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DECONSTRUCTING CRAIN AND CRAIN

Estimated cost of OSHA regulations is way off base

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In current discussions of Occupational Safety and Health Act regulations, regulatory opponents sometimes cite a finding that occupational safety and health rules cost $65 billion a year (in 2009 dollars). This figure comes from a study by Nicole V. Crain and W. Mark Crain (Crain and Crain 2010, 29-31) conducted for the Small Business Administration's Office of Advocacy. The chairman of the Council of Economic Advisers (Goolsbee 2011), the Center for Progressive Reform, the Congressional Research Service (2011), and the Economic Policy Institute (Irons and Green 2011) have all found major flaws in the Crain and Crain study, but regulatory critics still cite its findings when arguing that workplace safety and health regulation is excessive. Essentially all of Crain and Crain's occupational safety and health estimate comes from a study by Joseph M. Johnson (2005), which estimated the cost of occupational safety and health regulations issued through 2000. The figures in the Johnson study ultimately rely, in turn, on estimates from a now unavailable National Association of Manufacturers survey conducted in 1974.

There are several fundamental problems with the $65 billion estimate of the cost of occupational safety and health regulations which make it unreliable and significantly overstated:

- The only reliable part of Crain and Crain's estimate is for the the cost of OSHA regulations from 2001 to 2008. But just $471 million—or less than one percent—of Crain and Crain's estimate reflects the costs of major OSHA regulations enacted over that period.
- The Crain and Crain estimate is based in great part on a 2005 study that uses unreliable, methodologically inconsistent estimates of major regulations adopted two to four decades ago—estimates which do not adequately account for changes in production practices or adaptations made to adjust to the regulations.
- The 2005 study that serves as the major basis of the estimate also double counts fines and vastly overestimates the costs of minor regulations pre-2000 by using a multiplier pulled from a 1996 study based on a 1974 National Association of Manufacturers' survey of unknown and unknowable quality. This faulty multiplier assumes that in combination minor regulations cost far more than major regulations when in fact they cost less.

Actual costs of recent OSHA regulations are extremely modest

The most recent Office of Management and Budget report on the costs of regulation calculates the combined annual cost of major OSHA regulations adopted in the 10-year period from fiscal 2001 through fiscal 2010 to be $500 million in 2001 dollars (OMB 2011, 14). Crain and Crain, appropriately, rely on similar OMB data to estimate that major OSHA rules adopted from 2001 through 2008 cost a combined $471 million in 2009 dollars. But that $471 million figure accounts for less than one percent of Crain and Crain's overall annual cost estimate of $65 billion for all occupational safety and health rules.

The $64 billion estimate for pre-2001 regulations includes outdated estimates of major regulations

More than 99 percent of the costs Crain and Crain use for occupational safety and health regulations reflect an estimate of the cost of compliance with regulations adopted in the 1970s, 1980s, and 1990s. But businesses have long since adjusted to the regulations with whatever operational changes were necessary.

Moreover, cost estimates of impending regulations made more than 10 years ago are unreliable. Indeed, this is why OMB's annual report to Congress on the cost of regulations includes only aggregate cost information for the previous 10 years. As OMB stated in its 2008 report to Congress (the last report issued under the Bush administration), "OMB has chosen a ten-year period for aggregation because pre-regulation estimates prepared for rules adopted more than ten years ago are of questionable relevance today " (OMB 2008, 4-5).

For one thing, earlier studies were not prepared using consistent methodology, leading OMB to adopt best practice guidance in 2004 to improve the quality and consistency of the government's cost-benefit analyses (OMB 2004, 27). OMB explains the genesis of the new guidelines in its 2008 report to Congress:

> *OMB discusses, in this report and in previous reports, the difficulty of estimating and aggregating the benefits and costs of different regulations over long time periods and across many agencies using different methodologies. Any aggregation involves the assemblage of benefit and cost estimates that are not strictly comparable. In part to address this issue, the 2003 Report included OMB's new regulatory analysis guidance, OMB Circular A-4, that took effect on January 1, 2004 for proposed rules and January 1, 2005 for final rules. The guidance recommends what OMB defines as "best practices" in regulatory analysis, with a goal of strengthening the role of science, engineering, and economics in rulemaking. The overall goal of this guidance is a more competent and credible regulatory process and a more consistent regulatory environment.*

Also of importance, cost (and benefit) estimates of regulations adopted two, three, or four decades ago cannot adequately account for changes in production practices or other economic shifts that affect the cost of a rule. In particular, with each passing year, original cost and benefit estimates lose relevance as workplaces adopt new technologies and change their standard operating procedures.

As noted, Crain and Crain rely on an estimate by Johnson for occupational safety and health regulations through 2000. Crain and Crain adjust this estimate to 2009 dollars, and state that it equals $64.3 billion. The Johnson estimate itself includes some costs for regulations issued due to the Mine Safety and Health Act, as well as, to a much lesser degree, regulations issued due to the Drug Free Workplace and Omnibus Transportation Employee Testing acts. But the bulk of Johnson's estimate (84 percent or $54.2 billion) is based on his calculation of the costs of OSHA regulations.

Johnson starts his calculation by compiling the list of major rules issued by the Occupational Safety and Health Administration from 1972 through 2000. He then uses the agency's own regulatory estimates to assign costs, tabulating the almost three decades of rules together (an approach OMB cautions against, as discussed above). Johnson indicates that he relies on agency estimates of the costs of the rules before they took effect. But these cost estimates can be overstated because, as a report by the Office of Technology Assessment found in 1995, they fail to account for technological innovations that might drive costs down (OTA 1995). OTA based

its caveats on a review of OSHA rulemaking that found that the agency had overestimated the costs of the two costliest rules —those relating to vinyl chloride and cotton dust—by a factor of three to four.

Nonetheless, Johnson states that his estimate is an "extreme lower bound" since it ignores smaller regulations as well as indirect compliance costs.

The modest costs of OSHA fines and minor regulations do not justify applying a 5.5 multiplier

To estimate the overall cost of pre-2001 OSHA regulations, Johnson applies a multiplier of 5.5 to his tabulation of the costs of major OSHA rules. This multiplier is drawn from a 1996 study by Harvey S. James, Jr., that helps account for "fines for violations and the costs of the many non-major regulations for which no cost estimates exist," Johnson writes. As discussed later, the multiplier used by the James study was based on a no longer available 1974 study by the National Association of Manufacturers.

It is far from clear that it is appropriate to include fines in regulatory cost estimates. As a study for the Center for Progressive Reform notes regarding Crain and Crain's regulatory cost estimate, "We see no justification for counting the [OSHA] fines that companies pay for violating regulatory standards as regulatory costs. Instead, these are the costs of choosing to break the law. That is, the fines would never have occurred if the firms had not chosen to disobey the law. Under this logic, mass law-breaking raises regulatory costs, enabling regulatory opponents to argue that we need to reduce regulation because of these high regulatory costs" (Shapiro, Ruttenberg, and Goodwin 2011, 9). Furthermore, because federal agency estimates of compliance costs assume all firms make the necessary investments to comply 100% with new rules, it would be double-counting to include the costs of fines.

But even if an argument could be made for counting the fines, their cost is modest. OSHA data for 2000 (Siskind 2002), the year for which Johnson made his calculation, indicated that fines issued amounted to only about two percent of Johnson's estimate of the direct compliance costs of major rules. Furthermore, a large share of fines issued is ultimately not paid. In 2000, for example, firms paid only $62,315,300 out of $135,264,561 in assessed penalties. In short, fines should have a negligible effect on a multiplier.

This means that Johnson's logic for using a large multiplier depends on the likelihood that the compliance costs of minor OSHA regulations dramatically exceed the compliance costs of major OSHA regulations. While minor OSHA regulations certainly have compliance costs, these costs are relatively modest.

During the fourth year of President George W. Bush's first term, OMB's annual regulatory report to Congress examined the extent to which the exclusion of non-major rules understates the overall costs and benefits of regulations. For OSHA rules, OMB relied on the Occupational Safety and Health Administration's analysis of the cost of the 59 rules it issued from 1976 to 2002. OMB found that 87% of the overall cost of these rules derived from the 17 major rules issued (OMB 2004). The 42 minor rules contributed to just 13% of the total cost. This implies a multiplier of just 1.15 to take into account minor regulations.

So where does the 5.5 come from?

The above information suggests, at face value, that a multiplier of 5.5 to account for fines and minor rules is completely unjustified. When the lineage of the multiplier is examined, its use becomes even more questionable.

As mentioned, Johnson uses a 5.5 multiplier, which comes from a paper by Harvey S. James, Jr. (James 1996). James first compiled the costs of 25 major OSHA regulations in 1994, based on individual cost estimates. He then said that since many OSHA regulations were excluded from his list, his calculation for all OSHA regulation needed to be adjusted upwards. One approach he then used was to multiply his figure by a factor of 5.55 based on compliance cost estimates in an unpublished 1974 survey by the National Association of Manufacturers. (James did not cite the NAM study directly; instead, he cited a 1976 study by a researcher at the American Enterprise Institute (Smith 1976) that summarized the NAM study). The 5.55 figure reflects the ratio between the average compliance costs for small firms in the NAM study to the average compliance costs for manufacturing firms based on James' tally of the costs of 25 major OSHA regulations.

For several reasons, it is deeply troubling that the ultimate basis of most of the Crain and Crain estimate of the costs of occupational safety and health regulations is a NAM survey from 1974, of unknown and unknowable quality. The Economic Policy Institute tried unsuccessfully to get a copy of the NAM study, including by contacting NAM directly. The archives center at NAM was unable to find it. The authors of the Center for Progressive Reform report, who also made an unsuccessful attempt to locate the NAM study, observed, "Because the report is unavailable it cannot be checked for accuracy" (Shapiro, Ruttenberg, and Goodwin 2011, 9).

First, this inability to review the study is particularly worrisome because of NAM's predisposition to oppose regulations, and thus the potential that its survey would be tilted towards finding large compliance costs.[1]

Second, Crain and Crain's reliance on a 1974 analysis to capture the relationship between OSHA rules and compliance costs through 2009 is troubling. Presumably, how businesses respond to OSHA regulations has changed over time, in part because the nature of these regulations has changed over time.

Third, the 1974 study is the basis for a nonsensical and tautological "adjustment" method used by James; no matter what costs James found for the 25 major rules, he would have found the same overall costs for OSHA regulations in 1993, with the overall cost figure determined by the costs to small firms found by the 1974 NAM study. James' tabulation of the 25 rules produced a cost estimate of $6 billion or $6,305 per manufacturing firm. The average NAM estimate of the cost of compliance for small firms was $35,000. The ratio of the NAM costs to the James major regulation estimate is 5.55; James multiplied his own $6 billion cost estimate by 5.55 to produce a total OSHA compliance cost estimate of about $33 billion in 1993 dollars.

But what if James had found that the compliance costs for the 25 major rules had amounted to half as much ($3 billion or $3,150 per firm)? Then he would have compared the NAM estimate of costs to small firms to his major rule estimate and found a ratio of 11.1 ($35,000/$3,150 = 11.1); applying this multiplier to the $3 billion in costs would again yield a total cost estimate of about $33 billion.

Johnson's application of the James methodology thus also produces the absurd result that the lower the costs of major regulations in 1993, the higher the cost estimate for all regulations found by Johnson (and used by Crain and Crain).[2]

Conclusion

The combined annual compliance cost of major OSHA rules adopted over the past 10 years is about a half billion dollars. Although the agency was significantly more active in preceding decades, yielding both higher compliance costs and benefits, Crain and Crain's estimate of $64 billion a year in combined annual compliance costs of all occupational safety and health rules prior to 2001 does not come close to withstanding scrutiny.

First, the aggregation of costs from earlier regulations is problematic, according to OMB reports during Republican and Democratic administrations alike; in the years since adoption of these earlier rules, necessary economic adjustments have been made and maturing business practices have likely negated much of the costs.

Second, the $64 billion cost estimate for occupational safety and health rules prior to 2001 reflects the application of a 5.5 multiplier to account for the cost of fines and minor rules. A review of the actual modest levels of fines and a government estimate of the modest costs of minor OSHA regulations suggests that a multiplier of this magnitude is entirely unjustified.

Third, the lineage of the Crain and Crain estimate traces back to a 1974 study by the National Association of Manufacturers. It is not sensible to base an assessment of Occupational Safety and Health Administration policies today on a 37-year-old, unavailable report by a group predisposed to oppose regulations. Indeed, the NAM study is applied in a tautological fashion that produces absurd, counterintuitive results.

Endnotes

1. It is also the case that accurate surveys of compliance costs are notoriously difficult to conduct. Firms do not generally have, for example, budget items labeled "OSHA compliance." Small firms generally do not even have budget items labeled "occupational safety and health." Estimates are necessarily a matter of guesswork, and the answers depend critically upon the the exact wording of the survey questions.
2. Continuing the above hypothetical scenario, if James had found lower costs for major regulations in 1993 consistent with needing a multiplier of 11.1, Johnson would have found all OSHA regulation costs to be twice as large in 2000 as he did. This is because the multiplier Johnson applied would have been twice as large (11.1 versus 5.55).

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