

aphid species (see table). A minimum of 10 randomly selected plants should be sampled (recognizing that plants along borders will have higher infestation levels), and the presence or absence of each species recorded rather than the total number of aphids counted. This 10-plant minimum sample provides reliability, and may result in lower error rates than the 0.10 level designed into the sequential sampling plan. If after 10 plants are sampled, the cumulative number of infested plants is between the no-treat and the treat control decision lines, additional samples are required. Sampling is discontinued for ei-

ther aphid species when the cumulative sum reaches or exceeds either control decision line. If 50 plants are sampled with no decision being reached, a decision is deferred until the next sampling date. It has been shown for other pests that sequential sampling saves up to 65 percent of the time taken by conventionally fixed sampling procedures having comparable error rates.

Presence-absence sequential sampling offers additional savings, because it is not necessary to count individual aphids. Another anticipated advantage is an improvement in timing of pesticide sprays and a reduction in the number of

sprays. Further research is being conducted at Wilder Ranch State Park to apply the use of the sequential sampling plans in an integrated pest management program for both fresh market and processed Brussels sprouts.

Carolyn Pickel and Robert C. Mount are Area IPM Specialist and IPM Field Assistant, respectively, University of California Cooperative Extension, Santa Cruz County; Frank Zalom is IPM Specialist, Cooperative Extension, Department of Entomology, University of California, Davis; Lloyd T. Wilson is Assistant Professor, Department of Entomology, University of California, Davis. This study was partially supported by California State Department of Parks and Recreation, Santa Cruz County Farm Bureau, County of Santa Cruz, and California Department of Food and Agriculture.

# California property tax shifts before Proposition 13

Michael Arnold

## Local government spending wasn't "out of control" as commonly thought

**B**efore the passage of California's Proposition 13 in June 1978, substantial increases in many homeowners' property taxes received widespread publicity. Quite naturally, many people interpreted these increases as reflecting large increases in local government expendi-

tures, which they concluded had "gotten out of hand."

A careful examination of the data on total property tax collections and local government expenditures does not support the popular interpretation. After population increases and inflation are accounted for, neither total property tax collections nor local government expenditures in the three years preceding the election grew disproportionately with past trends. However, property taxes collected from single-family dwellings grew substantially in those three years and in comparison with the earlier period, even after accounting for inflation and the increase in single-family dwelling units. Moreover, a simple accounting model shows that, even if real local government expenditures per California resident had been constant from fiscal years 1975 through 1978, property taxes collected from each single family dwelling unit would have risen by a sizable amount.

The revenue figures show that actual total property tax collections rose substantially within each period as well as between periods (table 1). However, when increases in inflation and population are accounted for, property tax collections per California resident increased 1.3 percent per year between fiscal years 1968 and 1975. This compares with a 2.4 percent annual rate of growth in the three years preceding the

TABLE 1. Measures of total property tax collections and local government expenditures in California, selected periods

Category	Average annual changes, fiscal years:	
	1968 — 1975	1975 — 1978
<b>Property taxes collected</b>		
	%	%
Total property taxes collected	8.4	11.8
Real property taxes collected per Calif. resident	1.3	2.4
Property taxes/Calif. personal income	-0.4	0.0*
<b>Local government expenditures</b>		
	%	%
Total local govt. expenditures	11.0	12.2
Real total local govt. expenditures per Calif. resident	1.9	2.9
Real total local govt. expenditures per Calif household	0.8	1.9
Real total county expenditures per Calif. resident	2.2	1.8
Real total school (K-12) expenditures per ADA †	0.6	1.3

Sources: Actual figures deflated using GNP deflator for "State and Local Expenditures" in U.S. Dept. of Commerce, *Survey of Current Business*. Households from the Center for Continuing Study of the California Economy data file. Expenditures and revenues from: Michael Arnold, "Shifts in California's Property Tax Burden Before Proposition 13," Working Paper 82-09, Center for Continuing Study of the California Economy, Palo Alto, August 1982; California State Controller's Office, *Annual Report, Financial Transactions Concerning Cities, . . . Counties, . . . Districts, . . . Special Districts* (four separate reports).

\*Between zero and — 0.05 percent.

†Expenditures for kindergarten through 12th grade per ADA (average daily attendance).

June 1978 election.

Further evidence that property tax collections were not rising disproportionately is shown in total property taxes as a share of total California personal income. They actually declined, although at a relatively insignificant rate, between fiscal years 1968 and 1975 as well as between 1975 and 1978.

The story on the expenditure side is similar. If local government spending was getting out of control, it was at a very slow pace. Total local government expenditures grew 11 percent between fiscal years 1968 and 1975, increasing to 12.2 percent in the three years preceding the election. However, after adjustments for inflation and population growth, these increases appear much smaller. Real total local government expenditures per California resident rose at a 1.9 percent annual rate between fiscal years 1968 and 1975, and only 2.9 percent between fiscal years 1975 and 1978. If households are used instead of population to measure the "units served" by local governments, the numbers are even smaller.

Real expenditures per California resident by all of the county governments grew at a slower pace in the three years preceding the June 1978 election than in the earlier period. Real expenditures per pupil (as measured by average daily attendance) by all of the schools grew only slightly faster in the later period. These conclusions are further supported by regression tests, which show that the differences between the two time periods in the growth of real local government expenditures per California resident were statistically insignificant.

Between fiscal years 1968 and 1975, there was little change in the pattern of property taxes collected on the different types of property (table 2). Roughly one-third of property taxes were collected on single family dwellings, one-sixth on other residences, and between 40 and 45 percent on commercial and industrial

property. By fiscal year 1978, however, the pattern had changed dramatically. In just three years, the share of property taxes collected on single-family dwellings increased by almost 9 percentage points, while those collected on nonresidential property declined by almost 7 percentage points.

Two simple calculations confirm that homeowners' property taxes had risen substantially during the three years preceding the June 1978 election, but they do not support the view that increases in local government expenditures were the main reason for these increases. First, while total property taxes rose by 11.8 percent between fiscal years 1975 and 1978, those collected on all single-family dwellings rose by 74 percent and those per single-family dwelling rose by 62.9 percent (calculated by multiplying the shares of property taxes according to property type by the total property taxes collected). Second, had real local government expenditures per California resident been constant between fiscal years 1975 and 1978, property taxes collected would still have risen 59.5 percent for all single-family dwellings and 49.4 percent for each single-family dwelling (calculated by holding constant actual total property taxes as a share of actual total government expenditures; this assumes the actual rate of inflation for the period 1975 to 1978).

Thus, increases in local government expenditures explain less than one-fourth of the increases in actual property taxes collected from homeowners. The bulk of the increase before the June 1978 election was caused by a shift in the property tax burden from commercial and industrial property to single-family dwellings.

Michael Arnold, Associate Economist, Center for the Continuing Study of the California Economy, Palo Alto, California, was formerly postgraduate research agricultural economist, Department of Agricultural and Resource Economics, University of California, Berkeley.

## There is enough money involved to justify detailed evaluation

Navel orangeworm, considered the most important insect pest of almonds in California, caused annual damages estimated at \$35 million during 1978-80. Research at the University of California shows that orchard sanitation (removal and destruction of mummy nuts), early harvest (just at or slightly after 100 percent hullsplit), and the use of an occasional in-season spray will reduce damage from navel orangeworm (NOW), *Amyelois transitella* (Walker), by as much as 70 percent.

Despite this evidence, growers usually like to see the economic feasibility demonstrated before they adopt new practices. They want to know: (1) how much the recommended practices will increase costs; (2) how much benefits can be expected to increase; (3) if unit costs are influenced by the size of the operation; (4) how benefits and costs behave for varying levels of pest damage; and (5) how price received for the crop affects the feasibility of the recommended practices.

One way to provide such information is through the use of partial enterprise budgeting, which allows one to relate changes in revenue and costs to changes in management practices and to impute the net benefits to the particular practices as they are added or removed from the budget.

## The model production unit

For this analysis, a hypothetical 320-acre almond operation was established to identify the scale of operation and to provide some basis for judging the reasonability of results. Per-acre partial budgets were then prepared to reflect the results of using various insect pest management practices to deal with NOW damage. These budgets can be adapted to any size of operation by adjusting overhead costs.

The model assumes that all almond acreage is bearing, planted at 75 trees per acre, with 214 acres in the Nonpareil

TABLE 2. Distribution of property taxes collected by type of property, selected fiscal years

Type of property	Taxes collected, fiscal year:		
	1968	1975	1978
	%	%	%
Single family dwellings	35.0	33.9	42.2
Other residences	13.4	13.2	12.4
Nonresidential property*	41.7	45.7	38.9
State assessed †	9.9	6.8	6.6

Sources: Single-family dwellings: California State Board of Equalization estimates published in William Oakland, "Proposition 13, Genesis and Consequences," Federal Reserve Bank of San Francisco, *Economic Review*, Winter 1979. Other types of property: estimates based on distribution of net assessed value published by Oakland.

Note: Numbers may not add because of rounding.

\*Includes commercial and industrial property.

† Includes personal property of utilities.