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Retrospective Benefit-cost Analysis of the Cooperative Interstate Shipment (CIS) Program

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Abstract: Using data from FY2011-2014, this study examined the benefits and costs of the Cooperative Interstate Shipment (CIS) program for its early stage performance. In particular, we compared the actual costs and benefits associated with the CIS program to date to those that we estimated in the Final Regulatory Impact Analysis (FRIA). We concluded that with a total cost of the program being around $0.92 million, and a host of benefits including a $3.17 million sales revenue increase for the participating establishments, the program at this stage is cost-effective. The analysis also highlights the importance of retrospective benefit-cost analysis versus prospective analysis in cases where the program participation is voluntary and, therefore, some benefit and cost are difficult to estimate ex ante.

Key words: benefit-cost analysis; interstate commerce; program evaluation; federal-state cooperation; and meat and poultry industry.

JEL codes: Q, R, Z

1. Introduction

The Food Safety and Inspection Service (FSIS) is the public health agency in the U.S. Department of Agriculture that is responsible for ensuring meat, poultry, and processed egg products are safe, wholesome, and accurately labeled. Under the Federal Meat Inspection Act (FMIA) and the Poultry Products Inspection Act (PPIA), FSIS has the authority to inspect all meat, poultry, and processed egg products in interstate commerce. FMIA and PPIA also authorize FSIS to cooperate with state agencies in developing and administering state Meat and Poultry Inspection (MPI) programs. Under the cooperative state MPI programs, FSIS provides states advisory, technical, laboratory, training, and financial assistance through cooperative agreements. The products inspected under the MPI program can only be sold within the state, even if an adjoining state is just across the highway or a river. There have been 27 states operating an MPI program. Two features of the cooperative state MPI program that are of interest to this paper are:

(1) The MPI program must operate “at least equal to” the federal inspection system. For example, the product sampling and laboratory methods of the state MPI program must has capabilities and safeguards that are “at least equal to” those of the FSIS.

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(2) The federal government funds each MPI program up to 50% of the estimated cost of the program annually.

On May 2, 2011, FSIS published the final regulations to implement a new cooperative inspection program named the cooperative interstate shipment (CIS) program ("Cooperative Inspection Programs: Interstate Shipment of Meat and Poultry Products", 74 FR 47648). The program was established in Section 11015 of Title XI of The Food, Conservation, and Energy Act of 2008. Under the CIS program, FSIS, "in coordination with the appropriate state agency of the state in which the establishment is located," may select state-inspected establishments with 25 or fewer employees to ship meat and poultry products in interstate commerce. The state must be already administering a cooperative state MPI program and enforcing requirements "at least equal to" those under the federal inspection program.

There are many legal requirements for the CIS program. We only list the ones that bear benefit-cost implications, as follows:

(1) State inspection system must be "the same as" the federal inspection system.

(2) FSIS is to reimburse a state for costs related to the inspection of selected establishments in the CIS program in an amount of not less than 60 percent of eligible state costs.

(3) A state has to demonstrate that the laboratory services used by the state for purposes of the CIS program are capable of providing the same results as the laboratory services used by FSIS; which means that, the state will need to show that the laboratory is accredited by certain entities.[1]

(4) Inspection services for establishments participating in the CIS program must be provided by state inspection personnel that have undergone all necessary inspection training and certification.

2. Prospective Benefit Cost Analysis in the Final Rule

FSIS conducted the prospective benefit-cost analysis in 2010-2011, as part of the final rule. The analysis based on expected numbers of states and establishments that would participate in the CIS program. Agency outreach activities conducted after the publication of the proposed rule indicated that four states were interested in participating in the program.[2] According to the state MPI Directors of these four states, the total number of establishments in these states that might participate was between 27 and 102. Therefore, the FRIA estimated costs for three possible scenarios: (1) 27 establishments in four states participating from FY 2011 through 2014, (2) 102 establishments from four states from FY 2011 through 2014, and (3) 102 establishments from four states in FY 2011, then the participation increases to 200 establishments from all 27 eligible states in FY 2012 through 2014.

2.1 Expected Benefits

The FRIA identified the following potential benefits of the CIS program: (1) state-inspected establishments selected to participate in the CIS program would benefit from new markets for their products; (2) consumers will benefit by having more product choices, as more products can be shipped to new markets; (3) some small producers will save on travel costs that they must incur before for sending their livestock to federally-inspected

[1] Specifically, the lab has to be accredited by an internationally recognized organization that accredits food testing laboratories against the ISO 17025 "General requirements for the competence of testing and calibration laboratories" and AOAC "Guidelines for Laboratories Performing Food Microbiological and Chemical Analyses of Food and Pharmaceuticals Testing" written by the Analytical Laboratory Accreditation Criteria Committee (ALACC).

[2] The four states were North Dakota, Ohio, Wisconsin, and Vermont. They had each signed an agreement with FSIS to conduct a comparative analysis to determine what they would need to do to meet the "same as" requirement for the CIS program.

establishments, as the closest small processing establishments may be located across state lines; and (4) the stimulated small business sales would expand rural development and jobs, increase local tax bases, strengthening the stability of rural communities. However, because we could not predict with certainty how many establishments would participate and how much they would expand their business, we did not quantify the benefits.

2.2 Expected Costs

We expected that the CIS is going to incur costs to participating establishments, to participating states, and to FSIS. Below is a summary of how the FRIA addressed and estimated these costs:

2.2.1 Costs to the Participating Establishments

Any state-inspected establishment that chooses to apply for selection into the CIS program will incur one-time start-up costs associated with filing an application, training employees, meeting regulatory performance standards, obtaining label approval, and implementing a food safety system that complies with all federal requirements. In addition, some establishments may need to invest in structural modifications to their facilities in order to comply with federal standards. The FRIA pointed out that, however, as the CIS program is a voluntary program, establishments that choose to incur the costs associated with participating in the program will most likely do so because they anticipate an overall net benefit for them.

2.2.2 Costs to the Participating States

The FRIA identified and discussed the following cost items for the participating states:

(1) The inspection costs: Since the federal government is to reimburse no less than 60% of the states' cost, the states' share of 40 percent or less is unlikely to be higher than their share of 50% under the MPI program.

(2) Lab accreditation: we estimated that the cost for a state lab to obtain the necessary accreditation would be somewhere between $28,000 and $350,000.[3]

(3) Modifications to the state inspection programs: Because the MPI programs are required to be "at least equal" to the federal inspection programs, we anticipated that changes to "the same as" level would largely be procedural, and there would not be any particular increase in overall state effort or cost.

(4) State personnel training: These costs were likely to be minimal because many state personnel had received training in federal inspection methodology as part of the cooperative state MPI program.

2.2.3 Expected FSIS Budgetary Effects

As previously mentioned, the FRIA estimated three possible scenarios of program participation. Now that the actual number of participating establishments was only 13 when we conducted the retrospective study, we only need to use the estimated costs for the scenario that is the closest to the actuality (scenario 1,) in which 27 establishments in four states participate from FY 2011 through 2014 (see Table 1).

The FRIA started with the change in federal costs for the program caused by the new statutory reimbursement level. For the CIS program the law requires that FSIS reimburse states for an amount not less than 60 percent of eligible costs. For MPI states, FSIS reimburses a state for up to 50 percent of eligible state costs. FSIS assumed that states would not change their level of activity associated with selected establishments in the CIS program, so the additional reimbursement under the CIS program is basically ten percent (60% minus 50%)

[3] These costs reflect the costs associated with purchasing additional equipment, hiring additional staff (QC manager for Chemistry, QC manager for Microbiology, Document Control Clerk, and additional analysts,) the initial application fee to apply for ISO 17025 accreditation, the annual fee to maintain accreditation, and the accrediting body's assessment fee.

of the reimbursement under the cooperative state MPI program.[4] These figures are reflected in Table 1 below in the "Total grants to states" line.

Because FSIS is required to oversee the inspection activities of state personnel designated to provide inspection to selected establishments in the state, we predicted that FSIS would incur costs associated with providing the necessary oversight. We also expected to incur new costs for outreach and training. This would result in increased demand for FSIS staff and resources. In summary, these estimated costs would include Selected Establishment Coordinator (SEC), Deputy District Managers (DDM), outreach and training staff, lab analysts, and associated operating expenses and travel expenses. The rest of the line items in Table 1 reflect these costs.[5] In sum, the cost to FSIS for the four-state 27-establishment scenario for the first four years is $3.77 million.

Table 1 CIS Program Incremental Cost Estimates; 27- Establishments Scenario ($, million)[6]

	FY2011	FY2012	FY2013	FY2014	4-year Total
Number of establishments	27	27	27	27	
Total grants to states	**0.28**	**0.15**	**0.15**	**0.16**	
Total salaries & benefits	**0.51**	**0.53**	**0.55**	**0.58**	
DDM	0.09	0.10	0.10	0.11	
Selected Establishment Coordinator (SEC)	0.16	0.17	0.17	0.18	
Lab staff	0.25	0.26	0.27	0.29	
Operating expenses	**0.31**	**0.26**	**0.12**	**0.12**	
Travel- SC & lab staff	0.02	0.02	0.03	0.03	
Training/Outreach	0.21	0.19	0.04	0.04	
Equipment and admin	0.07	0.07	0.07	0.07	
Total	**1.09**	**0.95**	**0.83**	**0.87**	**3.77**

3. Retrospective Benefit-cost Analysis

To evaluate how the CIS program has been doing, we collected information and data on the actual participation in February-March 2015. Four states have signed an agreement with FSIS: Indiana, North Dakota, Ohio, and Wisconsin.[7] The numbers of up-and-running CIS establishments in March 2015 were: eight in Ohio, five in Wisconsin, giving a total of 13.[8] Establishments in Indiana were in the process of getting their labels approved, and there was no CIS establishment in North Dakota.[9] We tried to collect data from all the 13 establishments through MPI State Directors, and obtained information on 10 establishments.[10]

3.1 Benefits

Compared to the expected benefits we identified in the FRIA, we found that the CIS program has resulted in all the benefits, as deliberated below.

3.1.1 For Participating Establishments — New Markets for Their Products

[4] For methodology and details of calculation, please see 74 FR 47659-47660.
[5] Ibid.
[6] Subtotals and total may not add-up exactly due to rounding.
[7] Among the four states that were seeking participation while we were drafting FRIA, Vermont decided not to pursue. Indiana was not on the list at that time.
[8] Note that as of March, 2016, the total number of CIS establishments has grown to 23. For updated list of CIS establishments, see http://www.fsis.usda.gov/wps/portal/fsis/topics/inspection/state-inspection-programs/cis/CIS-Establishments.
[9] North Dakota did have one establishment participate in the CIS program soon after the state signed the CIS agreement with FSIS in January 2013. However, the owners of that establishment decided to sell off the business and it is no longer operating.
[10] Two establishments in Wisconsin that joined late in 2014 said that they just started not too long ago, hence had nothing to report. One establishment in Wisconsin did not respond, probably for the same reason.

Among the 10 establishments that have been in the program long enough to have some results to report, four have expanded the production of existing products, three have added new products, and two have done both because of the CIS program. The total increase in sales revenue for these 10 establishments is about $3.2 million (ranging $12,000 to $2.04 million,) where $1.5 million was from expanded production of existing products, and $1.7 million was from new production.[11]

3.1.2 For Consumers — More Product Choices

As the CIS establishments expanded their production and shipped their products to new markets, this benefit was realized as predicted.

3.1.3 Benefits for Small Farmers and Livestock Producers

There have been some happy stories about how CIS program provided small farmers access to nearby slaughter/processing plants across state lines. One is a partnership between a small slaughter establishment in Ohio and a small cattle producer in Pennsylvania. The partnership saved the Pennsylvania producer significant cost to send animals to a far-away federal establishment in the same state, which it had to do before the CIS program.[12] Another story is about a poultry slaughter and processing plant in Clinton, Wisconsin. Many poultry growers in the State of Illinois are within five miles from this plant. These Illinois growers used to have to drive about four hours to get their poultry slaughtered and processed in Illinois. Now that the Wisconsin plant joined the CIS program, these growers have been its happy customers.[13]

3.1.4 Rural Development

Four of the 10 establishments have added employees. They added 15 full-time employees and 11 part-time employees. These added jobs increased local tax bases and strengthened the local economy in rural communities.

3.2 Costs to Participating States

As we explained in the FRIA, it is very unlikely that states will incur any significant costs under the CIS program, because FSIS would reimburse the state up to 60% of the eligible state inspection cost under the CIS program, compared to up to 50% of the cost under the MPI program. We also found that Wisconsin received an FDA grant to get accreditation for its lab, Indiana upgraded its lab under FDA's program, North Dakota plans to use Ohio's state lab, and FSIS reimbursed Ohio's cost of updating the lab. FSIS also reimbursed 100% of the costs for travel, per diem and accommodations for the four-week Inspection Methods course (and the three-week Food Safety Regulatory Essentials course in 2011 and 2012 before that course was replaced by the updated Inspection Methods), which is mandatory for all personnel covering inspection assignments. Therefore, we believe that there is no significant cost burden for the participating states.

3.2.1 Costs to the Participating Establishments

As we anticipated, the CIS establishments incurred administrative and facility improvement costs, but on a small scale. Six establishments reported some costs associated with joining the CIS program, ranging from $210 for changing labels to $60,000 for new equipment (wrappers). Many establishments reported costs to get labels to

[11] Some of the expansion of business might be in-state instead of inter-states. However, the question we asked was about the expansion because of the CIS program. The additional revenue from interstate business can contribute to the expansion of in-state business, and the establishments can attribute in-state business expansion to the CIS program.

[12] The story is published at http://www.fsis.usda.gov/wps/portal/fsis/topics/inspection/state-inspection-programs/cis/cis-kyf2, accessed on July 7, 2015. In summary, the small cattle producer in PA was able to ship his cattle to a nearby CIS slaughtering establishment in OH, then sell the meat both in OH and PA.

[13] The owner of the Wisconsin plant presented the story at a webinar titled "An Overview of USDA Resources for Small-Scale Producers: the Cooperative Interstate Shipment Program" on September 23, 2015.

meet FSIS requirements, including cost of hiring consultants and labeling changes. The total cost for participating establishments is around $0.13 million.

3.2.2 Budgetary Costs to the Agency

As discussed in the FRIA, cost items include grants to the states (now termed CIS fund allocation,) salary and benefits, travel, training, admin and equipment.

Agency data shows that from FY2012 to FY2014, the CIS Fund expenditure to the four participating states totaled about $0.25 million (see Table 2.) This represents 60% of the state expenditure that the Agency is giving to the states. Since the Agency was reimbursing 50% before these states' joining the CIS program, the actual incremental cost to the Agency is the 10% difference, which is about $0.025 million. In addition, there was $82,575 spent on the four interested states out of a Cooperative Agreement Fund.

Table 2 CIS Fund Expenditure ($)

	FY2012	FY2013	FY2014	3-year Total
Indiana	-	-	9,242	9,242
N. Dakota	4,180	17,623	9,786	31,589
Ohio	58,548	62,600	63,125	184,273
Wisconsin	-	-	27,127	27,127
Total	62,728	80,223	109,280	252,231

The next cost item is salary and benefits. There has been one CIS National Coordinator, one DDM, one SEC, and one FTE (full-time equivalent) lab staff working on the CIS program. However, the SEC is the only new position created due to the CIS program. All the other positions are filled by existing FSIS employees carrying out collateral duties,[14] and the impact on Agency budget is not significant. Therefore, the only additional budget outlay is for the SEC. The SEC is a GS-13 position, so the salary and benefit is about $150,000/year,[15] giving a three year-total of $450,000.

As for training and outreach, FSIS data showed that the total training costs for FY 2011-2014 is $124,250. This includes training for FSRE (Food Safety Regulatory Essentials),[16] Inspection Methods for all inspectors.[17] Outreach activities have been incorporated in other regular OOEET outreach activates, so there is no additional cost incurred by the CIS program.

Finally, there is the equipment cost and the lab staff traveling cost. For equipment (mostly computers and printers), software, supplies, and telecom charges, FSIS data showed that it averaged about $4,100 per inspector per year[18]. Because seven establishments started near the end of FY2012 and three started in FY2014, the total equipment cost for FY2012-2014 is about $0.08 million.[19] The lab travel cost totaled about $4,145 for FY 2012-14.[20]

Table 3 presents the comparison of the projected budget cost and the actual costs. Keep in mind that the

[14] For example, the work of the one FTE lab staff has been divided among the staff officers in LQAS/OPHS.
[15] We used a national average of basic and locality pay for GS-13 step-5 and a 50% markup for benefits.
[16] Note that FSRE has been replaced by Inspection Method after the implementation of PHIS.
[17] Data is from OOEET.
[18] Data is from CIS National Director.
[19] That is, seven inspector for two-and-half years and three inspectors for one year. Note this is an upper bound estimate because one inspector could cover more than one establishment.
[20] Data is from LQAS/OPHS. The number is actually for FY 2012-2013, as there is no travel cost in FY2014 after all the CIS state labs got on the same 3-year audit cycle. There is no staffing cost as there is no additional staff and all duties were divided up with the existing staff.

projected cost assumed 27 establishments participating from four states, while the actual is for 13 establishments (also from four states.) We cannot simply multiply the actual cost by 2.08 (27 divided by 13) to get a side- by-side comparison because many cost items are not on the "per establishment" basis (such as the Agency personnel). However, the actual expenditure appears to be low given that it is less than one-quarter of what was predicted.

Summing up all the above costs, we get the total incremental cost of the CIS program of about $0.92 million. This includes $0.79 million of Agency cost and $0.13 million of cost reported by the participating establishments.

Table 3 CIS Program Incremental Costs to the Agency, Projected and Actual (FY2011-2014, $ million)

	Predicted	Actual
Number of establishments	27	13
Budget allocation	**0.74**	**0.11**
Lab accreditation		**0.02**
Salaries & benefits	**2.17**	**0.45**
Operating expenses		
Travel	0.10	0.004
Training/Outreach	0.48	0.12
Equipment and telecom	0.28	0.08
Total	3.74	0.79[21]

4. Conclusion

Table 4 summarizes the costs and benefits of the CIS program, as predicted and as realized Based on the analysis, we conclude the following: (1) the program attained the benefits predicted in the FRIA; (2) the costs were low, compared to what FRIA estimated, even after adjusted for the difference in predicted number of participating establishments (27) and the actual (13); and (3) the program is cost effective, with the total cost being around $0.92 million, and the multiple benefits including a $3.17 million sales revenue increase for participating establishments. Nevertheless, the program is at an early stage and is still expanding. It certainly warrants continuous evaluation of its cost effectiveness in years to come, especially after it reaches some maturity.

Table 4 Summary of Costs and Benefits of CIS Program, Predicted and Actual

Costs			Benefits	
	Predicted	Actual	Predicted	Actual
Number of establishments	27	13	27	13
Cost to the Agency	$3.74 m.	$0.79 m.	Expanded market	$3.17 million sales increase
Cost to the industry	N/A	$0.13 m.	More choices for consumer	Realized
Total cost of the program	>$3.74 m.	$0.92 m.	Rural development	Realized through Increased employment
			Other cost-savings for small producers	Realized

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[21] Total may not add-up exactly due to rounding.