

TRADE ADJUSTMENT ASSISTANCE AND LABOR DISPLACEMENT

IN THE U.S. SUGAR INDUSTRY

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The U.S. sugar industry has had a long history of import protection. The first sugar tariff was imposed as early as 1789 and the Sugar Act of 1934 and its extensions used import quotas to restrict imports and protect domestic producers. The program received considerable criticism from a number of economists, primarily because of its impact on consumers and sugar exporting countries (e.g. Johnson). Bale has suggested that the use of "adjustment assistance" for industries such as sugar which are vulnerable to low-cost imports may be preferable to protection.

The Sugar Act was allowed to lapse in 1974 during a period of high world prices. However, the subsequent decline in price generated renewed pressures for sugar protectionism. Tariffs have been substantially increased and at the time of writing a presidential proposal to raise the support price of sugar to 15.8 cents per pound, well above the world price of 8 - 9 cents, is before Congress. This proposed legislation is linked to U.S. participation in a new International Sugar Agreement (ISA), which the U.S. has signed but not yet ratified. The ISA provides for the use of buffer stocks and export quotas to stabilize the world price of sugar between 11 and 21 cents per pound.

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The purpose of this paper is to illustrate the possible effects on the U.S. sugar industry of reducing the level of protection to the 11 cent floor price of the ISA. Using 1977 data, the associated change in domestic production is derived and the corresponding loss of labor earnings at the farm and processor (mill) level is calculated. These estimates are used to evaluate the ability of the current adjustment assistance provisions of the 1974 Trade Act to adequately compensate displaced labor.

#### Production and Employment Effects of Reduced Protection

Using regional supply elasticity estimates from a recent study by Gemmill, normalized farm level supply functions were derived by adjusting the intercept term of Gemmill's equations to reflect 1977 prices and output (USDA, AMS; UDSA, CRB). Prices of \$19.14/short ton for beet and 11 cents/lb raw value for cane, which are equivalent to the floor price of the ISA, were introduced into the equations to obtain an estimate of regional production under reduced protection.<sup>1/</sup> The results are given in table 1.

The total reduction in 1977 production is estimated at 1.36 million short tons (s.t.) or 23 percent. The greatest absolute decline of 390 thousand tons occurs in cane-producing region 7 (Hawaii) but the greatest relative decline occurs in the beet-producing region 3 (Idaho, Oregon, Utah and Washington) with almost 53 percent. These changes reflect the relatively elastic response to price in these regions estimated by Gemmill.

The decline in wages paid to farm labor resulting from these changes in production was derived by converting the decline in regional output to its acreage equivalent using 1977 yield per acre figures, and by multiplying this acreage adjustment by the per acre value of labor utilized in

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<sup>1/</sup> The beet price was obtained by using conversion factors in USDA, CED.

Table 1. Regional U.S. Sugar Production in 1977: Actual and Estimated with International Sugar Agreement Floor Price.

Producing Regions	States Included	Actual Production		Estimated Production		
		( '000 s.t.)	Percent of total	( '000 s.t.)	Change ( '000 s.t.)	Percent Change
1	Michigan N. Dakota	1,220	20.8	1,156	- 64	- 5.2
2	Colorado Montana S. Dakota Wyoming	664	11.3	623	- 41	- 6.2
3	Idaho Utah	496	8.5	234	- 262	-52.8
4	Arizona Nevada	794	13.6	470	- 324	-40.8
<u>Cane Sugar</u>						
5	Florida Texas	982	16.8	776	- 206	-21.0
6	Louisiana	668	11.4	599	- 69	-10.3
7	Hawaii	1,034	17.6	644	- 390	-37.7
TOTALS		5,857	100.0	4,502	-1356	-23.1

1/ Original production data in terms of raw beets converted to raw sugar equivalent using 12.5 percent recovery rate.

each region (USDA, AMS). The value of labor that would be absorbed in the production of the next best alternative crop was subtracted from this estimate to obtain net farm labor displacement.<sup>2/</sup> At the processing level, loss in wages was derived by multiplying the change in regional production by the number of man-hours required to produce a ton of beet or cane and an imputed regional wage rate (USITC).<sup>3/</sup> The results are presented in table 2.

The total reduction in wages is \$39.75 million for on-farm labor and \$48.46 million for processing labor. The principal factor determining wage loss is the change in output as the result of the price change. Thus the potential loss in regions 3 and 4 is large due to size of the fall in sugar production indicated in table 1. At the processor level losses in the sugarcane regions (5-7) appear large relative to the change in production due to their higher wage rate.

#### Programs to Compensate Workers for the Effects of Import Competition

A number of economists have suggested the use of compensation for agricultural workers displaced by import competition (Bale; Johnson). Legislation already exists, in the form of the Title II adjustment assistance provisions of the 1974 Trade Act, which could be used to this end.

Most of the benefits available under Title II are also provided under alternative programs in the areas of employment, manpower, and regional development. The distinction between the two lies in eligibility criteria

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<sup>2/</sup> Information on the value of labor used in the production of alternative crops was obtained from Oklahoma State University farm record data. The alternative crops are; regions 1, 2, 4, corn for grain; region 3, barley; region 6, soybeans; region 5 and 7, none.

<sup>3/</sup> The wage rates used are regions 1 - 4, \$4.05; regions 5-7, \$5.75.

Table 2. Estimated Loss of Wages by Farm and Processor Labor.

Region	Farm Labor		Processor (Mill) Labor	
	Estimated Total Wages 1977	Loss of Wages	Estimated Total Wages 1977	Loss of Wages
-----Thousand dollars-----				
1	32,229	1,632	45,394	2,360
2	29,898	1,897	24,706	1,532
3	20,912	11,056	18,455	9,744
4	25,791	11,217	29,543	12,054
5	32,812	6,904	31,733	6,659
6	31,548	3,259	21,817	2,254
7	10,040	3,787	36,716	13,858
Totals	183,230	39,752	208,364	48,461

and the level of benefits available. The basic reason for duplication is to be able to distinguish non-trade-related from trade-related unemployment so that action can be expedited for the latter.

For workers there are several types of assistance under Title II, including: counselling and placement services; vocational training; and payments for job-search and relocation. The most widely used form of assistance has been the trade readjustment allowance (supplemental unemployment compensation) of 70 percent of weekly earnings payable for up to 52 weeks. Over 90 percent of the expenditures during 1974-76 under the current adjustment assistance program were devoted to trade readjustment allowances (U.S. Congress).

The Department of Labor is responsible for certifying worker eligibility and for administering the program. Workers must petition for assistance which is granted if there is evidence that imports have, or threaten to, contribute significantly to their loss of employment. The conditions and limitations on trade readjustment allowances are more explicit than for other types of worker assistance. One of the most important is that the worker must be able to show that s/he had been employed with the trade impacted firm for at least 26 of the 52 weeks prior to becoming unemployed.

#### Costs of Providing Trade Readjustment Assistance to Displaced Sugar Workers

Under the current adjustment assistance program it is unlikely that on-farm labor displaced from sugar production as the result of imports would be eligible to receive benefits primarily due to the requirement for

continuous employment over a 26 week period.<sup>4/</sup> Although the same restriction applies to seasonal labor employed at the processing level, there are substantial differences in the duration of employment between regions and hence in eligibility.

In order to estimate how many workers employed in processing would be able to receive trade readjustment assistance it was assumed that seasonal labor would be the first to be laid off as the result of reduced demand for mill capacity. The change in regional output in table 1 was converted into a processing man-hour equivalent (USDA, AMS). Using information on total employment and the duration of employment in sugar processing by region (U.S. Department of Labor) the reduction in hours worked was distributed across the work-force, beginning with those employed for the shortest period of time (1-3 months). Thus once the first group's man-hours were exhausted any further reduction in hours worked was allocated to the next group (4-6 months) and so on. Only workers who were employed for over 6 months and who were estimated by this method to be displaced were considered eligible to receive assistance. The results of these calculations are given in the first three columns of table 3.

The analysis suggests that only three regions have workers eligible for trade readjustment assistance payments. Region 7 (Hawaii) has the largest proportion (58 percent) of those displaced. Region 5 (Florida and Texas) has a displacement of 1,258 workers, none of whom is eligible. For the industry as a whole only one quarter of those displaced would be able

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<sup>4/</sup> The 26 week provision would exclude most hired labor. Farm operator or family labor would not be eligible because the program is not designed to deal with the self-employed. For example, one of the restrictions is that a petition for assistance must be filed by a group of workers (3 or more). However, an operator could possibly petition under the provisions for firm assistance which are contained in the legislation.



Table 3. Estimated Labor Displacement in Sugar Processing and Adjustment Assistance Payments.

Region	Number of Workers			Payments to Eligible Workers		Costs of Compensating		
	Actual	Displaced	Eligible	If Unemployed for 31 weeks ('000 \$)	Maximum of 52 weeks ('000 \$)	If Unemployed for 31 weeks ('000 \$)	All Displaced Maximum of 52 weeks ('000 \$)	
	1	2	3	4	5	6	7	
1	8,364	1,121	0	0	0	3,940	6,610	
2	4,543	727	0	0	0	2,555	4,287	
3	3,484	2,518	462	1,624	2,724	8,851	14,848	
4	5,084	3,332	332	1,167	1,958	11,712	19,648	
5	5,999	1,258	0	0	0	6,279	10,532	
6	4,016	426	0	0	0	2,126	3,566	
7	3,330	1,337	1,110	5,540	9,293	6,673	11,193	
TOTALS	34,820	10,719	1,904	8,831	13,975	42,136	70,684	

to obtain assistance under Title II.

Estimates of the costs of assistance for these workers are also given in table 3. In column 4 it is assumed that benefits equal to 70 percent of weekly wages are paid for 31 weeks, the average duration of unemployment under the adjustment assistance program (Jacobson). In column 5 the corresponding amount of payments for the legislative maximum of 52 weeks is given. Cost of compensation under the former is \$8.8 million and is \$14 million under the latter. In the final two columns comparative cost estimates are presented for the compensation of all workers displaced, rather than those eligible under existing legislation. These range from \$42.1 million to \$70.7 million.

#### Conclusions

The major production impact of reduced sugar protection is felt in the two sugar beet regions of the Northwest (Idaho, Oregon, Utah, and Washington) and the West (Arizona, California, Nevada, New Mexico), and in one sugar cane producing state (Hawaii). This conclusion is consistent with recent cost of production data (USDA, AMS) and is supported by the fact that several beet processors/cane millers in these regions have been forced to close in the wake of lower domestic prices.

One effect of reduced sugar protection is to cause some workers to lose their jobs. The net loss of wages under 1977 conditions of moving to the 11 cent floor price of the International Sugar Agreement is estimated at \$39.75 million for farm labor and \$48.5 million for processor labor.

The adjustment assistance provisions in the 1974 Trade Act allow for the compensation of workers displaced by imports. However, as currently framed such compensation would only apply to labor in the processing sector and only about one fifth of the 10,719 workers displaced would be eligible

for assistance. The costs of compensating eligible workers could be as high as \$14 million and the costs of compensating all displaced workers could be over \$71 million.

Economists argue against the protection of the domestic sugar industry on the basis of the consumer losses it creates. Sugar farmers, processors, and labor argue for protection in order to protect profits and jobs. Adjustment assistance may provide a means for promoting less protectionism although as this short paper illustrates with respect to labor, current legislative provisions may not be adequate to compensate for trade displacement in agriculture and related industries.

References

- Bale, H.D. Adjustment in Agriculture and the Trade Act of 1974. U.S.D.A., E.S.C.S., Foreign Agricultural Economic Report No. 147. Washington, D.C. 1978.
- Gemmill, G. The World Sugar Economy: An Econometric Analysis of Production and Policies. Ph.D. thesis, Michigan State University, 1976.
- Jacobson, L.S. "Earnings Losses of Workers Displaced from Manufacturing Industries". Professional Paper 169 presented at a conference sponsored by the U.S. Department of Labor on the "Impact of International Trade and Investment on Employment" held 2-3 December 1976 in Washington, D.C. (mimeo).
- Johnson, D.G. The Sugar Program: Large Costs and Small Benefits. American Enterprise Institute, Washington D.C., 1974.
- U.S. Congress, House of Representatives, Committee on Ways and Means. Background Materials on the Trade Adjustment Assistance Provisions of the Trade Act of 1974. Committee Print WMCP:95-17. U.S. Government Printing Office, Washington D.C., May 10, 1977.
- U.S. Department of Agriculture, Agricultural Marketing Service. Sugar and Sweetener Report, selected issues.
- U.S. Department of Agriculture, Commodity Economics Division, E.S.C.S. Sugarbeet and Sugarcane Production Costs Projected to 1978/79. Unpublished staff paper.
- U.S. Department of Agriculture, Crop Reporting Board. Crop Values 1976-78. Washington D.C., January 18, 1979.

U.S. International Trade Commission. Sugar: A Report to the President on  
Investigation No. TA 201-16 Under Section 201 of the Trade Act of 1974.  
I.T.C. Publication No. 807. Washington D.C., March 1977.