a New Paradigm

In sum, the reshaping of financial markets that has taken place over the past decade or so requires the development of a new paradigm for the role of government in the financial system, one that is better equipped to deal with current realities. But what will the new paradigm look like? Will it mean more government involvement in financial markets or less?

At one extreme, the federal government has the option of regulating all financial market participants like banks. This is the position taken in a widely circulated paper entitled "The Parallel Banking System," published by the Economic

Policy Institute, a Democratic think tank with close connections to the Clinton administration. It argues that all financial firms should be subject to "uniform application of comparable reserve, capital, and liquidity requirements; comparable risk diversification standards and risk-weighing techniques; and limits on concentration and prohibitions against conflicts of interest and self-dealing...and system-wide compliance with CRA and other fair lending statutes."

This model for the future of government involvement in financial markets is receiving widespread attention in Washington. Although it is very unlikely that such a sweeping new regulatory regime would be adopted in a single stroke, it is not at all unlikely that public policy could gradually drift in this direction.

At the other extreme are proposals to limit government's role in financial markets by shrinking the safety net dramatically and by reducing regulation of financial market participants correspondingly. The most credible approach at this stage is some variant of the "core bank/wholesale bank" model, in which FDIC-insured deposits can be invested only in riskless or near-riskless assets, while all other financial activity takes place outside the protection of deposit insurance and without the elaborate system of regulation and supervision that accompanies it today. To deal with threats to financial stability coming from outside the core banking sector, this approach relies less on explicit or implicit guarantees of liabilities and more on the preservation of liquidity in the financial system via timely and appropriate central bank policies and on the continuing refinement of public and private mechanisms for dealing with market events such as the failure of a major participant.

There is significant support for the core bank approach to financial reform. This approach has been endorsed by the National Commission on Financial Institution Reform, Recovery, and Enforcement, a commission established by the 1989 legislation dealing with the S&L crisis. Respected academic economists and influential members of Congress have advocated similar approaches. The Securities Industry Association has endorsed a similar model. Bankers have opposed such proposals in the past, principally because they viewed them as a second-best solution to the problem of safety net reform. However, in comparison to the post-FDICIA, post-depositor preference status quo, enlightened bankers should be prepared to take a fresh look at such proposals.

Proponents of the core bank approach have generally not addressed the CRA problem. What sort of social responsibilities would be required of financial institutions operating essentially without federal protection? One could make a credible argument that CRA mandates should not apply at all, but this may not be politically realistic even in the current climate. An approach in the spirit of the core bank proposal, but one that bows to these political realities, would reform CRA by focusing on creating incentives for all types of financial institutions to promote community development, rather than mandating such performance.

There are many examples of government programs involving public-private partnerships designed to promote socially desirable forms of economic activity, e.g., small business development, home mortgage availability, international trade finance, agricultural lending, student lending, technology development, etc., which could be used as models for CRA reform legislation. Indeed, examined in the light of such programs, CRA appears to be relatively unique in mandating rather than providing incentives for such behavior. The objective of CRA reform legislation should be to encourage the private sector to embrace the goal of developing communities that desperately need to create jobs and build infrastructure.

It is perhaps too stark a contrast to pose "parallel banking" and "core banking" as the alternatives, but directionally at least this appears to be the case. Government policymaking toward financial institutions is at a turning point. How these issues get dealt with, and how quickly they get dealt with, will determine the future of banking and finance in this country for a long time to come.

Adopting the "core bank" approach would lead to changes in the financial system of a magnitude equal to the effect of the breakup of AT&T on the telecommunications market, and there may be a lesson to be learned from that experience. AT&T resisted efforts to dismantle its unique position in the telecommunications market, but in the end, the breakup gave it the freedom and flexibility to build new businesses in a fast-changing market.

By contrast, if the financial services industry does not work aggressively to limit government's role in financial markets via safety net and CRA reform, the natural tendency of government to extend its reach into financial markets in response to real or perceived financial crises and the desire to promote community development through mandates on private sector institutions will go unchecked. We are presently on a path toward the "parallel banking system" vision of the role of government in financial markets, not as an explicit objective of policy, but by default.

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The Unintended Consequences of Regulated Dyeing

In theory, governments regulate to carry out social policies and correct market failures. Regulations ought to minimize social costs and distortions in the marketplace while achieving those goals. At times, however, poorly understood government regulations manage to do just the opposite, creating great social costs while not even approaching the stated goal.

A particular case in point is the federal government's policy regarding the dyeing of diesel fuels. For different reasons, the Environmental Protection Agency (EPA) and the Internal Revenue Service (IRS) wanted to require diesel fuel to be dyed two different colors. Both organizations failed to assess the potential ramifications of their dyeing policies. Due to a lack of coordination, they created a rainbow of unintended consequences with the potential to cause tie-ups at airports, create distribution problems for high-sulfur diesel fuel, and damage the engines of machines forced to use the new low-sulfur diesel fuel.

The EPA wanted to reduce pollution by reducing the sulfur content of diesel fuel used on the road. On October 1, 1993, to implement the Clean Air Act Amendments of 1990, EPA mandated that high-sulfur diesel fuel—used off the road for agricultural equipment and as home heating oil—was to be dyed blue to distinguish it from low-sulfur diesel fuel, which was to remain undyed and used only on the road.

The IRS wanted to stop tax evasion. Effective January 1, 1994, to implement the Omnibus Budget Reconciliation Act of 1993, IRS mandated a dizzying array of different dyeing rules.

The basic idea was that fuel used on road was to be taxed; fuel used off-road was to be tax-exempt and dyed blue or red (depending on sulfur content). But exemptions and loopholes blurred the distinction:

- Red low-sulfur diesel fuel is tax-exempt, indicating off-road use. But local buses and government vehicles can use this dyed, tax-exempt fuel on the road.
- Clear diesel fuel, which is taxed, is also low-sulfur, so it is functionally the same as the red fuel. Most highway vehicles are supposed to use the clear fuel, but have an incentive to cheat and use the red fuel instead because it is untaxed.
- Blue high-sulfur diesel, which is less expensive, was to be taxed when commercial trains or boats used it, but not when used off-road by farmers in their tractors.

The dyeing schemes had a comic complexity, but the dangers they posed were deadly serious. For example, some small aircraft use aviation gasoline, which is also dyed red or blue. Thus, aviation gasoline could be confused with diesel fuel dyed the same colors—presenting potential safety problems, as the Federal Aviation Administration (FAA) pointed out in October 1993. But the FAA could have acted much earlier, since the regulations had been under development for more than two years.

The FAA was also concerned that the IRS would require dye concentrations high enough to cause a risk that dye from diesel fuel would bleed into jet fuel as it moved through pipelines. This, in turn, posed potential safety risks for commercial jets. Some airlines informed their suppliers that they would reject delivery of any jet fuel with even a hint of dye present, which promised to cause delays at airports.

A further problem was that the color of diesel fuel naturally varies, so adding red or blue dye to it can result in a rainbow of hues. When this was demonstrated with dyed samples of actual diesel fuel, a participant in the regulatory process immediately grasped the problem, wryly observing: "God goofed by not making enough primary colors."

Moreover, the high dye concentrations the IRS wanted to use—to prevent consumers from

evading taxes by cutting colored fuel with clear fuel—presented quality control problems. High concentrations of dye can compromise fuel quality, foul engines, clog fuel injectors, and make it impossible for pipelines to guarantee that the fuel they deliver is what it is supposed to be. None of those effects were analyzed seriously before the proposed regulations were issued.

The proposed regulations also imposed costs on distributors that in some cases proved prohibitive. To accommodate so many different colored fuels, a marketing terminal would need more than the one or two storage tanks that previously sufficed for diesel fuel. Faced with this, some terminals stopped carrying the full complement of diesel fuels. As a result, those entitled to use high-sulfur diesel fuel—but unable to get it—had to use more expensive low-sulfur diesel fuel instead.

Inadequate tank capacity also contributed to a lack of availability of low-sulfur kerosene to blend with diesel fuel last winter. The problem was exacerbated by the fact that diesel fuel performance standards are designed for a temperature of -5 degrees Fahrenheit, yet temperatures last winter ranged from -10 to -20 degrees Fahrenheit for prolonged periods.

There are three major lessons to be learned from this experience. The first, obviously, is that regulations should be promulgated only with due consideration of the subject of the regulation and the underlying science and economics of the system of which it is part. Many of the unintended consequences of dyeing diesel fuel could have been avoided, if the regulators had taken the time to understand the fuel-engine interface, the chemistry and chemical effects of diesel use, and the intricacies of the fuel marketing and pipeline system before issuing edicts.

The second lesson is that different government agencies should do a better job of coordinating and cooperating before regulations are issued. In the case of dyeing diesel fuel, the affected agencies—EPA, FAA and IRS—started talking to one another only after the fact and only after the Office of Management and Budget took the initiative to resolve the conflicting regulations.

The third lesson is that regulations should not be so complex that ordinary citizens cannot readily and easily comply with them. Having more variables than people can understand undermines the effectiveness of even the best-intentioned regulations. Trying to ensure regulatory compliance is one thing; a process that affects supplies of the very product that is being regulated—for example, low-sulfur diesel fuel in California in the fall of 1993—is clearly counterproductive. Dyeing fuel so many different colors also increased the risk that one type would be mistaken for another, which could have had dire safety consequences.

Many of the potentially absurd consequences of fuel-dyeing regulations could have been avoided if the people crafting the technologically complex regulations had firsthand knowledge of and experience in the industry. Regulators should set forth only the principles that are to guide such efforts. In working out the details, they should rely on the people who must actually implement the regulations—and are knowledgeable about unique industry and technological considerations.

In the end, the coordination that should have marked this process from the outset finally came about just days before the fuel-dyeing scheme was to be introduced. The EPA and the IRS agreed that beginning October 1, 1994 all tax-exempt diesel fuels would be dyed the same color red.

William F. O'Keefe
Executive Vice President
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Dioxin on Trial

In the film *One-Eyed Jacks*, Marlon Brando's outlaw character Johnny Rio asks the marshall if he'll get a fair trial. "Oh sure, kid, sure," answers the marshall soothingly. "You're gonna get a fair trial. And then I'm gonna hang you! Personally!"

In September, the EPA released its draft "reevaluation" on the health effects of dioxin. The report came 15 years after the agency first began restricting the use of compounds containing dioxin. It came a decade after the EPA called dioxin "one of the most perplexing and potentially dangerous chemicals to pollute the environment," and as *Science News* put it, "announced a comprehensive plan to do battle"

with it. Thus, one can't help but wonder if the report isn't a bit like Johnny Rio's planned "fair trial." A careful evaluation of the report indicates those suspicions to be correct.

While the 2,000 page draft report stops short of labeling dioxin a probable carcinogen, it does say that "Laboratory studies suggest the probability that exposure to dioxin-like compounds may be associated with other serious health effects including cancer," and estimates it could cause anywhere from one in 10,000 to one in 1,000 of current U.S. cancers.

The report added two new charges, saying there was now evidence to indicate that dioxin might be capable of affecting human children in the womb, and that it could compromise the functioning of the immune system at levels near those to which Americans are currently exposed. This was an important new twist, since many Americans reject the notion that the massive exposures which rodents receive in laboratory tests are predictive for human exposure at much lower levels. Predictably, it caught the media's attention, prompting such headlines as "EPA: Dioxin Exposure is Risky for People, Too."

Dioxin is never manufactured intentionally; it is a byproduct of now-discontinued herbicide production which is still produced whenever a chlorine source is subjected to high temperatures, for example, in waste incineration plants. Dioxin levels have steadily fallen over the last two decades. According to the EPA, average human daily intakes of TCDD, the type of dioxin with which everyone is concerned, are in the range of .3-.6 picograms per kilogram of body weight a day.

As one Ohio-area researcher put it, "That's the same as spreading one packet of Sweet and Low through 8,800 basketball arenas the size of St. John's in Columbus, Ohio." The EPA, however, estimates that when dioxin-related compounds, like PCBs, are added to the mix, this would multiply tenfold. That would make it 880 basketball arenas. If nothing else, the controversy over dioxin is truly a paean to the ability of modern science to detect low levels of chemicals.

The EPA says that of the known sources of dioxin, incineration accounts for about 95 percent. Accordingly, the agency has announced plans to reduce emissions from municipal incinerators by as much as 99 percent, and has said it will announce new restrictions on medical incinerators as well.

Regardless of how little is or will be produced, dioxin remains a bitterly attacked icon. For at stake are the reputations of environmentalists both within and without the EPA. The EPA will not gladly admit that it has wrongly pursued the chemical for more than fifteen years. For environmental groups, the stakes are just as large. Aside from DDT, they have so vilified no other chemical; even now dioxin is a cornerstone of Greenpeace's and other groups' efforts to ban all synthetic organochlorines on the basis of the organochlorine dioxin and a handful of other alleged "bad apples."

Thus, environmental groups eagerly embraced the draft report's findings, as did the media, with article titles like "Dioxin Pollution Risks 'Worse than Feared,'" "Toxicity of Times Beach 'No Longer in Doubt,'" and editorial titles like "Dioxin Scare is Real." But is it? An analysis of the cancer section of the EPA report indicates that if *One-Eyed Jacks* is remade, the EPA might want to try out for the role of the marshall.

Dioxin was first declared an outlaw in 1968, after tests on guinea pigs showed that it knocked them over like furry tenpins. Yet later tests showed that no animal had nearly the susceptibility of the poor guinea pig, including its close genetic cousin the hamster, which absorbed 5,000 times the amount of dioxin before succumbing.

Those studies, however, looked at acute toxicity or direct poisoning of the animals. What of cancer? According to the EPA draft report conclusion, "Laboratory studies [meaning essentially animal studies] suggest the probability that exposure to dioxin-like compounds may be associated with other serious health effects including cancer." But data in the body of the same report shows that such a pat conclusion is unwarranted.

One problem with the massive dose animal testing for cancer is that the animals may not predict for humans. This becomes all the more apparent when one discovers that 30 percent of the time rats don't predict for mice and vice-versa for cancer at any site, and that when looking at specific sites the number falls to only 50 percent—the same as tossing a coin. With such a huge disparity between such similar animals, it is legitimate to wonder if either or both of these animals predicts for humans.

The EPA report acknowledges that dioxin has

shown tremendous differences in its effect on various species, but brushes these concerns aside. "When comparing species and strains for their responses to these compounds, a wide range of sensitivity to TCDD-induced toxicities has been noted," it states. "Qualitatively speaking, however, almost every response can be produced in every species if the appropriate dose is administered."

Significant Association Between Occupational Exposure to TCDD and Cancer

	Cancer Type Reported				
Study	All Cancers	Lung	STS	Thyroid	Stomach
Fingerhut et al. 1991	+6	+1.6	+5	NR	-
Manz et al. 1991	+2	+1.2	-	NR	-
Saracci et al. 1991	-	-	-7	+	+
Zober et al. 1990	-3,+4	-	-	NR	-
Zober et al. 1994	-	-	-	NR	-

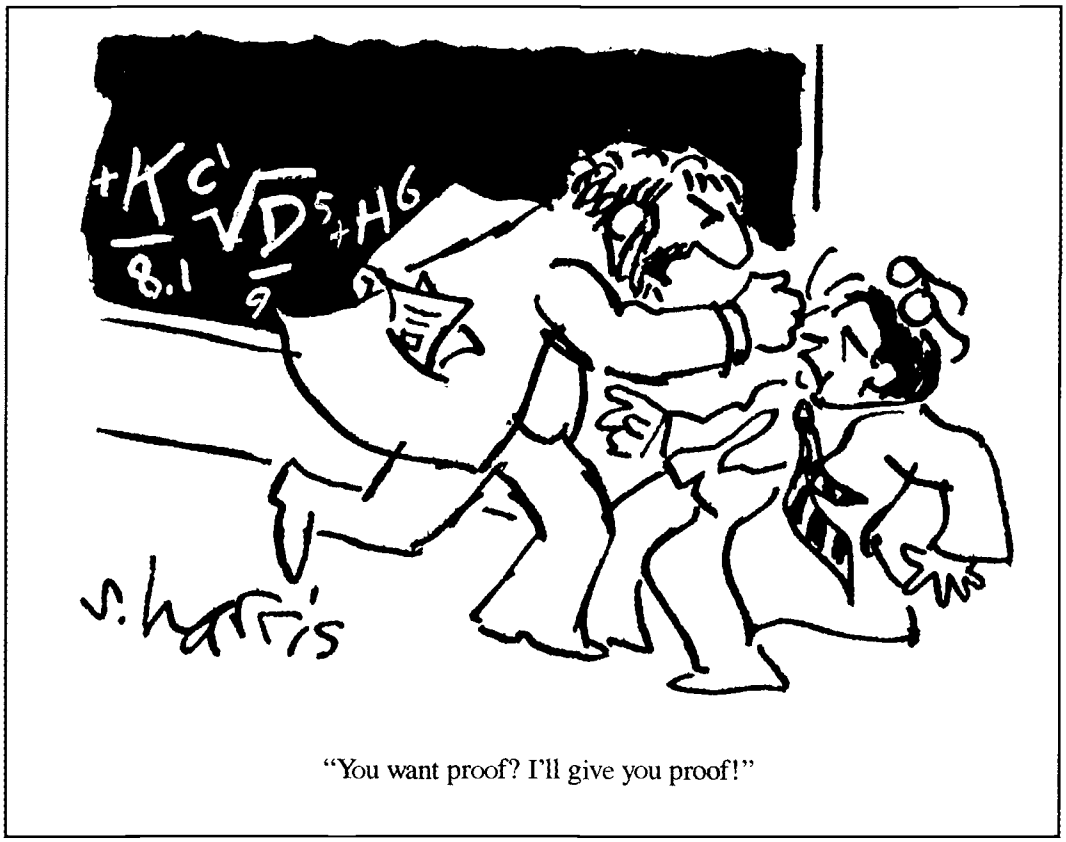
NR Not reported
1 Confounded by smoking and exposure to asbestos
2 Not significant with both comparison control groups
3 Three cohorts based on job description
4 Single cohort based on presence of chloracne or erythema
5 Cases only seen in 2 of 12 plants studied; significance questioned by authors
6 Only significant in 1 of 12 plants studied
7 Author's note concerning STS, "... compatible with a casual role for chlorophenoxy herbicides [which do not contain TCDD], though not specifically for those probably contaminated with TCDD."

This brings us to the second major problem with the testing of lab animals. All the EPA has shown in the preceding statement is the old dictum "the dose makes the poison." Practically anything in a large enough dose can be harmful or fatal, including that which in a smaller dose is absolutely vital. Humans cannot live without iron, but a single adult iron supplement pill may suffice to kill a human infant.

In maximum tolerated dose animal cancer studies, the animals are given doses averaging 380,000 times what a human being would normally take in during a lifetime. The assumption is that a chemical which causes cancer in a few animals out of a small group given massive doses will also cause cancer in tiny doses when spread across a huge population of humans. These are working theories which the EPA and some other risk regulation agencies have accepted, but have never been validated. Indeed, a database kept by biologists Lois Gold and Bruce Ames of the University of California at Berkeley reveals that fully half of all chemicals, both natural and synthetic, cause animal tumors when tested in this way. Clearly, a test that finds that half of everything causes cancer is of limited scientific value, even though it may be terrific for those who wish selectively to implicate as cancer-causing, specific chemicals or classes of chemicals. Thus, Frederica Perrera, professor of public health at Columbia University and a consultant to the Natural Resources Defense Council has written that "390 synthetic chemicals cause cancer," without noting that this was only in lab animals at massive doses, or that the natural chemicals caused cancer at the same rates. This is especially disturbing, considering that the EPA has put Perrera in charge of one of the two scientific panels that is "trying" dioxin.

To deal with the animal-to-human extrapolation problem, the EPA describes results from a broad range of animal tests, then declares, "Human data, while often limited in their ability to answer questions of hazard and risk, are generally consistent with the observations in animals." The EPA singles out and presents in a chart five of the animal cancer studies which it appears to believe are the best done, comprising two rat studies, two mouse studies, and one on hamsters.

Yet the EPA's own chart seems anything but consistent. Adrenal cortex tumors were elevated in both genders of one study's rats, but the rats in the other study showed no such elevations,



"You want proof? I'll give you proof!"

nor did any of the mice or the hamsters. Similarly, one set of rats had excess nasal turbinates/hard palate tumors in both genders, but none of the other animal sets did. The most common cancer elevation site is the liver, which is to be expected. According to Dr. Gold, rodent testing has shown repeatedly that mouse and rat livers are extraordinarily sensitive compared to human livers.

Nevertheless, there does seem to be on overall consistency. "It does appear to be an animal carcinogen at the doses tested," says Robert Golden, a toxicologist with Environmental Risk Sciences, a Washington firm that does consulting for the EPA and private industry. But, he adds, "They're claiming it's a multisite carcinogen, that it causes cancer everywhere, and that isn't confirmed by the animal data for all dioxin-like compounds." For such an allegedly potent carcinogen, he adds, "it's very paltry."

But is even this consistency repeated in the human studies? Since ethics forbid intentionally exposing humans to possible carcinogens, all the epidemiological studies concern persons accidentally exposed or routinely exposed in their jobs. The ones given the most attention are chemical workers exposed during an 1953 accident and its cleanup in Bremerhaven, Germany (studies by Zober and colleagues); workers exposed in Germany primarily during the early 1950s (studied by Manz and colleagues); Italians exposed during a chemical plant explosion near Seveso, Italy; herbicide manufacturers and applicators in 10 countries (studied by Saracci and colleagues), and Americans in herbicide factories, studied by Marilyn Fingerhut and colleagues. The statistically significant results from the latest of each of these groups is shown below. The Manz study has two columns, because Manz used two different groups of controls (unexposed persons), comprising either gas line workers or West Germans as a whole.

Notably missing is a completely negative study, that of the men in Operation Ranch Hand who sprayed Agent Orange in Vietnam. The EPA has essentially ignored this study, saying exposure levels were too low. It is true that average exposure levels were only about four times that of unexposed persons; on the other hand, some had 100 times the exposure of civilians.

The other study in the chart which has not been factored into the equation is Zober 1994, because it came out too late for the EPA evaluation. Instead, the EPA will rely on an earlier study of this same group which showed possible positive findings. Omitting the second, completely negative Zober study doesn't reflect an invidious omission, but rather an artificial cut-

off. It shows how flimsy the whole business is when a positive study can so quickly become a negative one. What does it tell us about the carcinogenicity of dioxin when these alleged effects appear and disappear like the smile of the Cheshire Cat?

Indeed, when the effects do appear, they are never more than slight. The EPA report admits that even in the 1990 study, which showed a positive cancer correlation, the most Zober and colleagues would say was that the results "do not support a strong association between cancer mortality and TCDD, but they do suggest that some hazard may have been produced." Within four years, event this had disappeared.

The Manz lung cancer finding also shows how precipitous the positive data are. In one grouping there is a positive finding; in the other there is not. But the number of cancers in the exposed group never changed, rather it was the cancers in the two different sets of controls that linked dioxin to lung cancer with one set but didn't with the other. Thus, the Manz study was not only inconsistent with Zober 1994, it was inconsistent with itself.

Golden derisively refers to dioxin as a "regional carcinogen." "If you're dealing with a real human carcinogen," he says, "the world doesn't work that way. One would expect some consistency from country to country, study to study, and from plant to plant."

The EPA also relies on studies of Swedish forestry sprayers done in the 1980s and 1990s. These studies likewise were used heavily by the Institute of Medicine in its highly publicized 1993 report finding that Agent Orange was a probable human carcinogen. But even more so than the above studies, the Swedish ones are fraught with inconsistency. Further, some classified individuals as exposed if on the job one day; but another study, conducted in New Zealand, found that it took such sprayers on average 180 months of exposure to work up to a significant bloodstream level of TCDD. Indeed, spot-testing of the Swedish workers found that among those self-described as "sprayers," the mean level of TCDD was two parts per trillion, while among non-sprayers it was three parts per trillion.

The study usually cited as the most comprehensive and the best for making the case for dioxin as a human carcinogen is Fingerhut's, conducted for the National Institute of Occupational Safety and Health (NIOSH). Indeed, it was this report that the EPA used to come up with its calculations on the possible number of cancers which dioxin causes. But Fingerhut expressly stated that her report was in conflict with positive findings for a specific type of cancer found elevated in two of the most often cited Swedish studies. These studies found an increase of non-Hodgkins lymphoma at a level a thousand times below that which caused no NHL in workers in the NIOSH study.

Indeed, from the way the EPA and other critics have presented her study, one would never know how guarded her conclusions really were. She writes, "This study of mortality among workers with occupational exposure to TCDD does not confirm the high relative risks reported for many cancers in previous studies. Conclusions about an increase in the risk of soft-tissue sarcoma (STS) are limited by small numbers and misclassification on death certificates. Excess mortality from all cancers combined, cancers of the respiratory tract, and soft-tissue sarcoma may result from exposure to TCDD, although we cannot exclude the possible contribution of factors such as smoking and occupational exposure to other chemicals."

This is hardly the smoking gun the EPA would have us believe. Further, exposure levels among the studied workers with significant elevations of cancer were so high—about 500 times the rate of non-workers, that Golden says one could concede a worst-case scenario and yet have no justification for the EPA's proposed drastic action to squeeze out what little dioxin continues to be emitted. He notes the low-exposure Fingerhut group had no cancer elevations, yet this exposure was probably still about 20 times higher than that to which Americans are still being exposed.

Yet the mere possibilities of increased cancer which the Fingerhut study raised have come under sharp criticism, most notably in a just-completed and as-yet unpublished study by Elizabeth Delzell and colleagues. It notes, for example, the interesting anomaly that the plant which accounted for most of the lung cancer cases accounted for none of the STS cases which "suggest[s] that [STS] and lung cancer have different causes in this study cohort."

Further, she noted, as have others before her, that "TCDD-exposed subjects with chloracne who were not exposed to p-aminobiphenyl had

no increase in STS." P-aminobiphenyl is a known human carcinogen which has been out of production since concerns were raised in the 1950s. As for chloracne, since it is a known reaction to high levels of dioxin, it serves as something of a surrogate for exposure. Thus those with this market for high exposure nonetheless did not develop STS unless they had already been exposed to not a suspected carcinogen but a known one, the p-aminobiphenyl.

Fingerhut also found 40 percent more lung cancers than would be expected among those exposed more than one year and with a twenty-year latency period. But according to Michael Gough, author of *Dioxin, Agent Orange* and program manager of biological applications at the congressional Office of Technology Assessment, "The smoking control is terrible." He explains that Fingerhut gathered smoking information from only two of the 12 plants and extrapolated to the others, and that the smoking data was from the late 1980s, "but these guys [the positive findings in the Fingerhut study] were dying from the 1970s. If those workers were the same as everyone else in the country, smoking levels in the plant in the 1950s were much higher than in the late 1980s and I don't know how you could [use as a control group those] with contemporary smoking habits."

Delzell and colleagues also noted that, "At one plant that accounted for 67 percent of the lung cancer excess, workers not involved in producing TCDD-contaminated products had [an increase] for this cancer; in contrast, production workers with the greatest potential for regular TCDD exposure had no increase." In other words, both sides of this coin "indicate that the cancer excesses among TCDD-exposed workers may be due to factors other than TCDD, including occupational exposures, chance, or smoking."

Other occupational exposures? Remarkably, one appears to be one of the most powerful causes of lung cancer known—asbestos. Fingerhut reported two cases of mesothelioma without specifying in which plants they occurred. Mesothelioma, a cancer of the lining of the lung, is associated almost exclusively with asbestos exposure. If you're finding asbestos-caused mesothelioma," says Gough, "you're practically guaranteeing asbestos-caused lung cancers."

Says Golden, "If you take into account the inadequate smoking adjustment plus the fact that there was asbestos around, you've got the most powerful interaction known between two carcinogens to explain the excess of lung cancer."

According to one researcher who specializes in dioxin and has sat on EPA advisory panels, it is the very weakness of the EPA's longstanding position on dioxin as a human carcinogen that led to its attempt to brand it as a possible cause of birth defects and an immune-suppressant. "My personal belief is that the EPA found itself in a corner and was lucky the birth defect stuff in the mice showed up," he said. But, added the researcher, who requested anonymity, that evidence is just as weak.

He says he would advise the EPA to "not tell the scientific community [the draft dioxin report] is based on science. Say it's based on policy and science be damned."

"My concern," he said, "is the EPA is going to end up being a laughingstock of a good part of the world, and that bothers me."

Michael Fumento

Sorry About That.

You might have noticed an inordinate number of typographical and other errors in the last issue of *Regulation*. The version that was sent to the printers was not the one that had been properly proofed. We are committed to maintaining the production quality of our product as well as the intellectual quality of our articles. We apologize for the errors and will strive to avoid such problems in the future.