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REGULATION was first published in July 1977 "because the extension of regulation is piecemeal, the sources and targets diverse, the language complex and often opaque, and the volume overwhelming."

REGULATION is devoted to analyzing the implications of government regulatory policy and its effects on our public and private endeavors.

## Determining Workplace Regulation's Cost

In a previous letter ("A Second Look at Regulation's Cost," Summer 2004), S. Kovitch criticized a study we conducted that estimated the cost of federal workplace regulations on U.S. manufacturers. According to Kovitch, our derived cost figures "are highly questionable," in part because we developed our estimate from a survey of manufacturing firms. The response rate on the survey was about 3 percent on the 3,000 surveys that were sent out, which Kovitch claimed "is an extremely low response rate and calls into question the reliability of the results."

Estimates of the cost of workplace regulations from the relevant federal oversight agencies are woefully inadequate, basically taking the stance that most of the associated costs are "inestimable." The absence of even crude approximations led us to try a novel approach in an attempt to measure those costs. In cooperation with the Human Resources Committee of the National Association of Manufacturers, we designed a survey instrument to gauge the costs of the 25 major federal workplace regulations.

The underlying data we were seeking required extensive information about the resources companies devote to complying with workplace regulations: capital outlays, personnel time, record keeping, legal expenses, and so on. Those data requirements meant that completing the survey itself was a time-consuming, burdensome activity, and that naturally limited the response rate.

The 3 percent response rate is not uncommon or unexpected, given the broad swath of technical information we asked of survey respondents. We accepted that trade-off in order to get comprehensive and useful information on the firms' compliance activities. The response rate for a complex survey such as this is typically low, and it is common practice to create models off of

limited data. We should note that we opted for an aggregate estimate on the low end of the scale, given other possible ways we might have made the extrapolation. Even by this low-end estimate, compliance costs for workplace regulations are substantially higher than the estimates previously available.

We make no claims that our results are the final word, or that additional work is unnecessary to gauge the real costs of workplace regulations. The cogent question or so it seems to us and others involved in the survey is whether the findings in the end push back the bounds of ignorance. Do we now know more about the costs of workplace regulations than we did before the survey and our subsequent analysis of the results?

Kovitch also argued that our study "mistakenly includes a large state-based program" — workers' compensation — in the analysis, and that this inflates the per-employee cost estimate "by several hundred dollars." We included workers' compensation following the guidance of the U.S. General Accounting Office, which attributes this program to the federal Unemployment Compensation Act, even though it is indeed administered in large part by the individual states.

Other findings from the survey, ones not referenced by the letter writer, seem at least as important as the two targets of his critique. The survey findings provide a critical ordering of the relative burden of the 25 federal regulations, and the relative burden placed on firms of difference sizes. The potential sampling issues Kovitch raises do not affect those relative burdens.

Concerns about the international competitiveness of U.S. manufacturers and the relative decline in jobs in this crucial sector of the economy are much in evidence in academic and political circles. The impact of fiscal and regulatory policies on domestic manufacturing firms deserves a central place in this debate. Workplace regulations are obviously one of the most pervasive policies in this regard, yet policymakers have stunningly little information about those costs and their consequences.

We place our estimates of that burden on the table and welcome others to offer new and improved data.

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## A Second Look at the Real Oil Problem

I must respond to the misconceptions and incomplete analysis in the recent article by M.A. Adelman (“The Real Oil Problem,” Spring 2004). The author claims to address “The Real Oil Problem,” but as I will show below, he does not.

**“Running out of oil”** In two paragraph headings and in several sentences, the author uses the phrase “running out of oil” in his description and condemnation of erroneous “conventional (oil) wisdom.” This is apparently a fundamental misconception of “The Real Oil Problem” by the author.

Those who have raised concerns about the world’s future oil supplies do not predict that the world is “running out of oil” in the near future. To the contrary, they claim that when the world’s crude oil suppliers have extracted approximately half of the world’s total recoverable reserves, the world’s oil suppliers’ capability to extract crude oil will reach a maximum and then begin a steady decline while the remaining half of the recoverable oil is extracted. Figure 1 illustrates this oil extraction characteristic for the United States.

To paraphrase Dr. Adelman, “To understand this, one needs a quick course in oil extraction.” Figure 1’s “bell shaped” characteristic of unrestricted oil extraction rates vs. time for a large geographic region is the result of:

■ the time distribution of

the oil discoveries in the region,

■ the variation in individual well production start times, and

■ variations in geophysical conditions affecting extraction rates and total production of each individual well

The author notes, “Output (of oil) in the Appalachian United States had peaked by 1900, and output in Texas peaked in 1972” (and, as Figure 1 shows, U.S. output peaked in 1970). However, the author continues in the next sentence with, “But the “running out” vision never works globally.” If the author is using the term “running out” here to mean “peaking,” why should an individual state, region, or country be subjected to oil production peaking, but not the world? If, instead, the author is using the term “running out” to mean “depletion,” then the sentence refers to an event of little consequence that will occur many years after the peaking of oil production.

The only support for the author’s ambiguous statement is a recounting of the growth in reserves in non-OPEC countries between 1970 and 2003, in spite of their production of 460 billion barrels during those years. The obvious explanation is that those countries were continuing to find new oil reserves or inflating reserve estimates — or both — faster than they were producing oil for most of that period. Worldwide annual oil consumption exceeded annual discover-

ies around 1980. Today, the world is producing and consuming roughly four barrels of oil for every barrel of new oil discovered.

**Is peaking the Real Oil Problem?** Many petroleum geologists are forecasting that this peak will occur within the next 10 years. After the “production peak,” oil prices will rise to adjust to demand, to equal the insufficient supply. When it becomes apparent that this price rise will continue until alternatives to oil become available, the impact on world economies may be severe.

In the best tradition of most economists who have written about the “oil problem,” Prof. Adelman refers to the many erroneous prior predictions that the world’s “supply of oil would soon run out. The alarm has been sounded in many decades since.” Yes, there have been many incorrect predictions of oil depletion by petroleum geologists throughout the years. However, the author neglects mentioning M. King Hubbert’s successful 1956 prediction that US-48 crude oil production would peak between 1966 and 1972, using a new method for such predictions. The peak occurred in 1970. This same successful method is the basis for many of the current world oil-peak forecasts.

A recounting here of some of the incorrect economic forecasts made by economists during the same period would not provide any support to the criticisms offered here nor enhance the readers’ understanding of the issues involved.

**New oil reserves?** Adelman asks, “Worldwide, is it getting harder and more expensive to find new deposits and develop them into reserves?” He answers this question with, “If the cost of finding and developing new reserves were increasing, the value per barrel of already-developed reserves would rise with it. Over the period 1982–2002, we found no sign of that.”

This seems to me to be an unnecessarily indirect way of determining the answer to the question. Surely, the price a buyer of developed oil reserves is willing to pay must depend on both the recent price of oil as well as the buyer’s

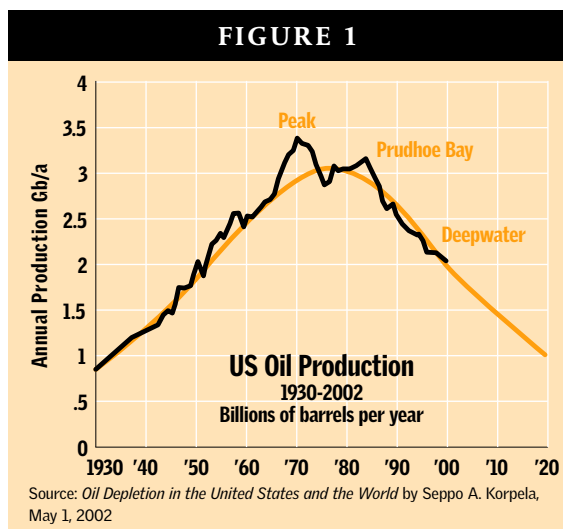
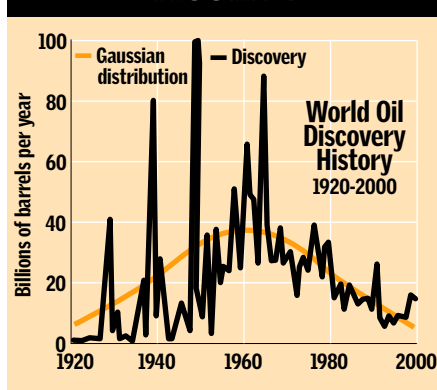


FIGURE 2



best guess at the future price of oil. During the 1986–2000 time period, the price of oil was fairly stable, fluctuating between \$12 and \$20 per barrel. This price stability was reflected in the stability of price paid for developed reserves.

Why not use more direct methods of answering the question posed? A simple plot of the rate of new discoveries worldwide might offer some insight. Figure 2 shows the trend in worldwide oil discoveries from 1920 to 2000. Worldwide discoveries peaked around 1960. Before 1960, a number of very large fields were discovered. After 1960, the sizes of the discoveries fell drastically. The long-term trend in discoveries is not indicative of easy future discoveries.

Another source for the trend in discoveries is provided in *Petroleum Review* magazine. This magazine provides an annual summary of major new oil field discoveries worldwide and a forecast of when new production will be coming on line. In the January 2004 issue, an article entitled “Oil Mega Projects 2004” offers additional insight into the difficulty of finding future discoveries. The article states, “Although it is too early to be wholly certain, there is mounting evidence that the discovery rate of major oil fields with reserves of over 500 million barrels of oil equivalent has fallen drastically in recent years.” There were 16 of those discoveries worldwide in 2000, eight in 2001, three in 2002, and none in 2003. Since it takes about six years to bring new discoveries such as these “on line,” the article concludes, “the volume of new production for this period (i.e.

beyond 2006) are well below likely requirements.”

Both the long-term trend and the near-term evidence indicate that the discovery of significant oil reserves is becoming much more difficult. Perhaps the reason for the absence of price increases for developed oil reserves is the result of the incorrect optimistic forecasts provided by many economists?

**New technologies** Recent developments in oil extraction technology have been very impressive, but how much of an increase in oil production are they likely to provide? Adelman provides no estimate of the amount of oil likely to be added to reserves by new technology, nor asked oil production experts to provide such an estimate. He infers that no estimate is possible because there is no way to predict future science and technology.

### Given the consequences of a significantly reduced supply of oil, is it wise to put that much faith in new technology?

However, Adelman notes, “In 1950, there was no offshore oil production; some 25 years later, offshore wells were being drilled in water 1,000 feet deep. And 25 years after that, oilmen were drilling in water 10,000 feet deep.” In addition to pointing out the extent of the progress in oil technology, this quote also provides evidence of the amount of time it takes to introduce such major advances in technology. If the geologists are right about the world peak in oil production being less than 10 years away, there is relatively little new technology that can be brought to bear on increasing the amount of new oil that can be extracted from existing wells or from new, difficult-to-reach locations.

Add to that the relative insensitivity of the timing of the production peak to increases in oil reserves, and it is apparent that new technology cannot materially delay the peak of production. Whether new technology can even arrive in time to reverse the downward slide in world oil production after the

peak may be unknown and unknowable. Given the economic consequences of a significantly reduced supply of oil, is it wise to put that much faith in new technology?

Has there been any concurrence from those who design, develop, and use the new technology that it has a chance of supplying the required increases in production needed in the future?

**The “Oil Weapon”** Adelman argues that “it is fairly easy to reroute shipments of oil from nations that have a sufficient supply to nations that are experiencing shortages.” He therefore concludes, “In a world market, a seller cannot isolate any customer and a customer cannot isolate any supplier.” In addition, he writes, “the OPEC nations remain as dependent on selling oil as ever” because they have “little but oil income.” Thus, he says, “there is no such thing as an ‘oil weapon’” and

“it does not matter how much oil is produced domestically and how much is imported.” Further, Adelman concludes that “direct or indirect spending to reduce imports is a waste of resources” and “public outlays for energy development are a waste.”

Wisdom doesn’t come any more “unconventional” than that! But what if this “wisdom” is incorrect? For example, suppose:

- Demand for oil increases because of the accelerating industrialization of China, India, and other countries with the result that full output from the Middle East is required to meet demand,
- The predicted worldwide oil production peak occurs on schedule before 2014,
- Most of the large oil reserves of the Middle East fall into the hands of governments who choose not to act in their nations’ economic self-interest but in the interests of their common goals, objectives, and religious beliefs,
- Those nations instead act jointly to further their common cause by inflicting hardship on the developed nations

through massive reductions in oil production and exports in spite of the economic hardship that this reduction would bring on their own citizens,

– or –

- Those nations become unable to maintain the integrity of their oil production systems because of civil unrest and/or organized terrorism resulting in large reductions of oil exports.

Counting on the nations on whom we will depend heavily for future oil imports to always act rationally and in their own economic self interest to maintain high levels of oil exports is not acting in our self interest. There may not be an “oil weapon” of the kind Adelman describes, but there certainly will be an “oil peak” compounded by “oil-import uncertainty.” Becoming less dependent on oil imports will be necessary eventually. Why not accelerate the development of alternatives to oil as insurance agent against unexpected disruption in our imports?

**Conclusion** In summary, Dr. Adelman asks the reader to believe and act on the following:

- Although regions and countries do experience oil production peaks beyond which production falls continuously, the world does not.

- New supplies of oil will continue to be found that are sufficient to meet worldwide demand for many years, in spite of growing evidence to the contrary.

- New technologies will increase production from existing fields, but the timing and quantities are unknowable — yet those developments will be adequate to meet future demand.

- Middle Eastern nations will continue to supply the rest of the world with the oil it needs because they will always act in their own economic self interest and successfully protect their production facilities from disruption by extremists and those with different political priorities. Therefore, any effort to develop alternative energy

sources is unnecessary and wasteful.

- Dissenting opinions by expert petroleum geologists should be ignored because economic incentives will provide sufficient world oil supplies for the foreseeable future.

- Unlike geologists, economists are never wrong when assessing the adequacy of the future supply of oil.

I do not agree with any of the above conclusions for the reasons provided previously

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## The Prescription Monopoly

In a recent article (“Who Certifies Off-Label?” Summer 2004), professors Daniel Klein and Alexander Tabarrok report the apparently contradictory result of their poll indicating that the majority of pre-

scribing physicians oppose increasing regulations respecting off-label prescriptions, but approve of regulations respecting safety and efficacy of initial, on-label uses of prescription medicines.

The answer to this riddle may lie within the incentives physicians face as members of a monopolist professional class. Physicians’ monopoly over prescribing drugs is a privilege for which their predecessors struggled. One would hope that they would take upon themselves the responsibility of regulating and managing appropriate prescribing.

This would perhaps take place through medical associations forming non-profit testing laboratories, funded partly through levies on their members and partly by fees paid by drug makers seeking certification.

Currently, such certification is provided by the FDA, paid partly by drug makers and partly by taxpayers. Thus, physicians have been able to socialize (most of) the costs, while privatizing the gains, of their privileged position.

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