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The Indiana Property Tax Assessment System: Simulations of Four Policy Alternatives

Larry DeBoer, Assistant Professor of Agricultural Economics

Executive Summary

- Four alternatives to the present Indiana property assessment system are simulated using income and cost elasticities, assuming that each alternative was used over the 1970-85 period.
- The assessment systems simulated are I. Annual assessment of real property at current replacement costs; II. Assessment of personal property only in years of statewide reassessment of real property; III. Reassessment of real property on a 4-year cycle; and IV. No reassessment of real property.
- Each assessment system is evaluated under five criteria, measuring the tendency of each to shift taxes towards personal property between years of statewide reassessments (Personal Property Creep), the tax burden on homeowners imposed by each system, the change in real property taxes experienced during reassessment years (Reassessment Shock), the nearness of each to "full value assessment," and their administrative costs.
- Real property current cost assessment (I.) is best at eliminating personal property creep and attaining full value assessment, but the system shifts the largest tax burden to homeowners and is expensive to administer. At the opposite extreme, no real assessment (IV.) imposes the lowest tax burden on homeowners, is inexpensive to administer and eliminates reassessment shock. However, it creates the most personal property creep, and is far from full value assessment.
- Periodic personal reassessment (II.) and the four-year cycle (III.) are quite similar in reducing personal property creep and in the tax burden imposed on homeowners. The 4-year cycle has lower (but more frequent) reassessment shocks, moves closer to full value assessment, but is more expensive to administer than periodic personal assessment.
- Focusing on the criteria of reducing personal property creep and reassessment shock, moving from the present assessment system to the 4-year cycle yields two-thirds to three-quarters of the benefits of moving to current cost assess-

ment, with only about one-quarter of the administrative costs.

- Compared to the alternatives, the present assessment system keeps homeowner taxes low, and is relatively inexpensive to administer. However, its personal property creep and reassessment shock are high, and it is not very close to full value assessment.
- Projections of the 1990 reassessment under the present assessment system show total assessed value rising 44 percent and the share of real property in total assessed value rising by ten percentage points. The tax burden on real property owners rises by 23 percent, of which about 15 percent results directly from reassessment.

Introduction

This publication reports the results of a simulation of four alternatives to Indiana's current property tax assessment system. It is meant to aid citizens and policymakers in assessing the consequences of policy choices. Each is evaluated by several different, even conflicting, criteria, so no one policy choice is recommended over the others.

Although the share of the property tax in total government revenue has been declining during the 1970's and 1980's, it is still the major tax source for Indiana local governments. Each taxpayer's property tax is determined by multiplying the assessed value of the property by the sum of the tax rates in the jurisdictions where the property is. The system used to assess property is thus crucial in determining the distribution of tax burdens to each taxpayer.

The property tax base is divided into two basic categories, real and personal. The approximate statewide composition of these property types in 1985 is shown in Table 1. Personal property comprises about one-third of the tax base and is almost entirely inventories and assets of businesses, farms, and utilities. Real property makes up the other two-thirds of assessed value. Residential property is slightly less than one-half of total real property, with farms and businesses owning most of the rest. Almost all individual or residential property is real property.

Personal and real property are assessed differently in Indiana. Personal property is annually self-assessed by owners, using cost tables that are

Table 1. Composition of assessed value in Indiana, 1985.

	Net assessed value*	Percent
	million \$	
TOTAL PROPERTY	25,936	100.0
Personal property	8,662	33.4
Farm inventory	151	0.6
Business inventory	2,812	10.9
Farm depreciable assets	303	1.2
Business depreciable assets	3,136	12.1
Utility personal property	2,120	8.2
Individual personal property	140	0.5
Real property	17,274	66.6
Total land†	4,370	16.8
Total improvements†	12,904	49.8
Farm real property	3,991	15.4
Business real property	4,770	18.4
Utility real property	380	1.5
Residential real property	8,133	31.4

* Assessed value net of exemptions and deductions.

† Estimates calculated from shares in gross assessed value.

SOURCE: Indiana State Board of Tax Commissioners, unpublished data.

revised each year to reflect changes in inventory and asset prices. Real property is reassessed at long intervals. Reassessments have occurred for taxes paid in 1970 and 1980, and another is scheduled for 1990. All real property is reassessed using revised replacement cost tables, which are then used to assess new real property between reassessment years.

This publication simulates the growth of real and personal assessed value under four alternatives to the present assessment system. Each system is simulated as if it had been adopted in 1970 and used through 1985. The results of each assessment system may then be compared with actual assessments over a historical period which included three recessions, a period of rapid inflation and a subsequent period of low inflation. The alternative systems simulated are (I) assessing real property annually at current replacement costs; (II) assessing personal property only in the years of real property assessment; (III) reassessing real property on a 4-year cycle; and (IV) not reassessing real property at all. The following section describes the methods used to do the simulations. These methods are described in more detail in Appendix 1. Subsequent sections describe the assessment systems to be simulated, the criteria used to evaluate the simulations, and the simulation results. In addition, Appendix 2 reports projections for the 1990 reassessment under the present system.

How to Do Simulations

Assessed value growth has two basic sources: additions to the real stock of property, as when new houses are built or new machinery is purchased, and increases or decreases in the replacement costs

used to value property, for example, when the base prices for valuing farm land or house characteristics increase. Additions can be labeled "real growth" and should be related to economic growth in the state of Indiana. Increases in costs can be called "cost inflation" and should be related to the general inflation of prices in the United States.

The response of assessed value to real growth and cost inflation can be measured using elasticities. Elasticities show the percentage change in assessed value in response to a 1 percent change in an index of real growth or cost inflation. To simulate the change in assessed value, the percentage real growth is multiplied by the real growth elasticity, giving the percentage rise in assessed value caused by real growth. To this is added the percentage assessed value rise caused by cost inflation, derived by multiplying the percentage cost increase by the cost inflation elasticity. The result is the percentage rise in assessed value caused by both sources of growth. The elasticities used for this study are reported in Table 2, along with the economic growth and replacement cost percentage increases during the 1970's and 1980's. The derivation of these elasticities is discussed in Appendix 1.

The assessment systems can be represented by the different replacement cost schedules applied to real and personal property in each year. For example, the actual system in use in Indiana values personal property at current replacement costs. Assessed value growth may be simulated by multiplying the cost elasticity for personal property by the annual percent increase in replacement costs. Real property was valued at 1967 replacement costs during the 1970-79 period, and has been assessed at 85 percent of 1975 replacement costs since 1980. Thus, much of the value of real property cost inflation between 1967 and 1975 was incorporated into real property assessed values in the reassessment year 1980. The 1980 real reassessment may be simulated by multiplying the real cost elasticity by the percentage rise in replacement costs over the 1967-75 period.

The information in Table 2 helps explain the pattern of the personal property share in assessed value observed during the 1970's and 1980's (see Figure 1). Cost inflation during the 1970's was high, averaging 8.4 percent per year for real property and 9.3 percent for personal property. Cost increases were incorporated into the assessed value of personal property year by year, while the replacement costs used to assess real property remained unchanged. Thus, the share of personal property in total assessed value rose throughout most of the 1970's (the drop in 1970-72 was due to the removal of automobiles from assessed value). The large personal property decline in 1980 was due to reassessment, when accumulated cost inflation was partially incorporated into the assessed value of real property. Since 1980, the rise in the personal property share has been milder, because of the slowdown in inflation. Note that the personal property share will not always rise between reassessments. If inflation is low

Table 2. Elasticities and percentage changes in growth and inflation.

	Real property		Personal property	
	Economic growth	Cost inflation	Economic growth	Cost inflation
Elasticities	.9	1.0	.4	.7
Percentage change 1970-80	32.5	124.5	32.5	143.5
Annual average	2.9	8.4	2.9	9.3
Percentage change 1980-85	6.7	20.8	6.7	22.2
Annual average	1.3	3.9	1.3	4.1

or zero, real property assessed value will grow more rapidly than personal property, because its response to economic growth is greater. This occurred in Indiana during the low inflation 1950's.

Assessment Systems to Simulate

Four assessment systems are simulated in this study. This is not meant to suggest that any of these systems is desirable, or even feasible. But each alternative makes an interesting comparison with Indiana's actual assessment system.

I. Annual Assessment of Real Property at Current Costs. The first simulation assumes that real property can be reassessed annually at current replacement costs. This differs from current practice, which reassesses real property at long intervals, with replacement costs which lag behind reassessment year cost levels. Annual current cost reassessment of real property would probably require computer assistance. This simulation is of interest for two reasons. First, it is one way to put real and personal property on the same assessment basis: both property types would be assessed at current costs, so both would respond to cost inflation immediately. Second, it approaches "full-value assessment," which is the ideal of many assessment professionals and economists, because the assessed value of all property in the tax base accurately reflects actual property values.

II. Periodic Assessment of Personal Property at Lagged Costs. The second simulation assumes that personal property is reassessed only in the years of statewide real property reassessment. That is, the replacement costs used to assess personal property in the 1970's would be those of 1967, and the costs used in the 1980's would be 85 percent of the 1975 replacement costs. Real changes in inventories and assets would still be accounted for annually, but at unchanging cost schedules. This simulation is of interest because it is a second way real and personal property assessment can be put on an identical replacement cost basis. In the above current cost system, real property is assessed like personal property; here, personal property is assessed like real property.

III. Assessment of Real Property Every Four Years. This system is the same as Indiana's actual system, except statewide reassessments of real property occur more frequently. Statewide reassess-

ments actually took place for taxes payable in 1970 and 1980. Another is scheduled for 1990, with reassessments occurring every 8 years after that. In this simulation, reassessments are assumed to have occurred in 1970, 1974, 1978, and 1982. Cost schedules are assumed to have been based on replacement costs in 1967, 1973, 1977, and 1981, respectively.

IV. No Reassessment in 1980. This "system" merely assumes that the 1980 reassessment of real property did not take place, meaning real property cost schedules for the 1980's would continue to be based on 1967 replacement costs. This simulation is included as the ultimate contrast with simulation I. Here, inflation is never incorporated into real property assessed values. In simulation I, inflation is incorporated into assessed values in the year it occurs.

How to Evaluate Assessment Systems

The evaluation of assessment systems involves value judgments. To be as objective as possible, several criteria for evaluating systems are selected, reflecting different (and sometimes mutually inconsistent) goals for a property assessment system.

A. Reduce Personal Property Creep. Personal property creep is the tendency for the personal property share in assessed value to rise between reassessments, during inflation. Creep can be seen in Figure 1, especially from 1972 through 1979. Since personal property is almost entirely business owned (see Table 1), personal property creep amounts to a continual rise in business taxation between reassessments. This might be objectionable on both equity and economic efficiency grounds. The tax burden on equipment and inventories will rise during inflation even if the real stock of personal property does not change. This may be seen as inequitable. Economic efficiency is enhanced when taxes have smaller impacts on economic choices, such as location and investment decisions. Taxes on less mobile resources, like land and improvements, are thus preferred on efficiency grounds to taxes on inventories and equipment. Under this argument, lower taxes on personal property enhance economic efficiency [2].

Personal property creep may be measured by the personal property share of total assessed value, compared to the share under an "ideal" system.

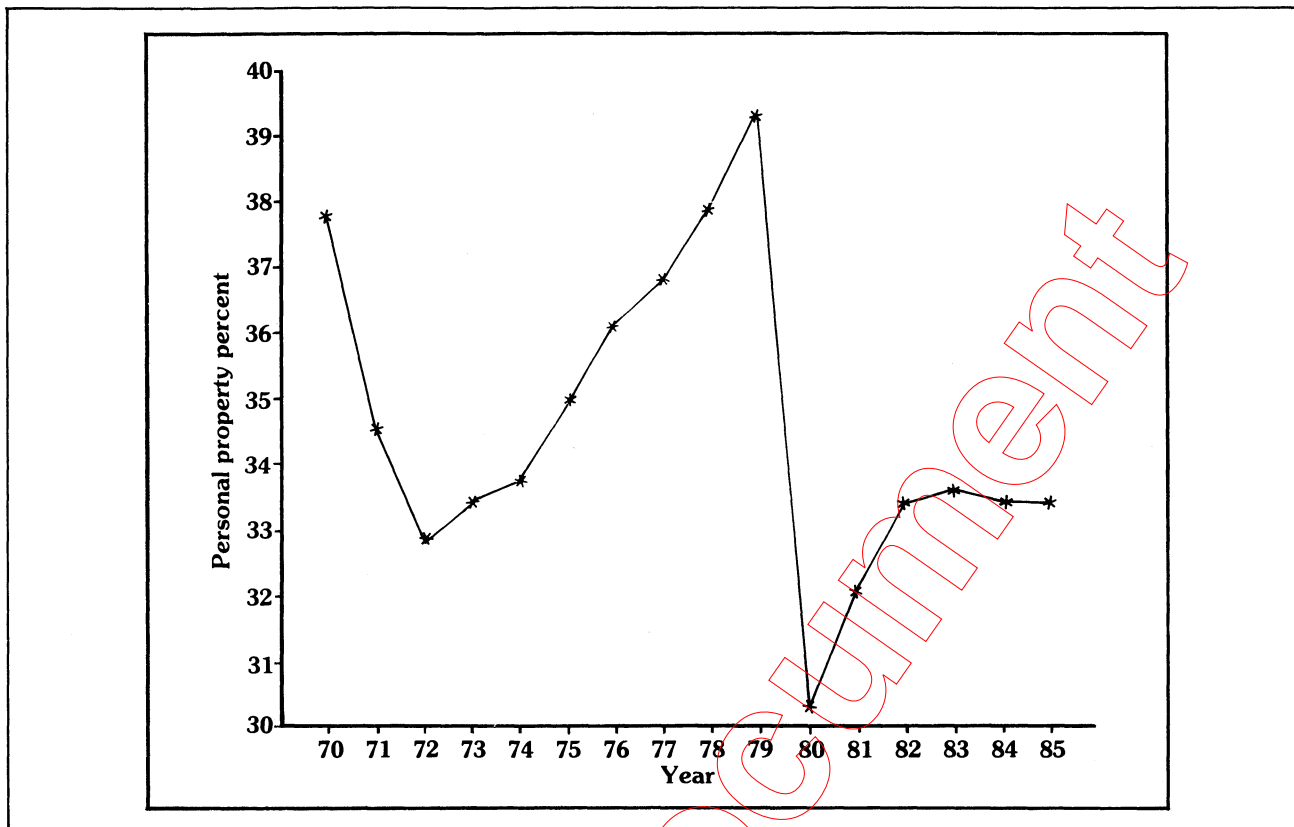


Figure 1. Actual personal property percentage of total assessed value, 1970-85.

Since creep is the result of inflation, the ideal system for comparison is one that keeps real property assessments current, that is, the annual assessment of real property at current costs (number I. above). Personal property creep is measured by the personal property share in assessed value minus the share which would exist under current cost assessment.

B. Reduce Homeowner Property Taxes. Homeowners comprise the majority of taxpayers and voters in every county in Indiana. It might be expected, then, that one goal important to voters and their representatives is lower property taxes for homeowners. The Indiana Legislative Services Agency [3], in their analysis of Indiana's assessment system, explicitly recognized

"...the clear policy of both the legislative and administrative branches of government of sheltering homeowners from a portion of their share of the property tax." (p. 68).

Homeowner property is almost exclusively real property (see Table 1), so the impact of each assessment system on homeowners may be measured by the real property share in total assessed value.

Throughout this publication, the assessment system in use is assumed to have no effect on the property tax levy. This facilitates comparison among the alternatives. However, research has shown that taxpayer-voters do not see themselves as bearing property taxes on most business property [1]. When voters see themselves as paying a higher share of taxes, they tend to support a lower level of public spending. Thus, a change in the assessment

system that shifts taxation from business personal property to homeowner real property would probably result in a lower property tax levy, mitigating somewhat the rise in tax payments experienced by homeowners.

C. Reduce Reassessment Shock. Under Indiana's actual assessment system, reassessment of real property causes a substantial rise in taxes for real property owners. We label this phenomenon "reassessment shock." Indicated in Figure 1 by the large fall in the personal property share between 1979 and 1980, reassessment shock can be painful for real property owners and their representatives. It may create economic efficiency problems, as decisions which were optimal under old assessed values are rendered obsolete by the new values. Anxiety and uncertainty about reassessment in the years before it occurs may also have negative impacts on economic efficiency.

Reassessment shock is measured by the percentage increase in the real property tax burden in reassessment years. The real property tax burden is assumed to be the actual tax levy multiplied by the share of real property in total assessed value.

D. Assessment at Actual Property Values. The Indiana Constitution requires "a uniform and equal rate of property assessment and taxation" and "just valuation for taxation of all property, both real and personal" (Article 10, Section 1(a)). One way to meet this requirement is to value all property at current replacement costs, that is, to use the current cost system described in I. above. The

current cost system is in a sense "ideal" and would likely be preferred by many assessment professionals. To measure how well each system meets this "full value assessment" ideal, the total assessed value of each system is taken as a percentage of assessed value under the current cost system.

E. Low Administrative Costs. The cost of administering an assessment system is certainly of concern to both legislators and taxpayers. It is assumed here that more frequent reassessment of real property is more costly. There may be "economies of scale" involved, however, such that a doubling of the number of reassessments will less-than-double the total costs of reassessment. The introduction of computer-assisted assessment, which would probably be needed to use the current cost system, could also eventually reduce reassessment costs. Administrative costs are measured by the number of real property reassessments required during the 1970-85 period under each assessment system.

Evaluation of Assessment Simulation Results

Table 3 shows the evaluation results for the four simulated assessment systems, and the actual Indiana system, for the 1970-85 period. Criterion A measures personal property creep as the average difference between the personal property share for

each system and the share for the current cost system. The actual average personal property creep over the period is 10.8 percent. In dollar terms for 1985, 10.8 percent of the property tax levy is \$247 million, representing the tax dollars paid by personal property owners, which would have been paid by real property owners under a current cost system.

The value under criterion A for the current cost system (I) is of course zero, since it is the standard with which creep is measured. As defined here, personal property creep is completely eliminated with a current cost system. Systems II and III, periodic personal assessment and 4-year real assessment, yield similar values: creep is reduced to between 3 and 4 percent of the tax levy. Personal property creep is highest with no reassessment in 1980. The inflation-induced rise in the personal property share shown in Figure 1 for 1972-79 continues through 1985 under system IV.

Criterion B is virtually the mirror image of criterion A. This is because the reduction of personal property creep involves a shift of the tax burden towards real property, increasing the taxes of homeowners. On average over the 1970-85 period, real property comprised nearly two-thirds of total assessed values under the actual assessment system. The only system that reduces real property owner taxes is IV, where no reassessment occurs after 1970. Moving to systems II or III would increase real property owner taxes about 11 percent over their

Table 3. Evaluation of five assessment systems under five criteria, 1970-1985.

Criteria	Actual	I. Annual real assessment at current costs	II. Periodic assess- ment of personal property	III. Real reassess- ment every 4 years	IV. No reassess- ment in 1980
A. Personal property share difference from current costs	10.8	0	3.8	3.5	14.9
B. Real property share in assessed value	65.4	76.2	72.4	72.7	61.3
C. Real burden percent change in assessment years (all other years)	28.2 (4.8)	7.1 (—)	17.6 (6.4)	12.0 (6.1)	— (5.0)
D. Assessed value percentage in current cost total	68.9	100.0	62.8	87.6	62.8
E. Number of real reassessments in 16 year period	2	16	2	4	1

actual payments, and adopting the current cost system implies a 17 percent rise in real property owner taxes.

Criterion C measures the percentage increase in the real property tax burden in reassessment years, after 1970. The actual increase shows the full impact of reassessment shock in 1980, 28.2 percent. The 17.6 percent figure under system II is directly comparable, as it is the 1980 percentage increase in the real tax burden with periodic personal property assessment. The average for the simulated 1974, 1978, and 1982 reassessments under system III is 12 percent. Shock is lower under system II than under the actual system, though of course the shocks occur more frequently with a 4-year cycle. System I moves further in this direction, with annual reassessments yielding real tax burden increases averaging 7.1 percent. With no reassessment, as in IV, there is no reassessment shock. Also shown are the average real burden increases in non-reassessment years. The average annual tax rise faced by real property owners under the actual system and under IV is near 5 percent. For systems II and III the rise is 6 percent. Under current cost assessment, there are no non-reassessment years, but the annual tax rise for real property owners is 7 percent.

Criterion D shows each system's total assessed value as a percentage of assessed value under current costs. In general, moving toward more frequent assessment increases the percentage over the actual system, while less frequent assessment of either real or personal property reduces the percentage.

Finally, criterion E shows the number of real property assessments between 1970 and 1985, as a measure of administrative costs. System I, with annual reassessment, would likely be the most expensive to operate, while system IV, with no reassessments after 1970, would be cheapest.

Summary and Conclusions

No one of these assessment systems is best under all criteria. The system chosen as "best" will vary with the weight given to each of the criteria. For example, an individual who values low administrative costs above all other characteristics will favor no reassessment (IV), periodic personal assessment (II), or Indiana's actual assessment system. One who favors reduction in both personal property creep and reassessment shock at any expense will identify the current cost (I) or 4-year cycle (III) systems as "best." Perhaps the most "realistic" policy options are systems II and III, because they move toward the goals of reduced creep and shock with relatively low increases in administrative costs. Note, however, that defining these choices as "realistic" means weighing criteria A, C, and E as important and criterion B as unimportant.

Current cost assessment tends toward the extremes: it is best at eliminating personal property creep and moving toward full value assessment. But it is worst at keeping homeowner taxes low, and

would probably be by far the most expensive to administer. No reassessment in 1980 is also usually best or worst. It is the least expensive to administer, completely eliminates reassessment shock, and keeps homeowner taxes the lowest. However, it creates the largest amount of personal property creep and is one of the worst systems for keeping assessments at full value.

Systems II and III are surprisingly similar under criteria A and B. They reduce personal property creep to about the same level and shift about the same tax burden to real property owners. A 4-year assessment cycle is more expensive to administer than is periodic personal assessment, so it is reasonable to ask what the legislature would "buy" with this increased cost. The size of reassessment shock would be reduced from 17.6 to 12.0 percent, though the shocks would come more frequently. And the total assessed value would move substantially closer to full value assessment, from 62.8 to 87.6 percent of current cost assessment.

A similar question can be asked of the movement from the actual system to the 4-year cycle, as compared to a movement from the actual to the current cost system. The expense involved in moving to the current cost system is likely to be considerably more than to the 4-year cycle. What does one get for this extra cost? An examination of Table 3 shows that moving from two to four assessments (from actual to III) eliminates nearly two-thirds of the personal property creep, and reduces the size of the reassessment shock by nearly 60 percent. Moving from 4 to 16 reassessments (from III to I) reduces creep by only another third and shock by only another 20 percent. Thus, two-thirds to three-quarters of the benefits of the current cost system can be had with one-quarter of the real reassessments.

Finally, one may ask how the actual system compares to its alternatives. Indiana's assessment system succeeds under two criteria: it keeps homeowner taxes low, and it is relatively inexpensive to administer. However, reassessment shock is by far the largest under the actual system, and personal property creep is also high. It falls short of full value assessment by about 30 percentage points but is better under this criterion than two of the alternatives.

Appendix 1: Simulation Methodology

The responses of assessed values to economic growth and inflation are simulated using elasticities, which show the percentage change in assessed value resulting from a 1 percent change in income or costs. To calculate elasticities, the natural logarithms of real property or personal property assessed values are regressed on the natural logarithms of variables measuring trend income growth, cyclical income change and cost increases for the years 1964-1985, using the Prais-Winsten procedure to reduce autocorrelation. Annual changes in log values approximate percentage changes, so the resulting coefficients are elasticities.

Real Property. The real property regression results are

$$\text{REAL} = -4.68 + .875 \text{ INC} - .043 \text{ CYC} + .980 \text{ COST}$$

(2.3) (9.4) (0.3) (21.9)

$$R^2 = .988$$

where

REAL = the log of real assessments;
 INC = the log of the trend increase in Indiana personal income;
 CYC = the log of an index of cyclical changes in Indiana income; and
 COST = the log of an index of the replacement costs used to assess real property in the most recent reassessment.

T-statistics for each coefficient are shown in parentheses. The replacement cost index is based on the work of Mikesell [4] and equals the American Appraisal Co. construction cost index for the year of costs used in the most recent reassessment. For the 1963-69 period, the index is 722, which is the cost index for 1960. For the 1970-79 period, the 1967 index of 909 is used. For 1980-85, the COST index is 1459, which is 85 percent of the 1975 construction costs. This percentage is taken because replacement costs used in the 1980 reassessment were reduced to 85 percent of 1975 replacement costs.

The important elasticities from the real equation are the trend-income elasticity, .875, and the replacement cost elasticity, .980. The cyclical elasticity is too near zero to be of consequence. To simulate the growth of real assessed value in any year, the percentage change in income is multiplied by the income elasticity, and added to the percentage change (if any) in replacement costs times the cost elasticity.

Personal Property. The personal property regression results are

$$\text{PERS} = 12.67 + .398 \text{ INC} - .075 \text{ CYC} + .695 \text{ COST} - .180 \text{ AUTO}$$

(1.8) (1.3) (0.3) (6.6) (4.1)

$$R^2 = .968$$

where

PERS = the log of personal assessments;
 COST = the log of the producer price index; and
 AUTO = a dummy variable representing the removal of automobiles from personal property in 1971.

Since so much of the personal property base is business equipment and inventories, the producer price index is an appropriate measure of current personal property costs. Both the income and cost elasticities for personal property, at .398 and .695 respectively, are less than those for real property. Again, the cyclical elasticity is near zero. The coefficient on AUTO is not a true elasticity. Rather, it implies that the removal of automobiles from the personal property base reduced the assessed value by 18 percent.

Testing the Elasticities. The above elasticities were tested to see if they could accurately reproduce actual real and personal property assessed value growth for 1970-85. Both the real and personal property elasticities simulated actual percentage

changes well. The real property elasticities under-predicted assessed value growth by 7 percentage points in 1970, a significant amount. But between 1971 and 1985 the maximum error was 1.7 percentage points, which occurred in 1980, when actual growth was nearly 50 percent. The personal property predictions were somewhat less accurate, with a maximum error from actual growth of 4 percentage points in 1974. The elasticities seemed adequate for our purposes, especially in terms of real or personal property shares in total assessed value. After 1970 the maximum error in the real and personal shares was 1.4 percentage points.

For the simulations it was assumed that the errors in simulating actual growth were exogenous, that is, they would occur under any assessment system. Thus, the percentage change errors from these tests were added to the predicted assessed value growth in each of the simulations. This procedure does not change the rankings of the systems under the criteria shown in Table 3.

Cost Indexes for Simulations. Assessment alternatives are simulated by using various cost index series to represent the replacement costs used in assessing property. In the actual system, as noted above, the real replacement cost index for 1970-79 is 909, and for 1980-85 it is 1459 (a 61 percent rise in 1980). The personal property cost index is the current year producer price index (PPI). The following summarizes the index values used for the four simulations.

I. Current Costs:

REAL—current year construction cost index.
 PERS—current year PPI.

II. Periodic Personal Assessment:

REAL—1970-79, 909; 1980-85, 1459.
 PERS—1970-79, 100; 1980-85, 149.

III. Four-year Cycle:

REAL—1970-73, 909; 1974-77, 1369;
 1978-81, 1870; 1982-85, 2494.
 PERS—current year PPI.

IV. No 1980 Reassessment:

REAL—1970-85, 909.
 PERS—current year PPI.

Appendix 2: Projections of The 1990 Reassessment

Method. The elasticities reported in Table 2 are used to make the assessed value projections for 1986-1990. Real Indiana income is assumed to grow by 1.3 percent per year through 1990, its recent trend value. Personal property costs are assumed to grow at their 1980-85 rate, 4.1 percent per year. The property tax levy is assumed to rise at 6.6 percent per year, its 1980-85 growth rate. Real property cost tables for 1990 will be based on 85 percent of 1985 replacement costs. This implies a 65.9 percent increase in the real replacement cost index in 1990.

Results. Results are reported in Table A-1. Over the 1985-89 period real assessed values are projected to rise 1.1 percent per year, while personal assessed values rise 3.3 percent per year. By 1989 this reduces the real property share to 64.6 percent. The relatively slow rise in the personal property share shown for 1980-85 in Figure 1 is thus projected to continue. The total assessed value rises on average 1.9 percent each year, and this low growth rate, combined with the 6.6 percent annual rise in the levy, increases the aggregate property tax rate from 8.83 to 10.60 between 1985 and 1989.

Total assessed value rises nearly 44 percent in the 1990 reassessment to more than \$40 billion, while the assessed value of real property rises 66 percent in the reassessment year 1990, to more than \$30 billion. The real property share rises 10 percentage points, to 74.6 percent. Multiplying this percentage by the projected levy yields the real property tax burden, \$2357 million. This burden increases by 23.1 percent in the reassessment year, a reassess-

ment shock less than but comparable to the 1980 shock of 28.2 percent. Note that this real property tax burden figure includes the effect of reassessment and the rise in the tax levy (6.6 percent). Reassessment alone raises the real property tax burden by about 15 percent.

References

- [1] Billings, R. Bruce and Roger Nils Folsom. "Voter Perception of Property Tax Incidence as Revealed by School Expenditure Decisions." *National Tax Journal* 33 (December 1980): 459-71.
- [2] Gold, Steven D. *Property Tax Relief*. Lexington, MA: D.C. Heath & Co., 1979.
- [3] Indiana Legislative Services Agency. Office of Fiscal and Management Analysis. *Performance Audit of State Board of Tax Commissioners, et al.*, May 1985.
- [4] Mikesell, John L. "Property Tax Assessment Practice and Income Elasticities." *Public Finance Quarterly* 6 (January 1978): 53-65.

Table A-1. Projections of the 1990 reassessment under the present assessment system.

Annual growth assumptions				%	
Real income				1.3	
Personal property costs				4.1	
1989-90 real replacement costs				65.9	
Property tax levy				6.6	

Projection results						
	Assessed value			Avg. annual percent change	Property tax	
	Real	Personal	Total		Levy	Rate
Actual 1985	17,274	8,662	25,936	—	2,290	8.83
1989	18,065	9,880	27,945	1.9	2,962	10.60
1990	30,014	10,210	40,224	43.9	3,159	7.85

	Real property		Avg. annual change
	Share	Tax burden	
	%	Million \$	%
1985	66.6	1,525	—
1989	64.6	1,915	5.9
1990	74.6	2,357	23.1

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