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PUBLIC INTEREST COMMENT

PASSENGER SCREENING USING ADVANCED IMAGING TECHNOLOGY
Docket No. TSA–2013–0004

By Todd M. Nesbit
Senior Lecturer, Economics and Competitive Markets, The Ohio State University

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INTRODUCTION

The Regulatory Studies Program of the Mercatus Center at George Mason University is dedicated to advancing knowledge about the effects of regulation on society. As part of its mission, the program conducts careful and independent analyses that employ contemporary economic scholarship to assess rulemaking proposals and their effects on the economic opportunities and the social well-being available to all members of American society.

This comment addresses the efficiency and efficacy of this proposed rule from an economic point of view. Specifically, it examines how the proposed rule may be improved by more closely examining the societal goals the rule intends to achieve and whether this proposed regulation will successfully achieve those goals. In many instances, regulations can be substantially improved by choosing more effective regulatory options or more carefully assessing the actual societal problem.

SUMMARY

The proposed rule modifies the Transportation Security Administration (TSA) screening process for airline passengers entering the sterile area of airports such that the use of Advanced Imaging Technology (AIT) becomes the primary screening technology by the TSA. This action is an attempt to "mitigate a vulnerability of existing aviation security" to the threat of concealed nonmetallic weapons and explosives.[1]

1. Department of Homeland Security, Transportation Security Administration, "Passenger Screening Using AIT," Initial Regulatory Impact Analysis (March 2013): 107. Hereafter referred to as "RIA".

For more information, contact:
Robin Bowen, (703) 993-8582, rbowen@mercatus.gmu.edu
Mercatus Center at George Mason University
3351 Fairfax Drive, 4th Floor, Arlington, VA 22201

AIT has been used by the TSA for passenger screening since 2008. The 2013 NPRM proposing the use of AIT in response to the "decision rendered by the U.S. Court of Appeals for the District of Columbia Circuit in *Electronic Privacy Information Center v. U.S. Department of Homeland Security*, 653 F. 3d 1 (D.C. Cir. 2011)," in which "the Court directed TSA to conduct notice and comment rulemaking on the use of AIT."[2]

This comment argues that the TSA has failed to conduct a thorough analysis prior to arriving at their regulatory conclusions. Rather than impartially attempting to identify and implement the solution that best solves the identified vulnerability of the existing passenger screening process to nonmetallic items, the Regulatory Impact Analysis (RIA) is presented as an attempt to justify the previously adopted use of AIT. Indeed, the "main objective of the proposed rule is to codify the use of AIT as a means of screening passengers prior to entering the sterile area of an airport."[3] This stated goal severely limits the quality of the analysis with respect to objectively analyzing suitable regulatory alternatives and selecting the one that maximizes social net benefits. While the chosen alternative may, in fact, provide for the highest net benefits to society, the analysis presented in the RIA does not permit such a determination.

First, the RIA likely understates the true costs associated with the proposed rule. In computing the cost estimate by component, the TSA fails to account for trends in compensation growth and energy cost growth in the historical data used in the RIA and applies multiple unjustified assumptions, which directly impact the calculations. For example, the TSA assumes the electricity prices from 2012 to 2015 will remain constant at the 2007–2011 commercial sector average. However, the average growth from 2007–2011 is 1.6 percent.[4] Accounting for this growth results in an increase in utility costs of nearly 6.7 percent in year 2015 alone. The analysis also lacks explanations of assumed-cost shares of service and maintenance contracts applied to AIT, and it offers no range of values for robustness.

Second, the RIA makes no attempt to quantify the benefits of AIT, ignoring the GAO's recommendation for a benefit-cost analysis.[5] Instead, the RIA makes broad claims and gives anecdotal evidence without providing any context for the improvement in safety expected from AIT adoption. Protection from terrorist acts is a basic function the public demands of the government, and the benefits of such protection are surely sizable; however, in order to determine which program alternative is best for society given the resources available, some attempt at measuring the benefits is needed.

The lack of specificity of the benefits from AIT usage is of particular concern given that the TSA had data from 2008–2011 available to conduct such an analysis. For instance, "risk reduction analysis shows that the chance of a successful terrorist attack on aviation targets generally decreases as TSA deploys AIT," but "the results of TSA's risk-reduction analysis are classified."[6] Some statement of how much lower the chance of a successful terrorist attack now is or, at a minimum, a break-even analysis is needed.

It is quite possible that the adoption of AIT for security screening at airports provides for the highest net benefits of all available regulatory options once the aforementioned factors are addressed. The 2004 Congressional directive 49 U.S.C. 44925 authorizes "TSA to continue to explore the use of new technologies to improve its threat detection capabilities;" however, the accompanying RIA provides the public

2. RIA, 14.
3. RIA, 122.
4. US Energy Information Administration, "Electric Power Monthly," Data for March 2013, May 21, 2013, http://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_5_3.
5. Steve Lord, Director of Homeland Security and Justice Issues, GAO Testimony Before the Subcommittee on Transportation Security and Infrastructure Protection, Committee on Homeland Security, House of Representatives "TSA Is Increasing Procurement and Deployment of the Advanced Imaging Technology, but Challenges to This Effort and Other Areas of Aviation Security Remain." March 17, 2010, http://www.gao.gov/assets/130/124207.pdf.
6. RIA, 115–116.

and Congress with a misleading impression of the regulation's likely impacts. The DHS and TSA should improve the RIA to more accurately estimate the costs, to provide some measure of the benefits of the regulation, and to compare the incremental costs and benefits of the alternatives considered relative to the chosen rule.

HOW THE RIA UNDERSTATES THE COSTS

Personnel Cost Estimate

In calculating the Personnel Cost to the TSA, the RIA "estimates an additional 5.25 personnel (1.5 x 3.5) for each deployed AIT with IO unit and an additional 3.5 personnel (1.0 x 3.5) for each deployed AIT with ATR unit."[7] The TSA uses these figures along with estimates of the number of AIT security lanes with IO and with ATR to determine that 2,871.7 FTE are needed for AIT with IO and another 18,247.3 are needed for AIT with ATR from 2012–2015. The cost of these personnel is determined by multiplying these figures by $56,772, the FTE salary from 2011, for a total 2012–2015 personnel cost of $1.199 billion (undiscounted).

The assumed constant FTE salary at the 2011 level during the 2012–2015 period is certainly flawed, particularly given that the average annual growth in salaries from 2008–2011, as reported in the RIA, was 1.15 percent. Compounding this average growth through 2015 leads to nearly a 4.7 percent difference ($2,659) in the 2015 proposed salary relative to the figure used by the TSA. Details of the proposed salary calculation and the deviation from the figures used in the RIA can be found in Table 1.

TABLE 1: REVISED TSO FTE ANNUAL COMPENSATION RATES

Year	Annual FTE in 2011$[a]	Observed % Change	Projected % Change[b]	Proposed Annual FTE in 2011$	Difference	% Difference
2008	$54,861.16	--		$54,861.16	$-	0.00%
2009	$55,092.02	0.42%		$55,092.02	$-	0.00%
2010	$56,338.78	2.26%		$56,338.78	$-	0.00%
2011	$56,772.00	0.77%		$56,772.00	$-	0.00%
2012	$56,772.00		1.15%	$57,425.41	$653.41	1.15%
2013	$56,772.00		1.15%	$58,086.34	$1,314.34	2.32%
2014	$56,772.00		1.15%	$58,754.88	$1,982.88	3.49%
2015	$56,772.00		1.15%	$59,431.11	$2,659.11	4.68%

[a] From RIA, Table 14, p. 45.

[b] Average of observed percent change from 2008–2011.

Using the revised Annual FTE salary figures presented in Table 1 above to compute the total personnel cost from 2012–2015 results in a cost figure of $1.232 billion (undiscounted). This is a full $33 million more than the total personnel cost reported in the RIA.

7. An AIT with IO is an Advanced Imaging Technology screening machine that requires an Imaging Operator (IO) to review each detailed scanned image of the passenger prior to authorizing her to pass through security. An AIT with ATR (Automated Target Recognition) unit is one that automates the analysis of the image to identify security anomalies requiring manual screening and displaying the location of the anomalies on a generic stick-figure image of the passenger for security personnel.

Utility Cost Estimate

Similarly, the TSA assumptions regarding the estimate of utility costs resulting from the adoption of AIT over the period from 2012–2015 lead to an underestimate of the costs. In order to simplify the calculation, the TSA uses the average price for commercial electricity from 2007–2011 ($0.1019 per kWh), resulting in a constant utility cost per unit installed over the eight year life cycle. However, electricity prices from 2007 through 2011 increased at an average rate of 1.53 percent annually. Allowing similar growth over 2012–2015 results in a 6.66 percent higher cost estimate in 2015 relative to the cost used in the RIA, as seen in Table 2.

TABLE 2: REVISED UTILITY COSTS

Year	Observed Price of Electricity ($ per kWh)[a]	Price of Electricity used in RIA ($ per kWh)	Proposed Price of Electricity used in RIA ($ per kWh)[b]	Utility Cost per Unit Used in RIA	Proposed Utility Cost per Unit[c]	% Difference
2007	$0.0965	$0.1019	$0.0965	$2.234	$2.1153	-5.31%
2008	$0.1036	$0.1019	$0.1036	$2.234	$2.2709	1.65%
2009	$0.1017	$0.1019	$0.1017	$2.234	$2.2293	-0.21%
2010	$0.1019	$0.1019	$0.1019	$2.234	$2.2336	-0.02%
2011	$0.1023	$0.1019	$0.1023	$2.234	$2.2424	0.38%
2012		$0.1019	$0.1039	$2.234	$2.2767	1.91%
2013		$0.1019	$0.1055	$2.234	$2.3116	3.47%
2014		$0.1019	$0.1071	$2.234	$2.3469	5.05%
2015		$0.1019	$0.1087	$2.234	$2.3828	6.66%

[a] US Energy Information Administration, Commercial Price of Electricity (http://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_5_3).

[b] Prices from 2012–2015 computed based on the average percent change over the 2007–2011 period (1.53%).

[c] Following the calculation method presented in footnote 23 on page 46 of the RIA.

Adjusting the cost estimate to account for historical average growth in electricity prices results in a total utility cost from 2012–2015 of $1.321 million. This represents a roughly $54,000 increase above the figure reported in the RIA.

While the above-derived increase in utility costs is not particularly sizable on its own, it—along with the more significant personnel cost increase previously described—is suggestive that the TSA may have similarly underestimated the other costs, for which less detail is provided in the RIA. A selection of such possibilities is provided below.

Cost Assumptions Lacking Detail and Robustness Checks

Multiple cost estimates are directly impacted by assumptions for which little to no justification is offered. In other cases, the assumptions impacting the cost estimates are presented as if the values are certain, whereas in reality much uncertainty exists. While some or all of these assumptions could be valid, the RIA does not provide enough information to evaluate the assumptions. The assumptions of particular concern are briefly detailed below:

- The opportunity cost to travelers who opt out of the AIT screening in favor of the more extensive pat-down is estimated to be $16.6 million from 2012 to 2015. While this figure appears to be a reasonable estimate of the time cost to travelers, this is not the only opportunity cost borne

by passengers opting out of the AIT screening; passengers who opt out also incur the cost of enduring the invasive pat-down itself—it's a process both the passenger and the TSA agent would likely prefer to avoid. While this cost may be difficult to compute, it should at least be recognized as a cost in the RIA.

- The 19.3 percent of maintenance costs dedicated to AIT appears to be motivated more by accounting practice than by past experience regarding the use of the maintenance contracts. The background for this assumption, if not simply an accounting practice, needs to be explained. To provide for a more appropriate figure, the TSA could compute the percentage of total service calls required for AIT over recent years, although other alternative methods could suffice.

- The RIA assumes that 10 percent of Passenger Screening Program cost is attributable to AIT Program Management Costs.[8] The reasoning behind this 10 percent figure is not explained in the RIA.

AIT BENEFITS ARE NOT ESTIMATED

Protection from terrorist activities is a function of government that is expected by the public and something that few citizens doubt is highly beneficial. These benefits, as the TSA admits, are also difficult to compute. However, rather than attempting to quantify as best they can the benefits or the risks of nonaction, the TSA resorts to unsubstantiated claims, anecdotal evidence, and broad reference to classified reports. For instance, the TSA reports that "since January, 2010, this technology has helped TSA officers detect hundreds of prohibited, dangerous, or illegal items concealed on passengers."[9] The RIA proceeds to report on instances where a "Tactical Spike," a three-inch pocket knife, packets of powder, and a liquid-filled syringe were all detected due to the AIT screeners. While each of these may be valuable discoveries, the reporting on them individually in this RIA provides little value in quantifying the benefits of AIT.

The TSA admits that such quantitative analysis exists, as the agency claims that "risk reduction analysis shows that the chance of a successful terrorist attack on aviation targets generally decreases as TSA deploys AIT." Providing some estimate of how much AIT reduces the probability of a successful terrorist attack would be helpful.

Given legal barriers preventing the TSA from reporting such benefit information, the TSA could conduct a break-even analysis based on the provided cost estimates and expected number and damage resulting from potential terrorist actions. Providing an estimate of the number of terrorist threats that must be prevented in order to cover the costs of the AIT—even if it must omit some unmeasured benefits—would be far superior to the benefits discussion currently offered in the RIA. Such a break-even analysis could be computed for each of the alternatives considered.

CONCLUSIONS

For the reasons discussed above, the analysis conducted by the TSA in the Regulatory Impact Analysis falls short of what is needed to determine the appropriate response to the increased threat of nonmetallic substances and devices. The TSA has ignored the 2010 recommendation by the GAO to conduct a benefit-cost analysis of AIT usage and the other available alternatives and has instead maintained that

8. RIA, 86.
9. RIA, 114.

the life-cycle cost provides suitable information. However, in order to determine which alternative is best for society, consideration of both costs and benefits is needed. Further, the TSA likely understates the costs of adopting AIT in the passenger screening program because the analysis does not account for cost growth through time. Additional questions remain concerning the determination of other cost components, necessitating a more thorough justification for the various assumptions.

Finally, the discussion of the benefits could be greatly improved. Specifically, if a benefit-cost analysis cannot be reported due to legal barriers preventing the dissemination of the number of thwarted terrorist plots, a break-even analysis of AIT adoption and the other considered alternatives would provide Congress and the public with a more accurate depiction of the feasible cost-effectiveness of AIT usage.