Regional Effects of Liberalized Agricultural Trade

Fiona Sigalla
Federal Reserve Bank of Dallas

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It is well known that subsidies and protectionism distort agricultural prices within a country and offer incentives for inefficient producers who, in a competitive system, would be forced from operation. While the results of changing to a free market are also well-known, the differential regional impacts of such changes are less well-understood and less often discussed. The following discussion represents an attempt to examine the differential regional effects of national trade liberalization and subsidy removal. I begin with a generalized discussion of protectionism and subsidies, and with a model that characterized the impacts of such a phenomena and their reductions in the United States. I then discuss the implications for such changes regionally.

The Consequences of Market Interference

Most governments have chosen to interfere with free markets by subsidizing their agricultural production and protecting it from foreign competition. The assemblage of such policies across the world has increased the cost of food directly through prices or indirectly through higher taxes.

It is important to recall that low prices may nevertheless signify high costs. Farm subsidies lower domestic prices below world prices, encouraging domestic consumption rather than trade, but the result is taxes that are higher than food prices are low. Meanwhile, trade barriers -- not only tariffs but quotas, marketing orders, and so-called "quality" restrictions -- can hold domestic prices above world prices.

The impact of these policies upon the agricultural sector varies across regions. The reason is, these policies are not uniform across products. Some types of production, such as wheat and sugar, are heavily subsidized and

protected while others, such as beef and pork, are not. Accordingly, a region that produced only wheat and sugar would benefit greatly from the combination of subsidies and protection while a region that produced only beef and pork does not benefit at all.

Why then, do not all farmers then produce sugar or wheat? Even though subsidies and trade barriers provide incentives that encourage producers to remain in business who would not operate in a free market, the policies do not allow all such producers to remain in business. Because these policies only aid the more efficient inefficient producers, it may still be more profitable for some regions to produce only beef and pork.

Eliminating this labyrinth of policies would not only reduce taxes but it would free up resources that could be used to meet consumer demands in other sectors of the economy. These resources are now being attracted to commodity production because of government support, lowering national efficiency.

Taxpayers may choose to continue to transfer resources from the nonfarm sector to the farm sector, but it would be more efficient to directly write checks to agricultural producers. This could achieve the same farm income goal while increasing overall income and output.

Free Trade Generally Reduces U.S. Agricultural Income

Full agricultural trade liberalization would eliminate all trade distorting agricultural policies, including subsidies. As we know, each country would specialize in producing those goods (farm and nonfarm) in which it is comparatively more efficient than other countries. Countries would trade for commodities for which they are comparatively less efficient

producers. Resources would be channeled from uses of low productivity to those of high productivity, permitting higher levels of consumption and investment.

While trade liberalization would not significantly change demand for agricultural products, there would be a change in where agricultural commodities are produced. Trade between countries would increase significantly.

The types of products produced in the United States also would change significantly. Several studies have evaluated agricultural trade liberalization and its effect on prices, output and income.[1] Most models concur on the general direction of price, output and income changes although the magnitude of changes differ somewhat.

The USDA study by Roningen and Dixit was chosen for use in this analysis. Roningen and Dixit used an 11-region, 22-commodity partial equilibrium world net trade model to study the economic implications of agricultural policy reform in industrial market economies. The model uses supply, demand, and trade data for 1986/87. The solutions represent an approximation of the resulting adjustment in production, consumption, trade, and prices of agricultural commodities to be expected after 5 years, assuming all other conditions remain the same as in the base year.

According to the USDA study, the elimination of government support would increase prices for most domestically produced agricultural commodities. (Chart 1, *Estimated change in U.S. Consumer Prices Resulting from Agricultural*

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[1]Multicountry models include: OECD 1987; Meyers et al. 1987; Parikh et al. 1986; Roningen and Dixit 1988; Tyers and Anderson 1987. Comparisons of these models have been provided by: Magiera and Herlihy 1988; Barkema, Henneberry and Drabenstott 1989.

Trade Liberalization). Consumer price increases would be greatest for lamb and corn. Sugar and dairy product prices would decline, however. Currently, government policies hold their prices artificially high to help pay the producer subsidies.

Reduced agricultural support would also decrease the price producers receive for most products (Chart 2, *Estimated change in U.S. Producer Prices Resulting from Agricultural Trade Liberalization*). Producer prices for more heavily subsidized products, such as sugar and rice, would decline the most. The producer price of cotton, corn, wheat and other coarse grains would also decline substantially. Livestock prices would increase because of expanded export demand. The loss of its subsidy would have very little effect on livestock production which currently receives very little subsidy.

Although overall U.S. agricultural output would remain virtually unchanged, the composition of production would change markedly (Chart 3, *Estimated change in U.S. Agricultural Output Resulting from Agricultural Trade Liberalization*). Output would increase for those products whose producer prices rise, and fall for commodities with declining producer prices.

Full trade liberalization, with total elimination of government support, would reduce gross U.S. agricultural income. Higher consumer prices would increase producer income from farm marketings. Producers would also benefit from a lower cost of production because of reduced administrative costs and increases in efficiency. But for most producers, declining production costs and increased consumer prices would not compensate for the loss of government support. (Chart 4, *Estimated change in Gross U.S. Agricultural Income Resulting from Agricultural Trade Liberalization*). Income would decline for most crops. Cotton, sugar, rice, wheat, corn and other coarse grain producers

would have the largest income losses because these crops are heavily subsidized. Free trade, however, would raise the income of livestock producers. Increased foreign demand for beef, pork and lamb would push up livestock prices. These increases would more than compensate for rising feed grain prices.

Regional Effects of Agricultural Trade Liberalization

Like countries, some states are more suited for agricultural production than others. USDA has determined that pork, beef, lamb and oilseeds are well suited to be grown in the United States. With free trade, producers would increase production of these commodities. Free trade would reduce output for most other crops.

Some states already specialize in producing commodities which would increase income with free trade. The agricultural sector in these states would benefit from free trade. Other states specialize in the production of commodities which would decrease income with freer trade. The agricultural sector in these states would shrink.

The long run effect of free trade would depend on the relative efficiency of commodity production in each state. In all states, production efficiency currently is affected equally by trade protection and most U.S. subsidies.[2] Removal of these subsidies would not distort the relative efficiency between state production.

Some subsidies, however, do distort production between states. For example, U.S. dairy subsidies are based on the distance from Wisconsin.

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[2]Production is also affected by individual state taxes and subsidies. This will remain unchanged by free trade.

Removal of this subsidy would change the relative efficiency of dairy production between states. Measuring the effect of eliminating these types of farm programs is very difficult and was not undertaken in this analysis. Fortunately, most commodities programs do create distortions in regional efficiencies.

For this analysis, data from the 1987 Census of Agriculture was used to determine the value of state production if free trade had been undertaken in that year. The market value of each major agricultural product sold was multiplied by the expected change in gross income from the Roningen and Dixit study. The results give the expected change in gross income for each state. The value of all products not covered by the Roningen and Dixit study, such as fruits, vegetables and nursery crops, were assumed to remain constant. See box for a discussion of the effect of free trade on these products.

Free trade will reduce the value of agricultural production in most states. States which are heavy producers of subsidized and protected crops would have the largest reductions in agricultural income. (See Map) Gross agricultural income would decline the most in states which produce large amounts of sugar, rice or other subsidized crops and do not produce much livestock. In general, states where over 60 percent of agricultural income comes from the production of livestock would have little or no effect from agricultural trade liberalization.

With free trade, fourteen states would reduce agricultural income by 7 percent or more. These states tend to produce a large amount of subsidized crops and little livestock. Increases in livestock production would not be sufficient to compensate for reduced production of subsidized commodities. Hawaii, Louisiana and North Dakota would have the largest reductions in

agricultural income, falling over 20 percent. Currently in each of these states, over 35 percent of agricultural income comes from the production of grains, cotton, sugar and rice, all of which receive large subsidies.

Free trade would have little or no effect on agricultural income in Kansas, Massachusetts, New Jersey, Oklahoma, Rhode Island and Virginia. Over 60 percent of agricultural income in Kansas and Oklahoma already comes from the production of livestock products. Increased income from the production of cattle, hogs and sheep would compensate for reduced income from wheat, corn and other coarse grains. Just over one-fourth of agricultural income in Virginia comes from the production of livestock. But, Virginia does not produce large amounts of corn or cotton. With free trade, income losses in Virginia would be mostly due to reductions in dairy and poultry income. Massachusetts, New Jersey and Rhode Island produce very little livestock but also do not produce significant amounts of heavily subsidized or protected crops. Roughly 60 percent of agricultural income in all three states comes from the production of nursery products, fruits and vegetables.

With free trade, gross agricultural income would increase in only six states: Colorado, Nevada, New Mexico, Utah, West Virginia and Wyoming. Nevada, Utah and West Virginia produce little or no heavily subsidized crops such as cotton, sugar, wheat or other coarse grains. Colorado, New Mexico and Wyoming receive a small amount of agricultural income from subsidized crops. But all of these states have an already large livestock sector, contributing over 40 percent of agricultural income, which would expand with free trade.

The remaining 24 states would have moderate reductions in agricultural income with free trade, dropping 2 to 6 percent. These states have less than 25 percent of agricultural income from crops which will have large reductions

in income with free trade. Most of these states also do not have large livestock sectors. Nebraska, South Dakota, Texas, Iowa and Missouri have reasonably large livestock sectors, contributing over 40 percent of agricultural income. But, as could be expected, they have larger production of grains, cotton and rice.

Because the price of farmland reflects its income potential, the map can also be interpreted as a guide to changes in farmland values. Presently, the price of farmland is artificially high because of farm support programs. Moreover, farm programs have removed agricultural land from production, boosting land prices by reducing the supply of farm land. The elimination of output restriction programs would return currently unused agricultural land to production. As a result, the total supply of agricultural land would increase, further lowering farmland prices. The expected sectoral changes would also hold to farmland, pushing down the price of cropland and increasing the value of ranchland.

Conclusion

Free trade in agriculture would remove government farm subsidies and protection reducing income for most U.S. crop producers and increasing income for U.S. livestock producers. Agricultural income would likely increase in a few states although farm income would decline in most states. Despite this loss of agricultural income and increases in many commodity prices overall U.S. output and income would increase. The United States would benefit because resources would be reallocated to their most efficient uses.

References

Roningen, Vernon O., and Praveen M. Dixit. "Economic Implications of Agricultural Policy Reforms in Industrial Market Economies," ERS Staff Report No. AGES 89-36. U.S. Department of Agriculture, Economic Research Service, Aug. 1989.

Magiera, Stephen L. and Michael T. Herlihy. "Comparing World Price Changes from Trade Liberalization Models," Background paper for the International Agricultural Trade Research Consortium (IATRC) Symposium on Bringing Agriculture into the GATT, Annapolis, Maryland, August 19-20, 1988.

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Chart 1
Estimated Change in U.S. Consumer Prices Resulting from Multilateral Trade Liberalization

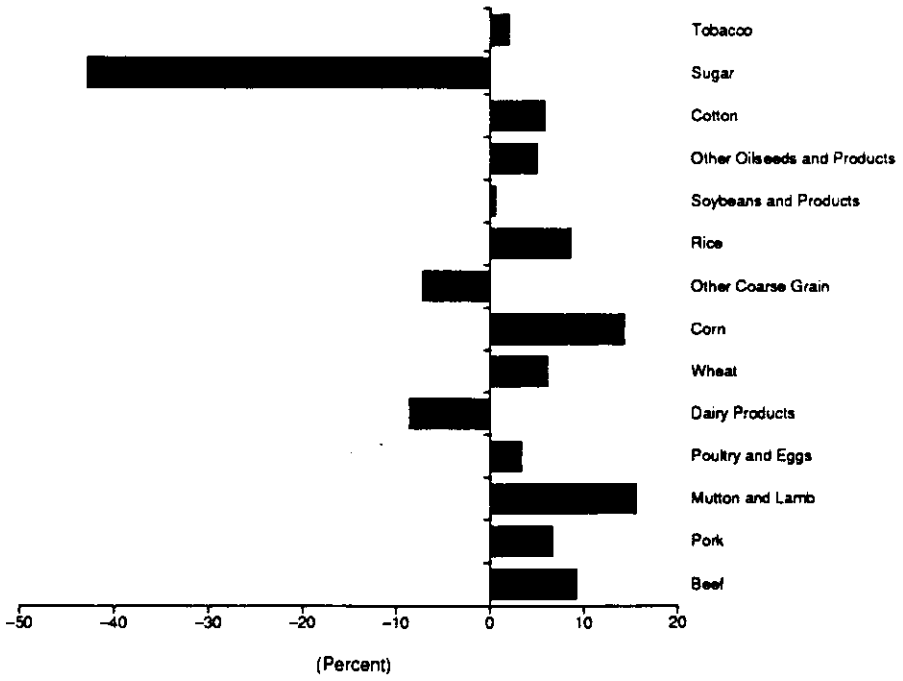


Chart 2
Estimated Change in U.S. Producer Prices Resulting from Multilateral Trade Liberalization

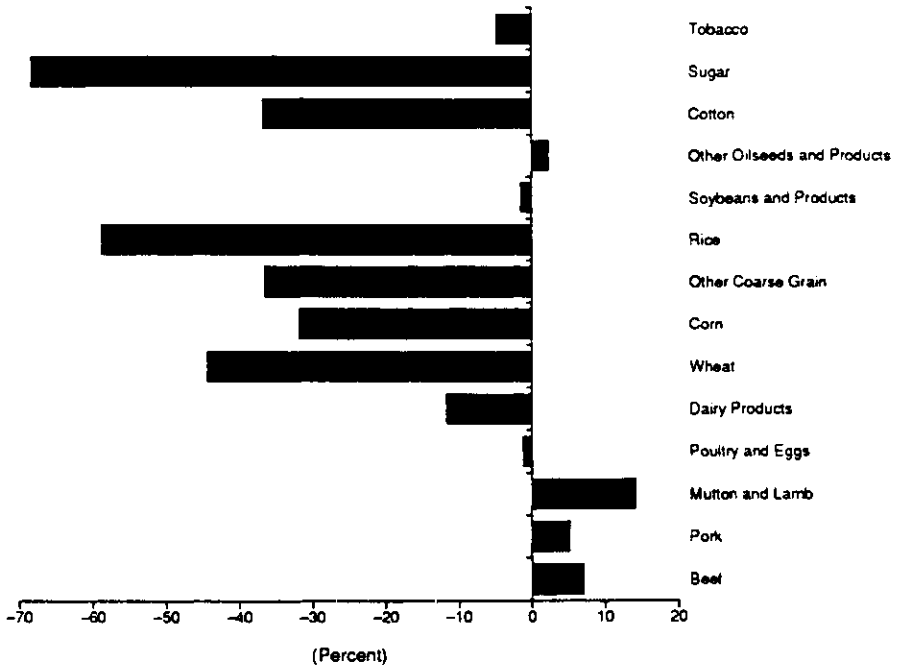


Chart 3
Estimated Change in U.S. Agricultural Output Resulting from Multilateral Trade Liberalization

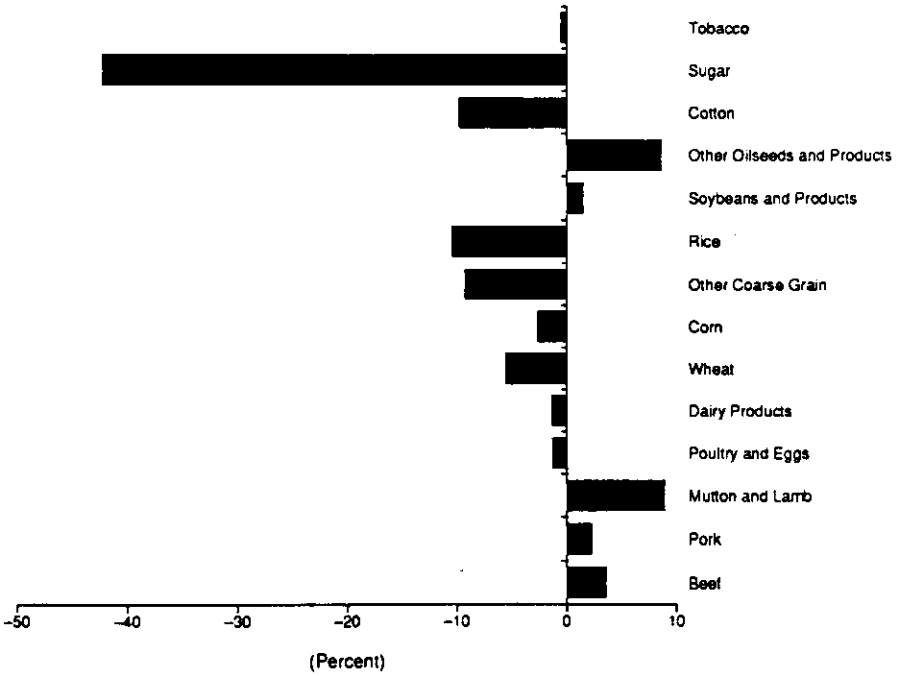
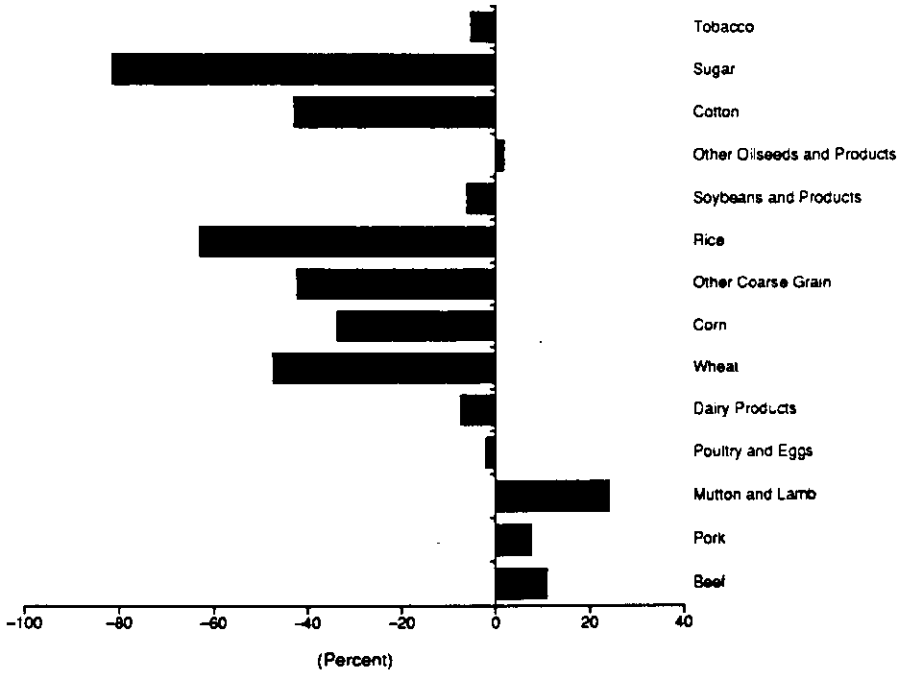
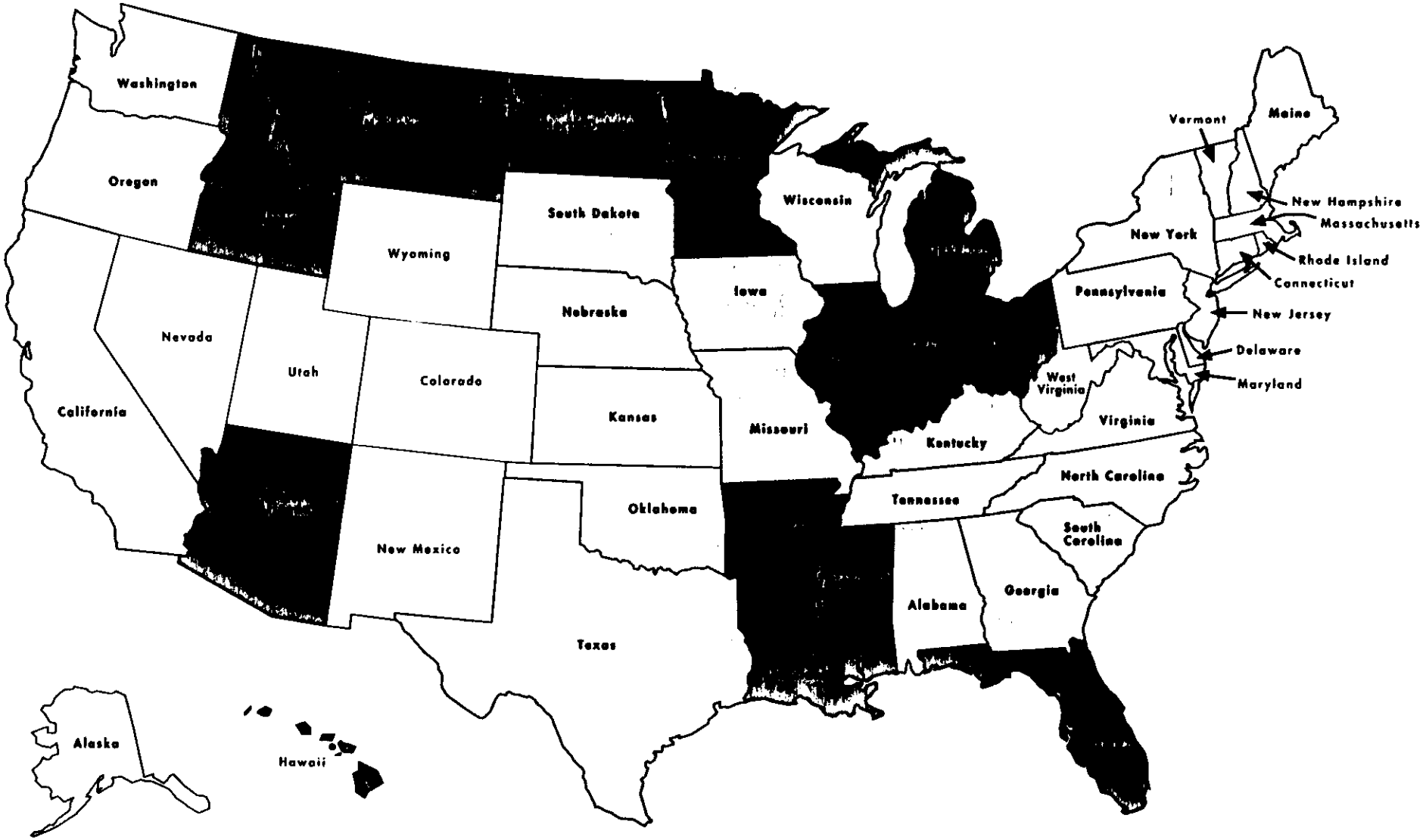


Chart 4
Estimated Change in U.S. Agricultural Gross Income
Resulting from Multilateral Trade Liberalization



Regional Effects of Agricultural Trade Liberalization

Change in Gross Agricultural Income