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THE SALES TAX ON FOOD

OPTIONS FOR REDUCING THE TAX BURDEN

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INTRODUCTION

Many states have attempted to reduce the burden of the sales tax on individuals by eliminating the sales tax on food or providing an income tax credit for sales taxes paid. Of forty-six states that levy a general sales tax, twenty-three states exempt sales of food from the tax. The District of Columbia also exempts food from its general sales tax. In addition, four states provide an income tax credit for sales taxes paid on food items, and three states provide an income tax credit for sales taxes paid in general.[1] (See Exhibit 1)

The purpose of this report is to describe the potential aggregate impacts if similar provisions were implemented in the State of Arizona. The analysis will be divided into the following sections:

1. a description of the current food sales tax
2. a description and analysis of six alternatives for reducing the sales tax burden
3. a summary and comparison of food sales tax exemptions and income tax credits for sales taxes paid

In order to more clearly state the results of the analysis, detail of the methodology used to estimate the impacts is omitted from the text. However, the reader interested in the procedures used to test these proposals is referred to the Appendix.

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[1] Sources: Significant Features of Fiscal Federalism, 1976-77 Edition, Vol. II and Commerce Clearing House State Tax Reporters.

EXHIBIT 1

FOOD TAX POLICIES IN OTHER STATES

State	Food Exempt	Income Tax Credit	State	Food Exempt	Income Tax Credit
Alabama			Nebraska		x
Alaska			Nevada		
Arizona			New Jersey	x	
Arkansas			New Mexico		x
California	x		New York	x	
Colorado		x	North Carolina		
Connecticut	x		North Dakota	x	
Delaware			Ohio	x	
Florida	x		Oklahoma		
Georgia			Oregon		
Hawaii		x	Pennsylvania	x	
Idaho		x	Rhode Island	x	
Illinois			South Carolina		
Indiana	x		South Dakota		
Iowa	x		Tennessee		
Kansas			Texas	x	
Kentucky	x		Utah		
Louisiana	x		Vermont	x	x
Maine	x		Virginia		
Maryland	x		Washington	x	
Massachusetts	x	x	West Virginia	x	
Michigan	x		Wisconsin	x	
Minnesota	x		Wyoming		
Mississippi			District of Columbia	x	
Missouri					

THE CURRENT FOOD SALES TAX

Under current Arizona law, sales of food and food products are taxable as follows:

1. Sales of food and drink by restaurants and similar establishments for consumption on the premises are subject to the sales tax on restaurants and bars.
2. All other food products sold to consumers are taxable under the state's retail sales tax.

Sales in both categories are taxed by the state at a cumulative rate of 4%. This includes a 2% transaction privilege tax and a 2% education excise tax. In addition, local sales taxes are often imposed on the sales of food and food products. Local sales taxes are usually levied at a rate of 1-2% where applicable.

OPTIONS FOR REDUCING THE SALES TAX BURDEN: DESCRIPTION AND ANALYSIS

As mentioned before, there are two generally accepted approaches for reducing the tax burden associated with the sales tax on food. The first approach is to eliminate the sales tax on food and prohibit the levy of new sales taxes on such products. The second approach is to return all or a portion of the receipts collected from sales taxes on food to taxpayers in the form of an income tax credit. Several options are available for reducing the tax burden under each of these approaches.

In the sections that follow, some of the options for reducing the tax burden under each approach will be described. The revenue and equity impacts of each option will also be discussed. These concepts are defined below:

1. Revenue Impacts

The revenue impacts of each option describe the total revenue loss to all jurisdictions if the option is adopted and the distribution of the loss among jurisdictions. The estimated revenue loss for each option was based on the reduction in collections that would have occurred if the option had been in effect during calendar year 1978. Calendar year 1978 was selected because this was the most recent time period for which revenue collections were available.

2. Equity Impacts

The equity impacts of each option are discussed in terms of the change in the sales tax burden borne by families of different sizes and income levels. The sales tax burden is defined as the percent of each family's total income that is used to pay sales taxes. Total family income includes transfer payments and other sources of non-taxable income in addition to taxable income sources.[2]

For each option, the analysis will include two graphswhich illustrate the change in the sales tax burdenwhich would have resulted if the option had been in effect during calendar year 1977. The equity analysis is based on 1977 because this was the most recent time period for which family expenditure data could be estimated. It should be noted that, if tax relief is provided in the form of a tax credit, the degree of relief available to each individual in 1977 will decrease somewhat in 1978 unless the credits are indexed for inflation.

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[2]The following sources are included in total family income: wages and salaries, self-employment income, social security, railroad retirement, government retirement, veteran payments, unemployment compensation, estates, trusts, dividends, interest, rental income, royalties, income from roomers and boarders, welfare and public assistance, private pensions, regular contributions for support and other sources including workmen's compensation.

I. ELIMINATING THE SALES TAX ON FOOD

Ordinarily, states which exempt food from the general sales tax only exempt those food products which are purchased for off-premise consumption. Meals and other food products prepared for consumption on the premises remain taxable. Take-out food sold by restaurants is taxable in some states and exempt in others.

A similar exemption could be instituted in the State of Arizona simply by removing the tax on sales of retail food items purchased for home consumption. Two options exist for removing this tax. The first option is to remove the state food sales tax only. The second option is to prohibit the levy of state and local taxes on the sale of food products. The impacts of each of these options is analyzed below.

OPTION 1: ELIMINATING THE STATE SALES TAX ON FOOD

A. Description

The intended effect of this option is to eliminate the state sales tax liability of individuals on purchases of food for home use. Under this option, the 4% state tax on sales of retail food items would be removed. Food products sold in restaurants and similar establishments would remain taxable whether prepared for on-premise consumption or for off-premise consumption.

B. Revenue Impacts

In making this analysis, it was estimated that 26-30% of Arizona's retail sales tax collections are derived from the sales tax on food.[3] During 1978, 26-30% of state retail sales tax collections represented $89,532,216 to $103,306,403. This is the potential revenue loss that would have resulted if the state sales tax on food had been removed beginning in 1978.

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[3]For an explanation of how this estimate was derived, see the Appendix, option 1.

Collections from the state's retail sales tax are shared with counties and cities. The total amount of collections is distributed as follows:

State	Cities	Counties
70.7%	12.5%	16.8%

Thus, the revenue loss of $89,532,216 to $103,306,403 would be borne by each type of jurisdiction as shown below:

	Loss to State	Loss to Cities	Loss to Counties
low	$63,299,277	$11,191,527	$15,041,412
high	73,037,627	12,913,300	17,355,476

A breakdown of the estimated loss to each city is shown in Table 1. The estimated loss to each county is shown in Table 2.

C. Equity Impacts

The graphs in exhibit 2 illustrate the change in the sales tax burden that would result from removing the state sales tax on food. The top graph shows the change in the sales tax burden borne by families of one (a single individual) and the bottom graph shows the change in the sales tax burden borne by families of four. As noted before, the sales tax burden is defined as the percent of income used by each family to pay sales taxes.

The long-dashed line (top) in each of the graphs shows the percent of income currently used by families at different income levels to pay state and local sales taxes on all items (food and non-food). As shown in the graphs, low income families devote a larger portion of their total incomes to sales taxes than families of the same size with higher levels of income (the sales tax is regressive). This is because families with lower incomes are more inclined to spend their entire income and will therefore be subject to the sales tax (5% in this example) on the entire amount. At extremely low levels of income, the

TABLE 1

BREAKDOWN OF CITY REVENUE
LOSS UNDER OPTION 1
(Eliminating the State Food Sales Tax)

County	City	Low Estimate	High Estimate
Apache	Eager	$ 13,206	$ 15,238
	Springerville	7,745	8,936
	St. Johns	12,367	14,269
Cochise	Benson	22,965	26,498
	Bisbee	56,036	64,657
	Douglas	83,847	96,746
	Huachuca City	11,371	13,120
	Sierra Vista	135,373	156,199
	Tombstone	8,349	9,633
	Willcox	18,197	20,997
Coconino	Flagstaff	211,061	243,532
	Fredonia	5,372	6,198
	Page	39,640	45,739
	Willaims	16,049	18,518
Gila	Globe	49,343	56,935
	Hayden	8,629	9,956
	Miami	22,842	26,356
	Payson	19,440	22,430
	Winkleman	6,547	7,554
Graham	Pima	9,703	11,196
	Safford	40,010	46,165
	Thatcher	19,283	22,249
Greenlee	Clifton	34,224	39,489
	Duncan	5,204	6,005
Maricopa	Avondale	44,587	51,446
	Buckeye	17,492	20,183
	Chandler	134,791	155,528
	El Mirage	26,300	30,346
	Gila Bend	12,076	13,933
	Gilbert	24,241	27,970
	Glendale	452,787	522,446
	Goodyear	15,758	18,182
	Guadalupe	28,829	33,265

TABLE 1 (cont'd)

County	City	Low Estimate	High Estimate
Maricopa	Mesa	$ 677,949	$ 782,249
	Paradise Valley	61,374	70,817
	Peoria	52,197	60,228
	Phoenix	4,501,154	5,193,639
	Scottsdale	525,230	606,034
	Surprise	22,349	25,788
	Tempe	631,650	728,827
	Tolleson	26,110	30,127
	Wickenburg	19,574	22,585
	Youngtown	12,680	14,631
Mohave	Kingman	53,988	62,294
Navajo	Holbrook	34,268	39,541
	Show Low	22,730	26,227
	Snowflake	17,313	19,977
	Taylor	10,095	11,648
	Winslow	54,268	62,617
Pima	Marana	9,882	11,402
	Oro Valley	7,924	9,143
	South Tucson	41,856	48,296
	Tucson	2,057,987	2,374,601
Pinal	Casa Grande	91,491	105,566
	Coolidge	45,158	52,105
	Eloy	43,681	50,401
	Florence	19,686	22,714
	Kearny	19,048	21,978
	Mammoth	13,732	15,845
	Superior	33,821	39,024
Santa Cruz	Nogales	63,109	72,818
	Patagonia	4,241	4,894
Yavapai	Chino Valley	13,586	15,677
	Clarkdale	7,174	8,277
	Cottonwood	24,151	27,867
	Jerome	1,947	2,247
	Prescott	113,627	131,109
Yuma	Parker	13,105	15,121
	Somerton	20,827	24,032

TABLE 1 (cont'd)

County	City	Low Estimate	High Estimate
Yuma	Wellton	$ 6,502	$ 7,503
	Yuma	202,399	233,537
Total		$11,191,527	$12,913,300

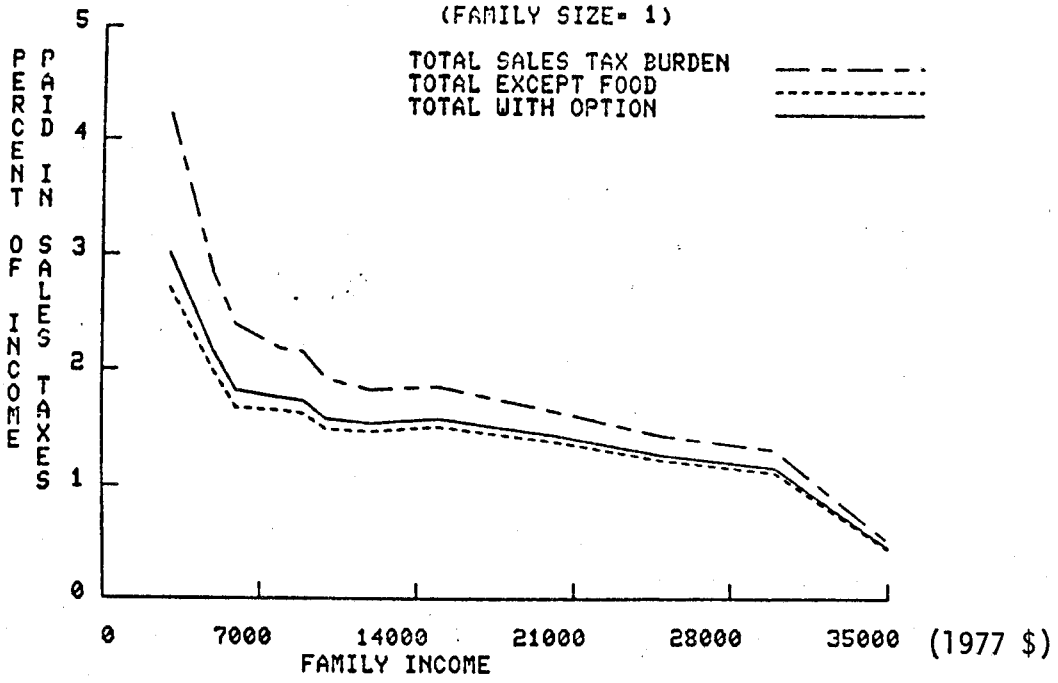
TABLE 2

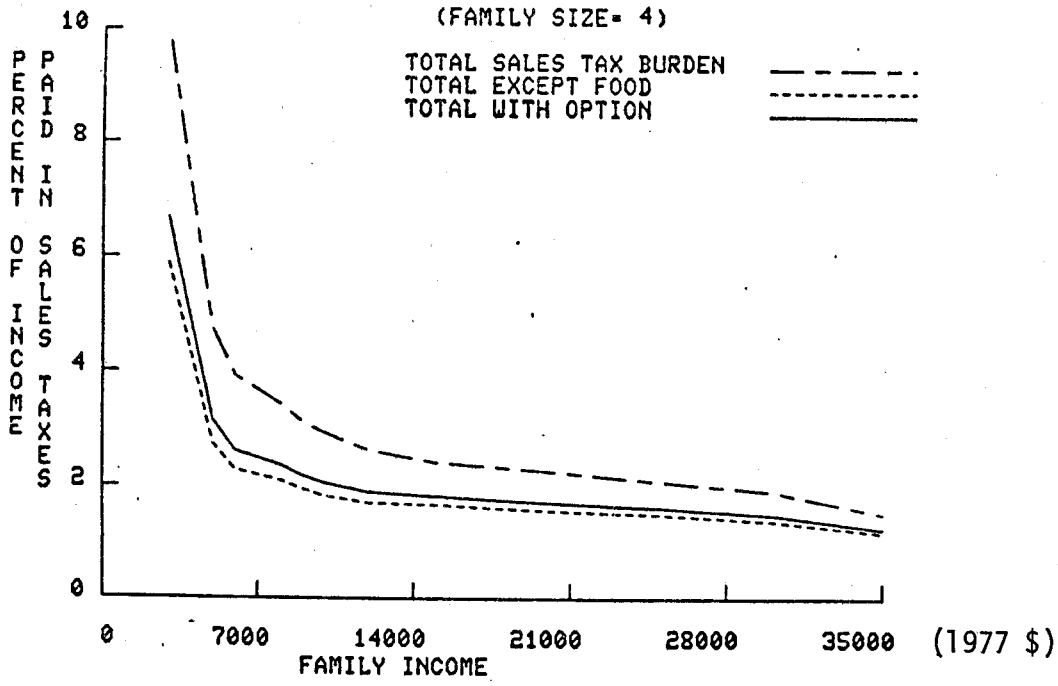
BREAKDOWN OF REVENUE LOSS
TO COUNTIES UNDER OPTION 1
(Eliminating the State Food Sales Tax)

County	Low Estimate	High Estimate
Apache	$ 114,813	$ 132,476
Cochise	392,328	452,686
Coconino	594,722	686,218
Gila	305,657	352,681
Graham	94,543	109,096
Greenlee	278,893	321,800
Maricopa	8,070,629	9,312,264
Mohave	369,088	425,870
Navajo	427,997	493,843
Pima	2,815,045	3,248,138
Pinal	622,399	718,145
Santa Cruz	102,041	117,731
Yavapai	398,838	460,198
Yuma	454,419	524,330
	$15,041,412	$17,355,476

EXHIBIT 2

COMPARISON OF SALES TAX BURDEN UNDER CURRENT LAW AND UNDER OPTION 1
(Eliminating the State Food Sales Tax)





percent of income used to pay sales taxes may even exceed 5%, since families in lower income brackets frequently spend in excess of their incomes from borrowed funds and savings withdrawals, and will pay sales taxes on expenditures from these sources as well.

The short-dashed line in each of the graphs in exhibit 2 is included to show which portion of the sales tax burden results from the tax on food items and which portion of the sales tax burden results from the tax on non-food items. The distance below this line represents the percent of income used to pay sales taxes on non-food purchases. The distance between this line and the long-dashed line represents the percent of income used for food sales taxes (the food sales tax burden).

The solid line in each of the graphs shows the percent of income that would be used to pay all sales taxes after removing the state sales tax on food. The distance between the long-dashed line and the solid line is the amount of tax relief that would be received by individuals at each income level if the state sales tax on food were removed.

It is obvious from the graphs that individuals at all levels of income will receive a significant reduction in sales tax liability if the state tax on food sales is removed. By prohibiting collection of the tax, this option assures that all individuals receive tax relief equal to their actual state food sales tax liability (approximately 4/5 of the total food sales tax burden). Because the food sales tax burden is greater at low levels of income, low income families will benefit most if the tax is removed. Although the level of regressivity is reduced, the sales tax burden on low-income families will still be greater than the sales tax burden on higher income families.

OPTION 2: ELIMINATING STATE AND LOCAL SALES TAXES ON FOOD

A. Description

Under this option, state and local taxes on the sale of retail food items

would be removed. Again, food products sold in restaurants and similar establishments would remain taxable whether prepared for on-premise consumption or for off-premise consumption. The intended effect of this option is to eliminate the state and local sales tax liability of individuals on purchases of food for home use.

B. Revenue Impacts

Estimated collections from the local sales tax on food were $15,089,533 to $17,311,232 during 1978.[4] This is the estimated revenue loss that would have occurred if local sales taxes on food had been removed during that period. When added to the revenue loss from a state food sales tax exemption, the total loss would range from $104,621,749 to $120,617,635.

The total loss to each type of jurisdiction is shown below.

	Loss to State	Loss to Cities	Loss to Counties
State Tax (low)	$63,299,277	$11,191,527	$15,041,412
State Tax (high)	73,037,627	12,913,300	17,355,476
Local Tax (low)	-0-	$15,089,533	-0-
Local Tax (high)		17,311,232	
Total (low)	$63,299,277	$26,281,060	$15,041,412
Total (high)	73,037,627	30,224,532	17,355,476

Table 3 shows the estimated revenue loss to selected cities under option 2. The estimated loss to the state and to each county would be the same under option 2 as it was under option 1.

C. Equity Impacts

The graphs in exhibit 3 illustrate the change in the sales tax burden that would result if state and local sales taxes on food were eliminated. The long-dashed line (indicating current tax burden) and the short-dashed line (indicating current tax burden without food) are the same as the equivalent

[4]For an explanation of how this estimate was derived, see the Appendix, option 2.

TABLE 3

BREAKDOWN OF REVENUE LOSS TO CITIES UNDER OPTION 2
(Eliminating State and Local Food Sales Tax)

County	Cities	Low Estimate	High Estimate
APACHE	Eager Springerville St. Johns	$ 77,973	$ 89,968
COCHISE	Benson Bisbee Douglas Hauchuca City Sierra Vista Tombstone Willcox	632,418	729,712
COCONINO	Flagstaff	673,081	776,632
	Fredonia Page Williams	166,734	192,386
GILA	Globe Hayden Miami Payson Winkleman	200,581	231,439
GRAHAM	Pima Safford Thatcher	143,217	165,249
GREENLEE	Clifton Duncan	53,331	61,536

TABLE 3 (cont'd)

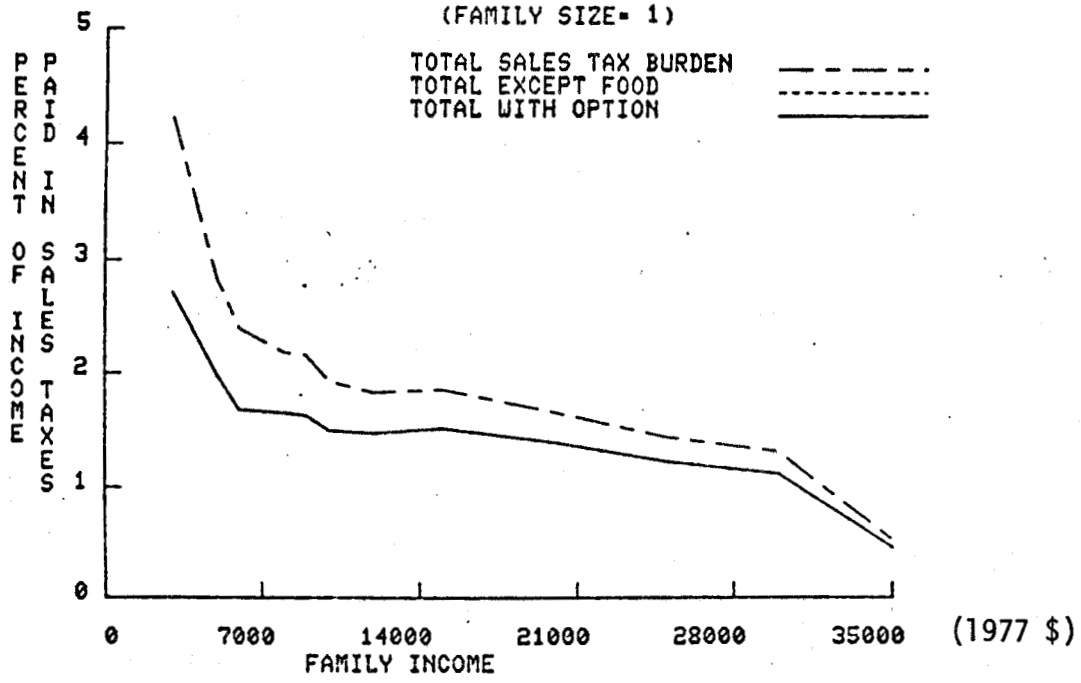
County	Cities	Low Estimate	High Estimate
MARICOPA	Phoenix	$ 12,236,961	$ 14,119,570
	Mesa	2,159,949	2,492,249
	Tempe	1,526,660	1,761,531
	Scottsdale	1,173,723	1,254,527
	Avondale, Buckeye, Chandler, El Mirage, Gila Bend, Gilbert, Glendale, Good Year, Guadalupe, Paradise Valley, Peoria, Surprise, Tolleson, Wickenburg, Youngtown	3,140,789	3,623,988
MOHAVE	Kingman	115,955	133,795
NAVAJO	Holbrook, Show Low, Snowflake, Taylor, Winslow	273,317	315,367
PIMA	Tucson	2,057,987	2,374,601
	Marana, Oro Valley, South Tucson	196,815	227,095
PINAL	Casa Grande, Coolidge, Eloy, Florence, Kearney, Mammoth, Superior	404,721	466,983
SANTA CRUZ	Nogales, Patagonia	199,960	230,723

TABLE 3 (cont'd)

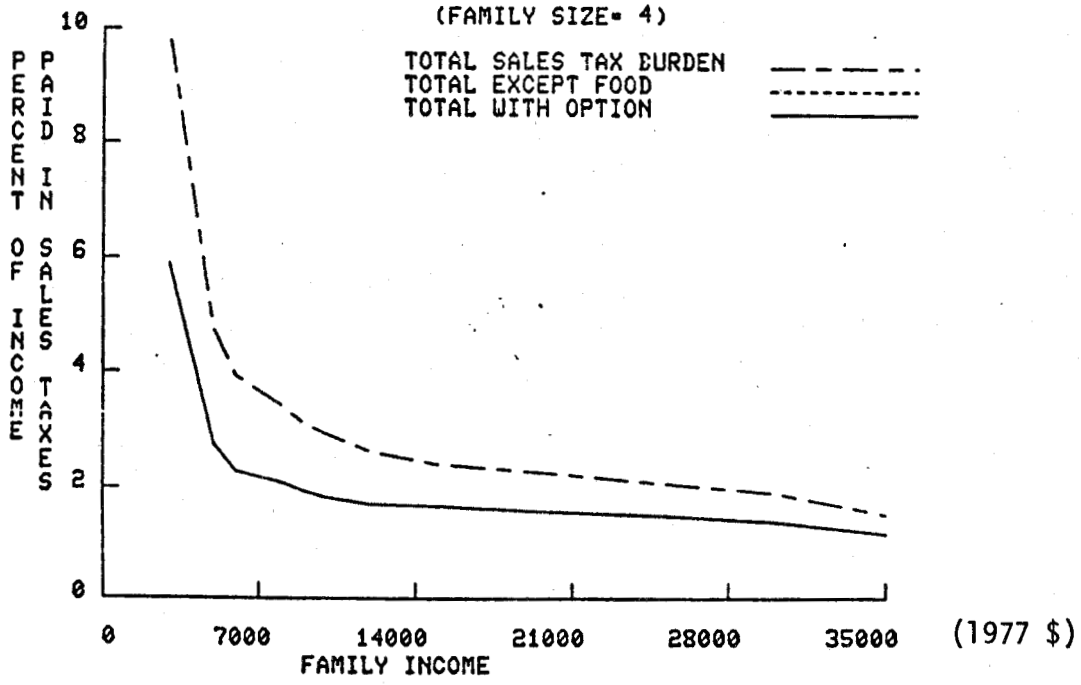
County	Cities	Low Estimate	High Estimate
YAVAPAI	Chino Valley Clarkdale Cottonwood Jerome Prescott	$ 261,821	$ 302,103
YUMA	Parker Somerton Wellton Yuma	585,067	675,078
TOTAL		$ 26,281,060	$ 30,224,532

EXHIBIT 3

COMPARISON OF SALES TAX BURDEN UNDER CURRENT LAW AND UNDER OPTION 2
(Eliminating State and Local Food Sales Tax)



NOTE: In these graphs the short-dashed line and the solid line are equal.



lines in exhibit 2. In this case, however, the solid line (which represents the sales tax burden after removing state and local sales taxes on food) will be identical to the short-dashed line (the current tax burden without food).

Under this option, also, the sales tax burden will be reduced for individuals at all levels of income. The amount of tax relief received by each family will be exactly equal to its original food sales tax liability (state and local). The relief received by each family is represented in the graphs by the distance between the long-dashed line and the solid line. The remaining sales tax burden will equal the percent of income used to pay sales taxes for non-food purchases (represented by the solid and short-dashed lines).

II. INCOME TAX CREDITS FOR SALES TAXES PAID

The most common form of tax credit used to compensate individuals for sales taxes paid is the fixed per capita credit. Of the seven states that provide an income tax credit for sales taxes paid, four states (Idaho, Massachusetts, Nebraska, and New Mexico) use this form of credit or a modified version. With a credit of this type, the same amount of reduction in income tax liability is granted for each individual in the state. The amount of the credit may be an arbitrary figure or may be based on an estimate of the average food sales tax liability of individuals within the state.

Tax credits may also be designed to duplicate the effects of an exemption by providing tax relief to each household based on actual sales tax liability. This may be accomplished by allowing each household to itemize food sales tax payments or a schedule of tax credits may be developed based on an estimate of the food sales tax liability of families of different sizes and income levels.

A third form of tax credit used to compensate individuals for sales tax payments is the "vanishing" tax credit. Vanishing tax credits concentrate tax relief at low levels of income and provide no relief to families at high income levels. As the income of the claimant increases, the amount of

the tax credit decreases, until it "vanishes" (declines to zero) at a specified income level.

Of the seven states which provide an income tax credit for sales taxes paid, three states (Hawaii, Colorado, and Vermont) use a vanishing income tax credit. Colorado and Hawaii use a per capita tax credit which declines in value as the level of income increases. In Hawaii, for example, the tax credit is $40 for individuals with an income level between $14,000 and $20,000. In Vermont, tax credits are granted to each household based on the income level and size of the family. For families of each size, the amount of the credit decreases as the level of income increases.

In the paragraphs that follow, an analysis will be made of four additional options for reducing the sales tax burden. Each of these options will be in the form of an income tax credit.

OPTION 3: FIXED PER CAPITA TAX CREDITS

A. Description

Under this option, each individual in the state would be eligible to receive an income tax credit as compensation for sales taxes paid. The amount of the credit would be the same for each individual in the state. The intended effect of this option is to reduce the total tax liability of each individual in the state by the same absolute amount.

B. Revenue Impacts

The revenue loss from a flat rate per capita tax credit depends on the size of the credit which is granted. The estimated revenue loss that would result from several different levels of credit is shown below for 1978:

Per Capita Tax Credit	Estimated Revenue Loss[5]
$45/person	$108,202,005 to $114,624,000
$35/person	$ 84,157,115 to $ 89,152,000
$30/person	$ 72,134,670 to $ 76,416,000

The high estimate is the revenue loss that would have resulted if all individuals eligible for the credit in 1978 had actually received it. The low estimate is the revenue loss that would have resulted if the credit had been granted only to individuals claimed as exemptions on 1978 tax returns.

Net collections from the state income tax are divided between the state and the cities. The cities' share is equal to 15% of the net proceeds collected from the income tax two years prior to the current fiscal year. Thus, the cities would not receive a reduction in their share of income tax collections until two years after the income tax credit was first granted and the revenue loss associated with the tax credit would be borne entirely by the state for the first two years that the credit was in effect.

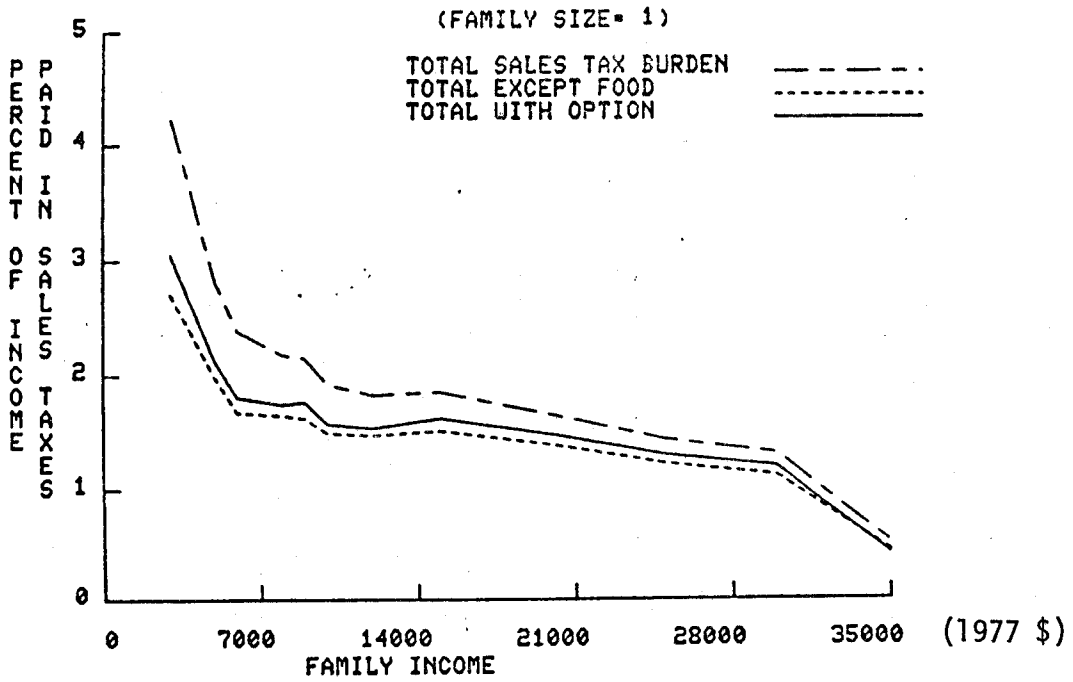
C. Equity Impacts

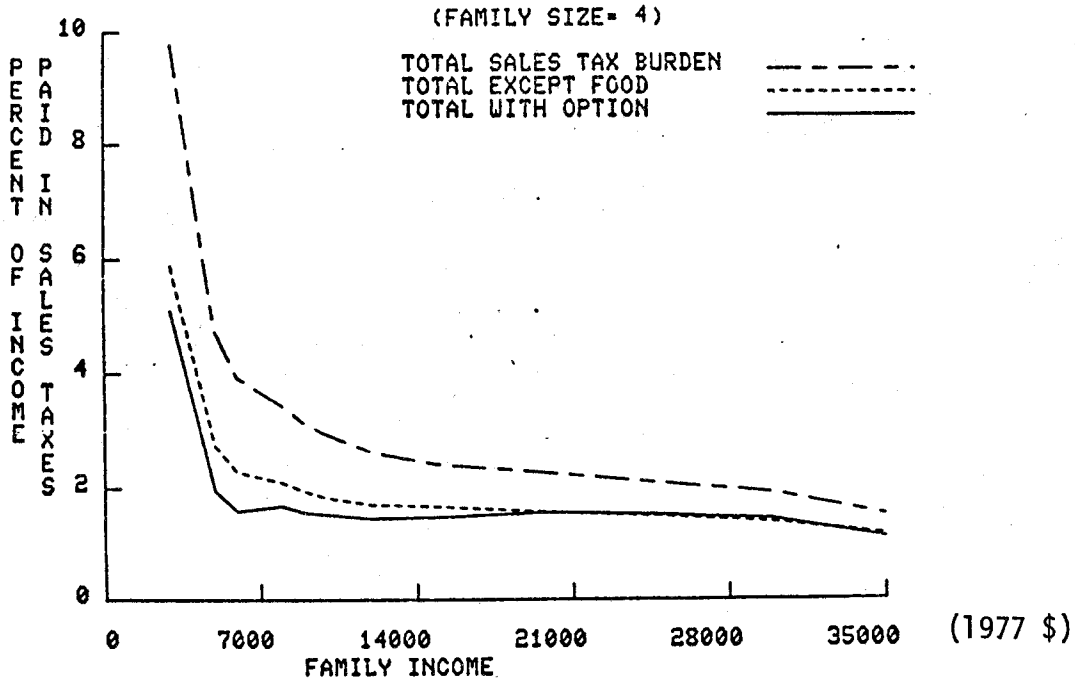
The graphs in exhibit 4 illustrate the change in the sales tax burden that would result if taxpayers received a $35 per capita income tax credit for sales taxes paid. Under this option, the sales tax burden will be reduced for individuals at all levels of income. Individuals at lower levels of income will generally receive tax relief which is somewhat greater than their original state food sales tax burden, and in the case of larger families, will receive tax relief which exceeds their combined state and local food sales tax liability. Individuals at higher income levels will, in most cases, receive tax relief which is equal to or slightly less than their actual food sales tax liability. By comparing the lower graph of exhibit 4 with the lower graph of exhibit 2, it can be shown that the per capita tax credit will provide greater tax relief to large families with low incomes than a food sales tax exemption. In each of the graphs, the amount of tax relief received by

[5]For an explanation of how these estimates were derived, see the Appendix, Option 3.

EXHIBIT 4

COMPARISON OF SALES TAX BURDEN UNDER CURRENT LAW AND UNDER OPTION 3
(Fixed per Capita Tax Credit)





individuals at each income level is represented by the distance between the long-dashed line and the solid line.

OPTION 4: INCOME TAX CREDITS BASED ON ACTUAL FOOD SALES TAX LIABILITY

A. Description

This option is intended to parallel the effects of the state food sales tax exemption. Under the option, each household would receive a tax credit based on an estimate of its state food sales tax liability during 1977. The tax liability estimated for each family is determined based on the food expenditures of families by family size and total family income. The schedule of tax credits available to families of different sizes and income levels under this option is shown in exhibit 5.[6] As shown, the credits are based on total family income which includes transfer payments and other sources of income not taxed.

B. Revenue Impacts

The revenue loss if this type of credit had been in effect in Arizona during 1978 is estimated at $68,363,714.[7] As with other types of income tax credits, this revenue loss would be borne entirely by the state during the first year and the cities that receive a share of the income tax would not experience a decline in revenues until two years after the credit goes into effect.

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[6]For an explanation of how this schedule was developed, see the Appendix, Option 4.

[7]As noted previously, a credit based on actual food sales tax liability resembles a food sales tax exemption with respect to tax relief. However, the estimated revenue loss from the credit will be significantly lower due to the fact that the tax credits granted to each family under this option were based on the estimated food sales tax liability of families during 1977 (see exhibit 5). If the tax credits available to each family were adjusted to approximate 1978 food sales tax liability using the food inflation index, the estimated revenue loss would increase to $75,014,187. This is still lower than the loss from an exemption because non-residents and non-filers would not receive the credit.

EXHIBIT 5

TAX CREDIT SCHEDULE BASED ON ACTUAL SALES TAX LIABILITY

TOTAL FAMILY INCOME		FAMILY SIZE					
		1	2	3	4	5	6 or more
$	under 4,200	$ 30	$ 50	$ 59	$ 75	$ 82	$ 91
4,200	under 8,300	33	63	69	81	101	114
8,300	under 16,700	37	65	70	90	105	131
16,700	under 20,800	39	72	82	104	111	147
20,800	under 35,000	43	76	100	120	135	164
35,000	plus	52	91	116	135	153	191

NOTE: This schedule was based on the estimated food purchases of families of each size and income level during 1977. The income brackets are also expressed in terms of 1977 dollars.

C. Equity Impacts

The two graphs in exhibit 6 illustrate the change in the sales tax burden that would occur if the State of Arizona used a schedule of tax credits based on the actual state food sales tax liability of households of different sizes and income levels. By comparing these graphs with the graphs in exhibit 2, it can be shown that the impact of a credit based on actual tax liability will closely resemble the effects of a sales tax exemption.

As with the state food sales tax exemption, individuals at all levels of income will receive tax relief which approaches their actual state food sales tax liability (approximately 4/5 of the total food sales tax burden).

In the graphs, the total food sales tax burden is represented by the distance between the long-dashed line and the short-dashed line. Sales tax relief under option 4 is represented by the distance between the long-dashed line and the solid line.

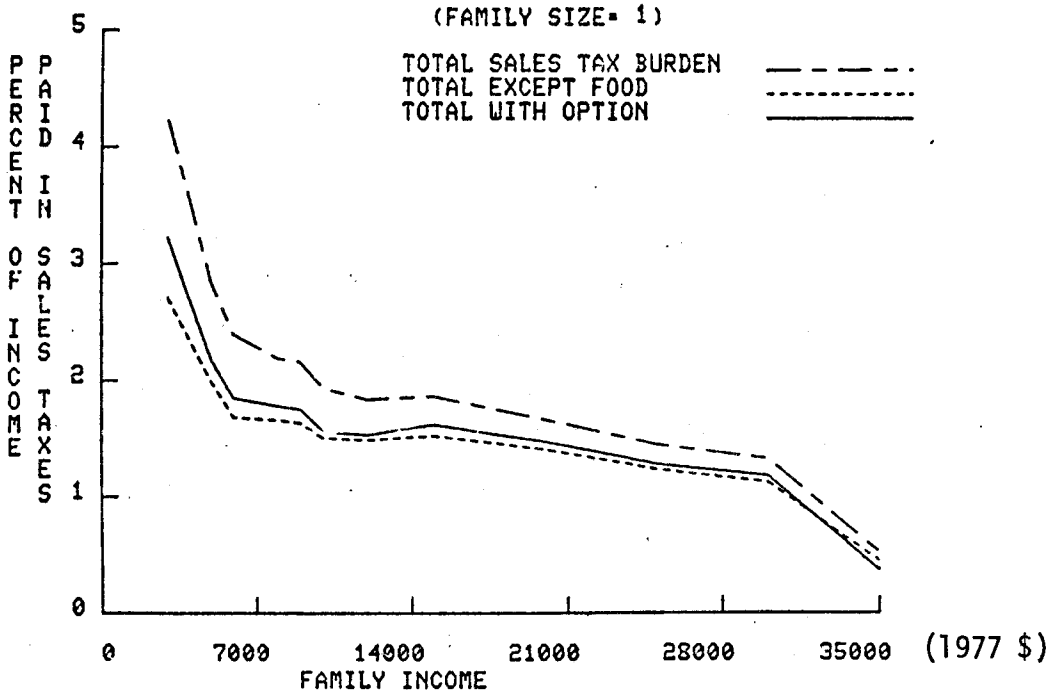
OPTION 5: VANISHING TAX CREDITS - THE HAWAII TAX CREDIT SCHEDULE

A. Description

The intended effect of this option is to reduce the tax burden on lower income families. The tax credit available to each individual would be based on a schedule of tax credits equal in amount to the ones used by the State of Hawaii. In Hawaii, income tax credits are limited to individuals with incomes of less than $20,000. The entire schedule of Hawaii tax credits is shown in exhibit 7. In the Hawaii tax credit schedule the term "income" refers to the adjusted gross income received by the claimant. Under this option, however, the income on which the credit is based has been changed to total family income.

EXHIBIT 6

COMPARISON OF SALES TAX BURDEN UNDER CURRENT LAW AND UNDER OPTION 4
(Tax Credits Based on Actual Sales Tax Liability)



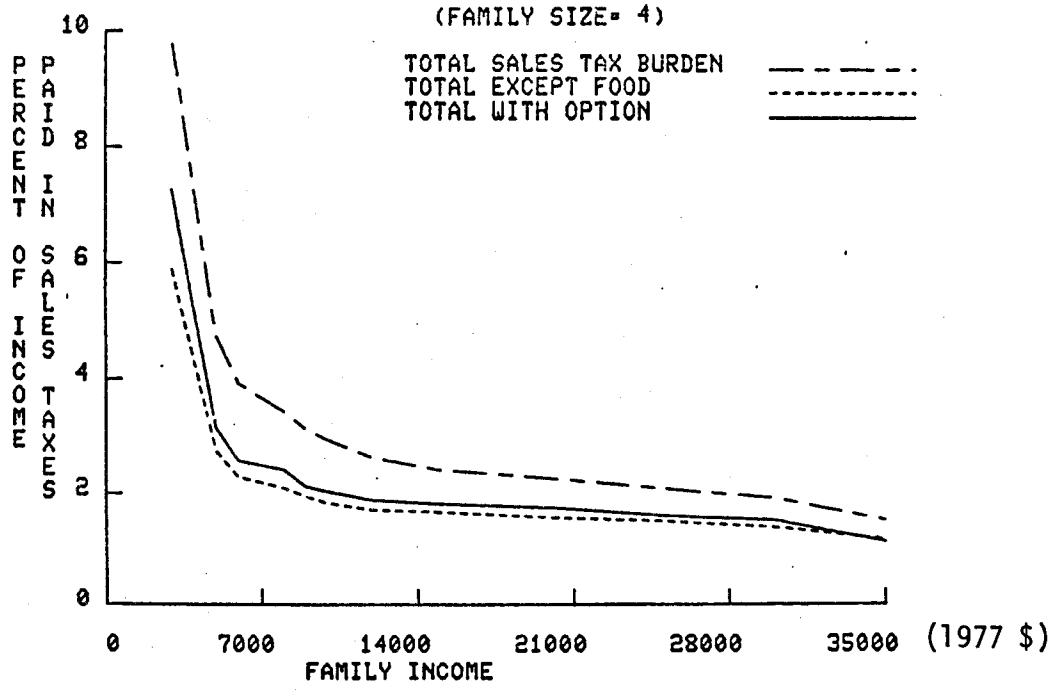


EXHIBIT 7

TAX CREDIT SCHEDULE USED BY THE STATE OF HAWAII

INCOME	TAX CREDIT
$ under 5,000	$40
5,000 under 6,000	32
6,000 under 7,000	28
7,000 under 8,000	26
8,000 under 9,000	22
9,000 under 10,000	20
10,000 under 11,000	17
11,000 under 12,000	14
12,000 under 13,000	11
13,000 under 14,000	8
14,000 under 20,000	6

B. Revenue Impacts

If a schedule of tax credits equal in amount to the ones used by Hawaii had been in effect in the State of Arizona during 1978, the estimated revenue loss for that period would have totaled $27,227,066.[8]

Because of the way income tax revenues are distributed in the State of Arizona, the revenue loss from a tax credit of this type would also be borne entirely by the state during the first years the credit was in effect, and the cities would not experience a decline in revenue until the third year.

C. Equity Impacts

The two graphs in exhibit 8 illustrate the change in the sales tax burden that would occur if the State of Arizona used a schedule of tax credits similar to the one used by the State of Hawaii. As shown in the graphs, the reduction in sales tax liability is restricted to families at lower levels of income under this option. However, the amount of relief received by individuals at lower income levels will be significant and will in fact exceed sales tax liability for larger sized families. As before, the amount of tax relief available at each income level is represented by the distance between the long-dashed line and the solid line. At higher levels of income there is no distance between these two lines, indicating that no tax relief is received.

OPTION 6: VANISHING TAX CREDITS - THE VERMONT TAX CREDIT SCHEDULE

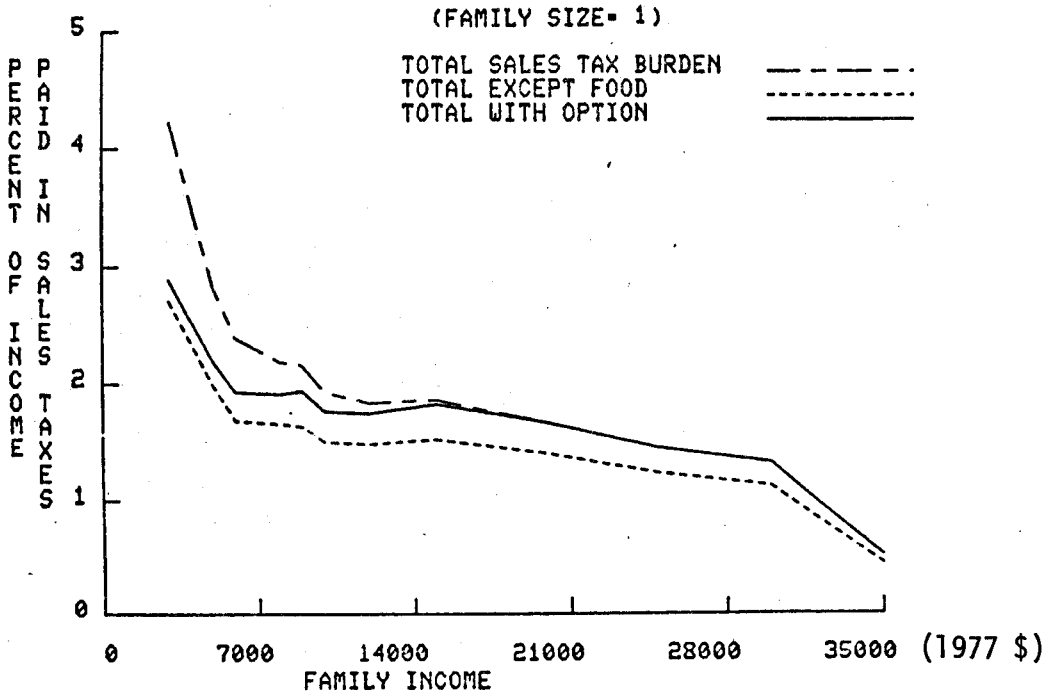
A. Description

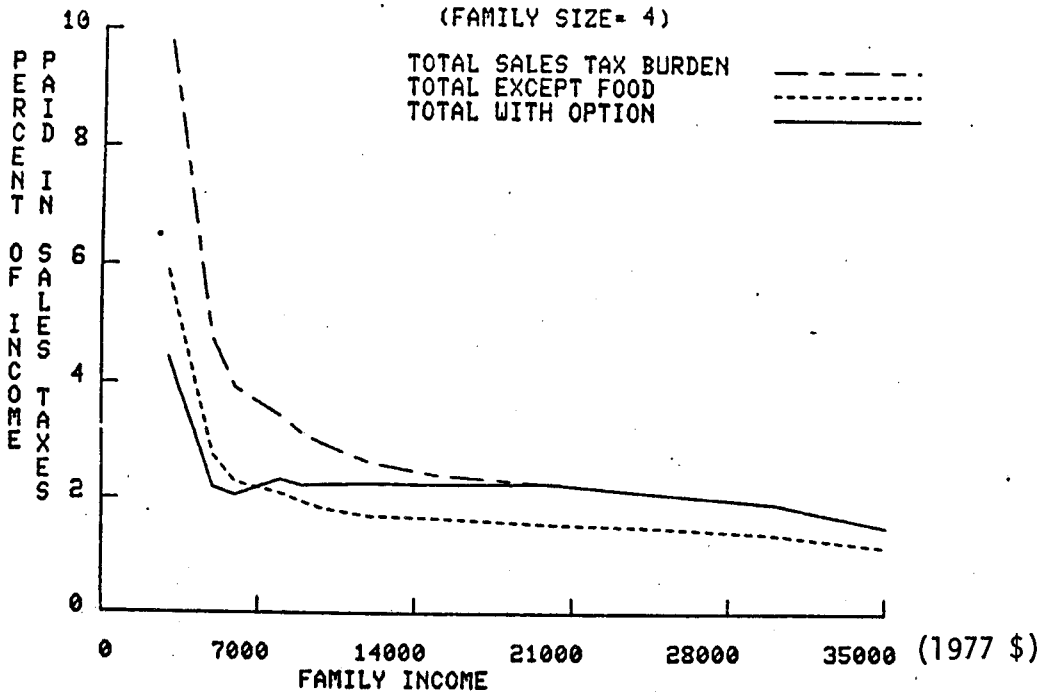
Under option 6, the tax credit available to each individual would be based on a schedule of tax credits equal in amount to the ones used by the State of

[8]The estimate shown may be a low estimate, since the number of individuals filing tax forms would probably increase if a tax credit goes into effect. For an explanation of how this estimate was derived, see the Appendix, Option 5.

EXHIBIT 8

COMPARISON OF SALES TAX BURDEN UNDER CURRENT LAW AND UNDER OPTION 5
(The Hawaii Tax Credit Schedule)





Vermont. This option is also intended to reduce the tax burden on low-income families. In Vermont, income tax credits are limited to families with incomes of less than $9,000. Families with incomes below $9,000 receive a tax credit that depends on income and family size. Although the credit increases with the size of the family, the increase is not directly proportional to the number of individuals in the family. The entire schedule of Vermont tax credits is shown in exhibit 9.

The tax credit available to each household in the State of Vermont is based on "modified adjusted gross income" which included Social Security payments, public assistance and other non-taxable sources of income. This concept of income closely resembles family income which was the basis for granting the tax credit in this analysis.

B. Revenue Impacts

If a schedule of tax credits equal in amount to the ones used by Vermont had been in effect in the State of Arizona during 1978, the estimated revenue loss for that period would have totaled $5,032,814.[9] Again, this revenue loss would be borne entirely by the state during the first year, and the cities that receive a share of the income tax would not experience a decline in revenues until two years after the credit goes into effect.

C. Equity Impacts

The two graphs in exhibit 10 illustrate the change in the sales tax burden that would occur if the State of Arizona used a schedule of tax credits similar to the one used by the State of Vermont. Under this option, also, the reduction in sales tax liability is limited to families at lower levels of income. Even at these low levels of income, however, the amount of tax relief provided is signficantly less than the amount of food sales tax liability. In the graphs, food sales tax liability is represented by

[9]The estimate shown may be a low estimate, since the number of individuals filing tax forms would probably increase if a tax credit goes into effect. For an explanation of how this estimate was derived, see the Appendix, Option 6.

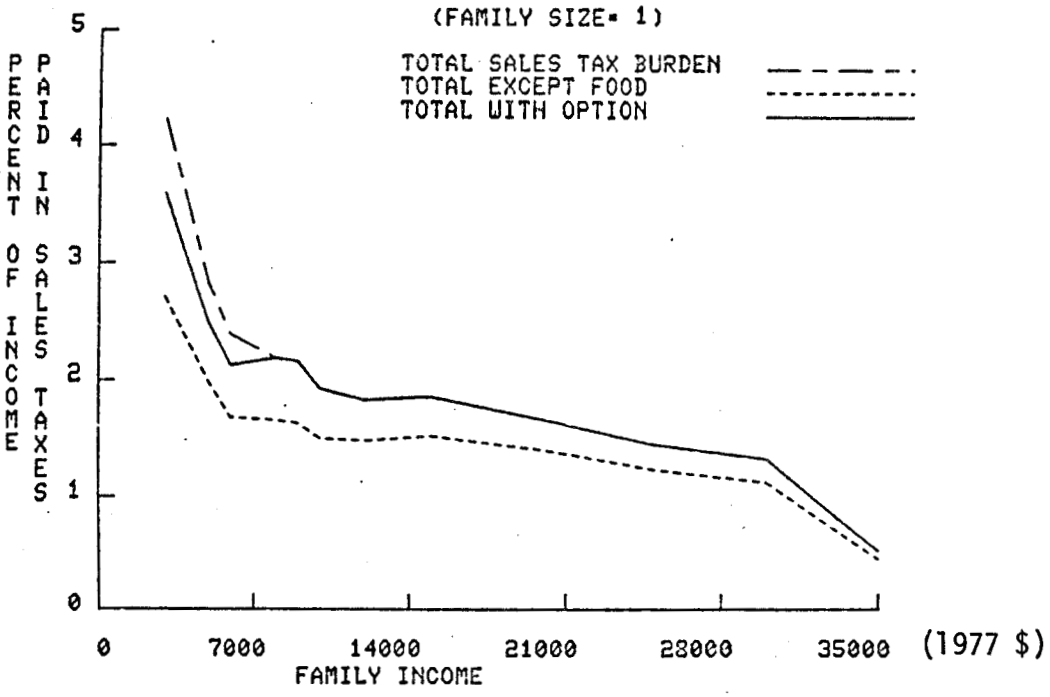
EXHIBIT 9

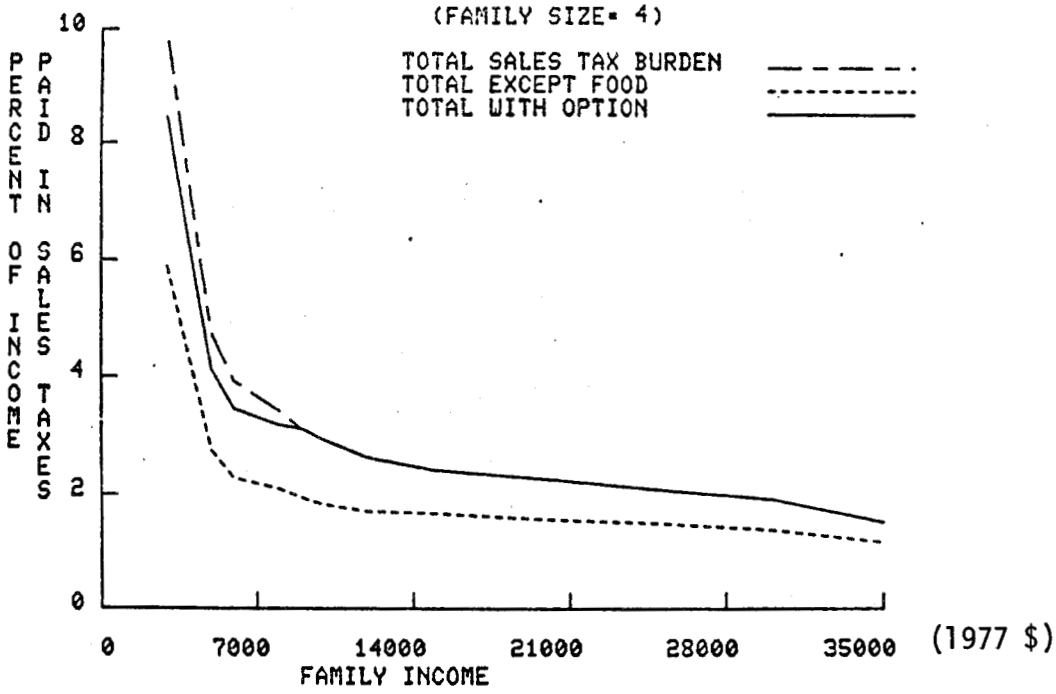
TAX CREDIT SCHEDULE USED BY THE STATE OF VERMONT

INCOME	1	2	3	4	5	6	7	8	9	10 or more
$8,000-8,999	0	0	0	20	22	24	26	28	30	32
7,000-7,999	0	0	21	24	27	30	33	36	39	42
6,000-6,999	16	20	25	28	30	34	37	40	43	46
5,000-5,999	17	23	28	32	35	38	41	44	47	50
4,000-4,999	18	25	31	36	40	44	48	52	56	60
3,000-3,999	19	27	34	40	45	49	53	57	61	65
2,000-2,999	20	29	37	44	50	55	60	65	70	75
1,000-1,999	21	31	40	48	55	61	66	71	76	81
0 - 999	22	33	43	52	60	67	76	79	85	91

EXHIBIT 10

COMPARISON OF SALES TAX BURDEN UNDER CURRENT LAW AND UNDER OPTION 6
(The Vermont Tax Credit Schedule)





the distance between the long-dashed line and the short-dashed line. Sales tax relief under option 6 is represented by the distance between the long-dashed line and the solid line. At higher levels of income there is no distance between these two lines, indicating that no tax relief is received.

COMPARISON OF REVENUE AND EQUITY IMPACTS: EXEMPTIONS vs. CREDITS

I. SUMMARY AND COMPARISON OF REVENUE IMPACTS

When comparing the revenue impacts of the six options for reducing the sales tax burden, the following questions should be considered.

1) How much revenue is to be returned to the taxpayers?
2) Which jurisdictions will bear the revenue loss?

In considering each of these questions, it is helpful to look separately at food sales tax exemptions and income tax credits for sales taxes paid. The distinct characteristics of each approach are considered below.

A. TOTAL REVENUES RETURNED TO TAXPAYERS

1. Food Sales Tax Exemptions

With a food sales tax exemption, the total amount of revenue which is returned to the taxpayers will be determined by the amount of revenues which would be collected by each jurisdiction if the exemption were not in effect. Option 1, for example, involves removing the state tax on food. Therefore, the total amount of revenue retained by the taxpayers under this option would equal the total amount collected by the state from the sales tax on food (estimated at $89,532,216-$103,306,403). Similarly, Option 2 provides for a food sales tax exemption at the state and local level. Thus, the total tax loss under this option would equal the amount of taxes collected by state and local jurisdictions. ($89,532,216-$103,306,403 collected by the state plus $15,089,533-$17,311,232 collected by the cities.)

Because no tax revenues will be collected on food sales if an exemption is in effect, the ability of the legislature to control the total amount of the revenue loss will be somewhat limited under this approach. However, it would

be possible to exercise more control over the total revenue loss from this type of alternative by reducing the tax rate on food sales instead of eliminating the tax altogether.

2. INCOME TAX CREDITS FOR SALES TAXES PAID

Income tax credits offer considerable flexibility in determining the amount of revenue to be returned to the taxpayers. With an income tax credit, the total amount returned will depend on the amount of the credit granted to each individual or household. An income tax credit may be designed to return all of the revenues collected from the food sales tax or only a portion of these revenues. For example, the total revenue loss resulting from each of the tax credits examined in this report ranges from a high of $120,617,635 (option 2) to a low of $5,032,814. (Option 6.) Thus, the total amount of revenue to be returned to the taxpayers will depend on the type of tax credit selected. In addition, the size of the revenue loss resulting from any of these options may be increased or decreased by altering the amount of the credit available to each individual or household under that option.

B. DISTRIBUTION OF REVENUE LOSS AMONG JURISDICTIONS

1. FOOD SALES TAX EXEMPTIONS

Exempting food from the sales tax would result in a reduction in total sales tax collections. Under current law, state sales tax collections are divided between the state, the cities and the counties. City sales tax collections are retained by the cities that levy a tax. Thus, the revenue loss from a state food sales tax exemption would be shared by the state, cities, and counties, while the revenue loss from a local food sales tax exemption would be borne entirely by the cities.

2. INCOME TAX CREDITS FOR SALES TAXES PAID

Providing an income tax credit for sales taxes paid would result in a reduction

in state income tax collections. Net collections from the state income tax are divided between the state and cities. The cities' share is equal to 15% of the net proceeds collected from the income tax two years prior to the current fiscal year. Thus, the revenue loss resulting from an income tax credit would be borne entirely by the state during the first two years the credit is in effect and the cities would not experience a reduction in their share of tax collections until the third year.

II. SUMMARY AND COMPARISON OF EQUITY IMPACTS

Two questions must also be addressed when comparing the equity impacts of the six options for reducing the sales tax burden. These questions are:

1) Will families at all levels of income receive a reduction in sales tax liability? (What is the scope of the tax relief?)
2) How does the amount of reduction in taxes compare with the amount of taxes paid at each level of income? (What is the degree of tax relief?)

Again, it is helpful to look separately at food sales tax exemptions and income tax credits for sales taxes paid in considering each of these questions.

A. THE SCOPE OF TAX RELIEF

1. FOOD SALES TAX EXEMPTIONS

Food sales tax exemptions are intended to provide tax relief to all individuals affected by the food sales tax. Because the food tax is eliminated on all retail food items, any individual purchasing food at retail will benefit regardless of income level.

2. INCOME TAX CREDITS FOR SALES TAXES PAID

Income tax credits for sales taxes paid may be granted to all individuals

regardless of income or may be granted only to individuals at specified income levels.

For example, a flat rate per capita credit (option 3) will reduce the tax burden of individuals at all income levels. A credit based on actual food sales tax liability (option 4) will also benefit individuals at all income levels. Vanishing tax credits, on the other hand, are designed to provide tax relief only to individuals at lower levels of income. For example, the schedule of tax credits used by the States of Hawaii and Vermont (options 5 and 6) concentrate tax relief at the lower levels of income and do not provide tax relief to individuals in high income brackets.

B. THE DEGREE OF TAX RELIEF

1. FOOD SALES TAX EXEMPTIONS

By prohibiting collection of the tax, food sales tax exemptions assure that all individuals receive tax relief which is exactly equal to their original food sales tax liability. Because no tax is collected on food items when an exemption is in effect, the food sales tax burden of individuals at all levels of income is reduced to zero for each jurisdiction exempting food.

2. INCOME TAX CREDITS FOR SALES TAXES PAID

With an income tax credit, the degree of tax relief available to individuals at each level of income will depend on the type of tax credit selected. In general, the tax credits examined in this report represent three different patterns of tax relief.

The first pattern of tax relief, represented by option 4, duplicates the effects of a state sales tax exemption (option 1). In this option, the tax credit available to each household is based on an estimate of actual sales tax liability. Therefore, all families will receive tax relief which is approximately equal to their actual state food sales tax liability.

The second pattern of tax relief is represented by options 5 and 6. Under each of these options, individuals at lower levels of income receive tax relief which approaches their original food sales tax liability, while individuals at high income levels receive no tax relief.

The third pattern of tax relief is represented by option 3. Under this option, individuals in larger families and individuals with lower levels of income may receive tax relief which exceeds their food sales tax liability while individuals at higher income levels and from smaller family sizes will receive tax relief which, in most cases, is equal to or slightly less than their food sales tax liability.

It should be noted that the degree of tax relief available to each individual from any income tax credit schedule will deteriorate from year to year unless the credit schedule is indexed for inflation.

APPENDIX

METHODOLOGY: REVENUE IMPACTS

OPTION 1: ELIMINATING THE STATE SALES TAX ON FOOD

As mentioned in the text, food items sold in grocery stores are taxable under the retail category of the sales tax. Thus, collections from the tax on food are not separately identified, but are lumped together with all other collections from sales of retail items. In order to determine what portion of the total collections from retail items is derived from the sales tax on food, it is necessary to detemine what portion of total retail expenditures is represented by expenditures for food. To calculate this amount, two different approaches were used.

In the first approach, it was assumed that the bulk of retail purchases are made by consumers, with businesses purchasing only a small percentage of retail items. Thus, the percent of retail collections represented by collections from food could be estimated by determining what percent of the average consumer's expenditures for taxable retail items are equal to expenditures for food. To calculate this percentage, expenditure data from the 1972-73 Consumer Expenditure Survey were used.[1] More specifically, the data used were taken from a breakdown of average consumption expenses based on a survey of families in the western area of the United States. For each category of expenditure, a separate determination was made as to whether expenses in the category were subject to the Arizona retail sales tax. Retail categories composed of food items were also identified. Expenditures in each category subject to the retail sales tax were updated to the 1977 level by increasing the figures to reflect the increase in the consumer price index for that category between 1972-73 and 1977.[2] Total expenditures for retail items were then calculated by summing expenditures in all categories (including food) that were determined to be subject to the Arizona retail sales tax. Total expenditures for retail food items were calculated by summing expenditures in retail categories that were composed of food for

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[1] Consumer Expenditure Survey: Integrated Diary and Interview Survey Data 1972-73, U.S. Dept. of Labor, Bureau of Labor Statistics, pp. 121-124.

[2] For each expenditure category, the component Consumer Price Index for the Phoenix Metropolitan area was provided by the Bureau of Business and Economic Research at Arizona State University.

home consumption. The percent of retail expenditures which is represented by food was then calculated by dividing expenditures for food items by expenditures for all retail items as shown below:

$$PC = \frac{CFE}{CRE} \qquad (1)$$

where:

PC = the percent of retail sales tax collections derived from food sales
CFE = consumer food expenditures
CRE = consumer retail expenditures subject to Arizona sales tax

In the second approach, the portion of retail sales tax collections derived from food sales was calculated by dividing estimated sales tax collections from food stores by total retail sales tax collections, during calendar year 1977. The following formula was used:

$$PC = \frac{FTC}{RTC} \qquad (2)$$

where:

PC = the percent of retail sales tax collections derived from food sales
FTC = estimated state food sales tax collections during 1977
RTC = total state retail sales tax collections during 1977

Total state retail sales tax collections during 1977 (RTC) were available from the Arizona Department of Revenue.

Tax collections from food sales during 1977 (FTC) were estimated using the following equation:

$$FTC = .04\ (RFS) \qquad (3)$$

where:

FTC = estimated food sales tax collections during 1977

RFS = total retail sales made by grocery and other food stores during 1977[3]

.04 is the sales tax rate

Under the first approach, food sales tax collections were estimated at 30.8% of total retail sales tax collections. This figure was believed to be somewhat high because it represents food sales tax collections as a percent of sales tax collections from consumer retail purchases instead of as a percent of total retail sales tax collections, which include taxes received from retail purchases by businesses.

Under the second approach, food sales tax collections were estimated at 25.7% of total retail sales tax collections. Thus, a range of 26%-30% was selected as the portion of retail sales tax collections derived from food sales.

To calculate the revenue loss associated with the sales tax exemption for 1978, this range of rates was applied to total retail sales tax collections during 1978, as shown below:

$$RL = PC\ (RTC) \qquad (4)$$

where:

RL = 1978 revenue loss

PC = the percent of retail sales tax collections derived from food sales

RTC = total state retail sales tax collections during 1978

[3]Total retail sales by food stores during 1977 were taken from the 1977 Economic Census of Retail Trade - Advance Report, U.S. Dept. of Commerce.

OPTION 2: ELIMINATING STATE AND LOCAL SALES TAXES ON FOOD

To determine the revenue loss from eliminating state and local sales taxes on food, the same percentages used in option 1 were applied to total state and local collections from retail sales taxes during 1978.[4] Retail sales tax collections for all cities except Tempe, Scottsdale, Prescott, Phoenix, Peoria, Patagonia, Nogales, Mesa, Flagstaff, Chandler and Benson were derived from the Department of Revenue sales tax tapes.[5] Collections for the cities listed were provided by the cities themselves.

Retail sales tax collections in the City of Tucson were excluded from the local total because Tucson exempts food from its city sales tax.

OPTION 3: FIXED PER CAPITA TAX CREDITS

The revenue loss from a flat rate per capita tax credit will vary depending on the size of the credit that is granted. Thus, the amount of revenue that will be lost can be altered by modifying the amount of the credit given to each individual. It was therefore possible to select the total amount of revenue which was to be returned to the taxpayers (the maximum revenue loss) and then determine the amount of the credit available to each individual by dividing this amount equally among the population. In other words, if the maximum revenue loss is established, the amount of the credit can be determined as follows:

$$PCC = \frac{RL}{SP} \qquad (5)$$

where:

[4]The estimated revenue loss from removing the city sales tax on food was determined in a different manner for the City of Scottsdale. In this city, the estimate was based on sales tax collections from grocery stores which are recorded separately from other retail sales tax collections.

[5]The Department of Revenue is responsible for collecting the local sales tax for forty-nine cities and towns. Total retail sales tax collections from all cities participating in the state collection system were provided by county, from collections data in the Department of Revenue.

PCC = the amount of the tax credit available to each individual

RL = the maximum revenue loss which would result from a credit equal to PCC

SP = the state population

Because only a portion of the total population will file an income tax return, however, the tax credit will not be claimed by the entire state population and the actual revenue loss will be somewhat smaller than it would have been if all individuals claimed the credit. The minimum revenue loss from a credit of this type was determined as follows:

$$RL = PCC\ (ECF) \qquad (6)$$

where:

RL = the minumum loss which would result from a credit equal to PCC

PCC = the amount of the per capita tax credit

ECF = the total number of exemptions claimed by filers (the number of individuals for which the credit is granted)[6]

OPTION 4: INCOME TAX CREDITS BASED ON ACTUAL FOOD SALES TAX LIABILITY

The revenue loss from a tax credit of this type was determined using the following formula:

$$RL = \sum TC_{is}(NH_{is}) \qquad (7)$$

where:

RL = the total revenue loss resulting from the credit

TC = the tax credit available to each household

NH = the number of households

i = the income level (family income)

s = the family size

[6]The total number of exemptions claimed on 1978 tax forms was derived from information provided by the Department of Revenue.

The size of the tax credit available to each family (TC_{is}) was based on an estimate of the actual food sales tax liability of the household.

To estimate the actual food sales tax liability of households of a particular size and income level, expenditure data from the 1972-73 Consumer Expenditure Survey series were used.[7] Specifically, expenditures for food products were determined from a breakdown of the consumption expenses of families of each size and income level, based on a survey of households throughout the United States. All data from the survey, including income figures, were updated to the 1977 level by increasing the figures to reflect the change in the consumer price index for each category between 1972-73 and 1977.[8] The food sales tax liability for families of each size and income level was determined by multiplying the family's estimated food expenditures by the four percent state sales tax.

After calculating the food sales tax liability for each of seventy-two different family types (12 income levels x 6 family sizes), a schedule of tax credit was developed.

In general, the tax credit established for families of a particular size and income was set equal to the sales tax liability computed for that family type. However, the number of income brackets in the tax credit schedule was condensed from the original twelve to six by combining families in different income brackets with similar food sales tax liabilities. In these cases, the tax credit for each of the expanded income brackets was set equal to the average of the tax liabilities computed for each of the component income brackets. (See exhibit 5 of the text.)

The revenue loss from this type of credit was then determined by multiplying the number of families of each size and income level by the credit available

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[7] Consumer Expenditure Survey Series: Interview Survey, 1972-73, U.S. Dept. of Labor, Bureau of Labor Statistics, pp. 81-200.

[8] For each expenditure category, the component Consumer Price Index for the Phoenix Metropolitan area was provided by the Bureau of Business and Economic Research at Arizona State University. The change in the general consumer price index for the Phoenix metropolitan area was used to update income figures to the 1977 level.

to families with these characteristics and summing the results. (See formula 7.) To determine the number of families of each size and income level who would be eligible to receive a credit for the 1978 tax year, 1977 income tax filers were sorted by gross income and family size using Department of Revenue income tax tapes.[9] This same distribution was used to estimate the breakdown of 1978 families by gross income and family size. Because the credit available to each individual was based on total family income, it was also necessary to expand gross income on each tax form to approximate total family income before determining the tax credit available to each family. The process for expanding gross income is described under option 5.

OPTION 5: VANISHING TAX CREDITS--THE HAWAII TAX CREDIT SCHEDULE

Because the amount of the credit available to individuals at each income level is already set under this option, the revenue loss from a credit of this type can be calculated easily, if the number of individuals in each income bracket is known. The following formula was used:

$$RL = \sum TC_i(N_i) \qquad (8)$$

where:

RL = total revenue loss from the tax credit
TC = the amount of the tax credit available for each individual
N = the number of individuals for which the credit may be claimed
i denotes each of the income brackets considered

To determine the number of individuals in each income group (N_i), individuals claimed as exemptions on 1977 income tax forms were sorted by gross income using data tapes supplied by the Department of Revenue.[9] The same distribution

[9]A statistical sample of tax forms, filed by individuals for the 1977 income tax year, was provided by the Dept. of Revenue. Before releasing this information, the Dept. of Revenue removed names, addresses and other identifying characteristics from each form to preserve the confidentiality of these records.

was applied to the number of individuals claimed as exemptions on 1978 tax returns to estimate the number of individuals at each level of gross income during 1978.

Because the credit available to each individual is based on total family income (including transfer payments and other sources of income not included in gross income for tax purposes) it was also necessary to expand gross income on each tax form to approximate total family income before determing the tax credit available to each individual. To do this, income data from the 1972-73 Consumer Expenditure Survey were used.[10] Specifically, the data used were taken from a breakdown of income received, by source, for families of each size and income level. For each income source a separate determination was made as to whether receipts from this source were included in the Arizona definition of gross income. Receipts from sources included in gross income were then summed and divided into total family income to develop an expansion factor for computing total family income from gross income. The expansion factors were calculated as follows:[11]

$$IEF_{is} = \frac{TFI_{is}}{GRI_{is}} \qquad (9)$$

where:

IEF = income expansion factor
TFI = total family income
GRI = gross income (Arizona definition)
i denotes the total family income bracket
s denotes family size

The 1978 gross income levels to which each expansion factor applied were then calculated using the following formula:

[10] Consumer Expenditure Survey Series: Interview Survey, 1973-74, U.S. Dept. of Labor, Bureau of Labor Statistics, pp. 81-200.

[11] The income expansion factor used for families in the lowest income bracket was altered in some cases when the factor calculated appeared to be distorted because the families within the bracket were not homogeneous in character. In these cases, the income expansion factor calculated for families in the next income bracket was extended to cover families in the lowest income bracket.

$$GRI_{is} = \frac{TFI_{is}}{IEF_{is}} \qquad (10)$$

where:

GRI = the upper boundary of the gross income bracket in 1978 that is subject to the income expansion factor denoted by IEF_{is}

TFI = the upper boundary of the family income bracket denoted by i and s[12]

IEF = the income expansion factor
i denotes the total family income bracket
s denotes the family size

The income expansion factor for families at each level of gross income is shown, by family size, in Table A-1 of the Appendix.

After determining the income expansion factor for families of each size and level of gross income, the total family income of each filer was computed as follows:

$$TFI_{is} = (GRI_{is})IEF_{is} \qquad (11)$$

where:

TFI = total family income of 1978 filers
GRI = gross income of 1978 filers
IEF = income expansion factor
i denotes the total family income bracket
s denotes the family size

[12]The upper boundary of each family income bracket was first updated to the 1978 level by increasing the figures to reflect the change in the Consumer Price Index between 1972-73 and 1978. The general consumer price index for the Phoenix metropolitan area was used for this purpose. This index was provided by the Bureau of Business and Economic Research at A.S.U.

TABLE A-1

FACTORS FOR EXPANDING GROSS INCOME
TO TOTAL FAMILY INCOME

FAMILY SIZE = 1

Gross Income	Income Expansion Factor	Gross Income	Income Expansion Factor
under $ 1,385	3.3268	$10,671 under $13,659	1.1240
$ 1,385 under 3,307	1.8566	13,659 under 17,269	1.0669
3,307 under 5,407	1.4195	17,269 under 21,626	1.0649
5,407 under 7,318	1.2586	21,626 under 28,679	1.0707
7,318 under 9,050	1.1874	28,679 under 37,006	1.0372
9,050 under 10,671	1.1510	37,006 plus	1.0434

FAMILY SIZE = 2

Gross Income	Income Expansion Factor	Gross Income	Income Expansion Factor
under $ 2,101	2.9222	$12,384 under $16,085	1.1454
$ 2,101 under 3,486	2.2015	16,085 under 20,700	1.1125
3,486 under 4,865	1.8934	20,700 under 28,605	1.0735
4,865 under 6,975	1.5407	28,605 under 36,475	1.0523
6,975 under 9,163	1.3404	36,475 plus	1.0648
9,163 under 12,384	1.2397		

FAMILY SIZE = 3

Gross Income	Income Expansion Factor	Gross Income	Income Expansion Factor
under $ 1,645	2.8007	$10,256 under $13,362	1.1490
$ 1,645 under 2,429	2.5277	13,362 under 17,113	1.0766
2,429 under 4,535	1.6924	17,113 under 21,454	1.0734
4,535 under 6,807	1.3531	21,454 under 28,914	1.0620
6,807 under 8,297	1.2951	28,914 under 36,330	1.0565
8,297 under 10,256	1.1976	36,330 plus	1.0515

TABLE A-1 (cont'd)

FAMILY SIZE = 4

Gross Income	Income Expansion Factor	Gross Income	Income Expansion Factor
under $ 2,044	2.2534	$10,372 under $14,208	1.0806
$ 2,044 under 2,821	2.1768	14,208 under 17,077	1.0789
2,821 under 4,654	1.6492	17,077 under 21,524	1.0699
4,654 under 7,311	1.2599	21,524 under 29,340	1.0466
7,311 under 8,893	1.2083	29,340 under 36,783	1.0435
8,893 under 10,372	1.1841	36,783 plus	1.0426

FAMILY SIZE = 5

Gross Income	Income Expansion Factor	Gross Income	Income Expansion Factor
under $2,009	3.0563	$13,798 under $17,203	1.0710
$ 2,009 under 4,116	1.8647	17,203 under 21,589	1.0667
4,116 under 6,753	1.3640	21,589 under 29,351	1.0462
6,753 under 9,213	1.1664	29,351 under 36,946	1.0389
9,213 under 11,198	1.0968	36,946 plus	1.0396
11,198 under 13,798	1.1127		

FAMILY SIZE = 6

Gross Income	Income Expansion Factor	Gross Income	Income Expansion Factor
under $ 3,059	2.0070	$12,914 under $16,783	1.0978
$ 3,059 under 4,118	1.8637	16,783 under 21,422	1.0750
4,118 under 5,901	1.5609	21,422 under 28,779	1.0670
5,901 under 7,088	1.5161	28,779 under 36,924	1.0395
7,088 under 9,408	1.3055	36,924 plus	1.0495
9,408 under 12,914	1.1889		

OPTION 6: VANISHING TAX CREDITS--THE VERMONT TAX CREDIT SCHEDULE

Because the credit is already set for families of each size and income level under this option, the revenue loss associated with this schedule of credits can be easily calculated if the number of families of each size and income level within the state is known. Using a sample of 1977 income tax returns, the distribution of families by size and gross income was calculated for all families filing 1977 tax returns. This same distribution was used to estimate the number of families of each size and gross income level during calendar year 1978. Because the credit available to each family was based on total family income, it was also necessary to expand gross income to approximate total family income before determining the tax credit available to each family. The process for expanding gross income is the same as described under option 5.

After determining the tax credit available to each family during 1978, the revenue loss under this option was calculated as follows:

$$RL = \sum TC_{is}(NF_{is}) \qquad (12)$$

where:

RL = total revenue loss
TC = tax credit
NF = number of families
i denotes income level
s denotes family size