

## Conclusion

The SAM multiplier analysis reveals that the ultimate economic impact of the benefits and costs of HACCP differs substantially from the initial impact. The initial costs and benefits triggered by HACCP circulate throughout the economy, expanding economic activity in some sectors and reducing activity in others. The simulations conducted here represent only one set of possible scenarios and were designed to provide information on the market mechanisms by which the benefits and costs of HACCP affect the economy. In particular, we highlighted the qualitative differences in the way different types of benefits and costs work through the economy.

On the benefit side, the SAM simulations indicated that every dollar of income saved by preventing a premature death from foodborne illness resulted in an economywide income *gain* of \$1.92. Every dollar of household income saved by reducing medical expenses resulted in an economywide income *loss* of \$.27 and every dollar of private and public insurance expenses saved by reducing medical expenses resulted in an economywide income *loss* of \$.32.

On the cost side, the simulations indicated that every dollar spent on HACCP resulted in an economywide income loss of \$.35. This stems from the increased costs of beef and poultry production due to HACCP being passed on to consumers in such a way that households incurred a decrease in real income equivalent to the costs of HACCP implementation. When we held nominal income constant, economywide income actually rose by \$.65 for every dollar spent on HACCP. The spread between the real and nominal results serves as yet another reminder of the potential gap between a monetary accounting of economic activity and measures of well-being.

We summarized the simulation results in figure 5. The simulation results indicate that the net economic impact of the costs and benefits of HACCP on household income was an increase of \$9.33 billion (1993

dollars). If we included the benefits of reduced work-loss days, these net benefits would be greater.

The SAM multiplier model extends the initial cost-benefit analysis to account for the full economic impact of HACCP on producers and consumers. Such an accounting indicates who ultimately benefits from improved health outcomes and who ultimately pays the costs of food safety regulation. Our SAM simulations found substantial differences between the initial and final distributions of the costs and benefits of HACCP. HACCP triggered economic activity in industries supplying HACCP inputs and an increase in the demand for labor at slaughterhouses and process plants. Conversely, reduced foodborne illnesses resulted in a decrease in economic activity for medical services and supply industries.

The ultimate increases in economic activity and economywide income were distributed back to households, particularly those with strong factor linkages with the economy. Economic feedback effects and private and public insurance diffused the benefits of reductions in foodborne illness throughout the economy. Households with children received 59 percent of the increase in income, households without children received 34 percent, and elderly households received 7 percent. Poor households received only 10 percent of the increase although their members composed 16 percent of the population.

The SAM accounting of the final impact of costs and benefits of HACCP provides useful information for policymakers by indicating the direction and magnitude of the economic flows resulting from regulation costs and subsequent reductions in foodborne illness. The SAM multiplier model also focuses attention on the difficulty of assessing the economic value of health. The SAM analysis demonstrates the usefulness of the cost-of-illness approach in deciphering the economic distortions caused by health shocks to the economy, and the danger of equating changes in income with changes in well-being.