

EFFICIENCY IMPLICATIONS OF
REVENUE LIMITATION MEASURES

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Discussion Paper #257

July, 1982

Paper prepared for the 38th Congress of the International Institute of
Public Finance, Copenhagen, Denmark, August 25, 1982.

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Abstract

There is virtual unanimity with the proposition that local governments are often inefficient. There is much less agreement on what can be done about making them more efficient. There is no convincing evidence that the draconic revenue limitation measures enacted in various American states in the 1970s have on balance increased the efficiency of local government.

Of the various efficiency effects of revenue limitation measures, three on balance are likely to be positive. Shrinking funding levels, or at least growth rates, have had a salubrious, disciplining effect on public managers and their employees. As a result, a remarkable increase has occurred in the willingness of government officials to consider methods that can substantially increase efficiency. These tendencies are mitigated by a lack of funds and by archaic civil service rules that often leave the less production workers on the public payroll. Secondly, there is little evidence of a positive supply-side effect of the tax cuts although they occurred in a period of prosperity. Thirdly, the revenue mix change that has resulted from a decline in the importance of the local property tax is likely to have had on balance a small positive efficiency effects.

A number of other effects are strongly negative. By shifting much decision making power from local governments to the state, great centralization of power has occurred and with it homogenization of services and service levels. The result has been a significant efficiency loss. A similar result has most likely occurred because of major distortions in the use of resources by local governments. The distortions have been in the form of

underinvestment in capital improvements, repair and maintenance and innovative activities on the one hand and overinvestment in State and Federally funded compared to locally funded programs. Also, private sector investment and economic growth have been retarded and distorted, in part as a consequence of local governments justifiable reluctance to issue building permits or only after attaching most onerous terms. Moreover, the change property tax provisions have distorted major investment decisions as well as decisions about the exploitation of mineral resources. Finally, it is quite likely that in California, local rent control has followed a clash between landlords and tenants who saw themselves frozen out of benefiting from property tax reductions. As a result, rental housing is deteriorating and its supply shrinking.

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MEASURES*

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1. Introduction

The revenue limitation movement in the United States, widely thought to have originated in California, has been fed by a broadly based, rapidly spreading taxpayers revolt. California's Proposition 13 was passed in 1978 by an almost 2/3 majority, and the taxpayers' revolt has been compared with an earthquake whose aftershocks have by now spread to more than half of the states.

What led to this revolt is not entirely clear. Various causes have been held responsible, among them the following -- unreasonably high and rapidly increasing property taxes, a large and continuously rising surplus of state funds, allegedly flabby and inefficient local government, resentment against redistribution of monies to low income groups in general and minorities in particular, and the belief that the price at which government was providing services was too high.

The first empirical investigations of what prompted voters to approve revenue limitation measures are now appearing. Using data from the August 1978 California Poll, a number of multiple regression equations were estimated by Jack Citrin and Frank Levy suggesting that the higher the overall property tax rate in a locality, the more likely voters were to favor Proposition 13, holding constant other factors likely to influence the votes.¹ In relation to spending on welfare, the tax rate played a major role, with high tax rates

boosting support for reduced welfare spending. Yet, the level of actual county and city expenditures for welfare did not affect the expressed preferences for welfare spending. Neither the tax rate nor the level of educational expenditures influenced the probability of voters favoring cutbacks or increases in government spending for public education. However, as was to be expected, the presence of a child under 18 in a household resulted in a more favorable attitude towards increased spending on education than the absence of a child. From these specific findings Citrin and Levy conclude that California voters had been more sensitive to the tax side of the tradeoff between lower taxes and reduced spending on government services.

A study by Paul Courant, et al., offers limited insight into what considerations influenced voters in connection with Michigan's tax limitation measure.² Courant et al. found that two issues dominated the Michigan revenue limitation movement -- a strong desire to improve voter control of government and/or government efficiency, and to reduce taxes, though apparently not taxes and spending on the local level.

While none of these empirical inquiries provides definitive evidence of the electorate's preoccupation with local government inefficiency, thoughtful observers must be concerned about inducing local governments to spend more efficiently their budgets -- about \$225 billion in 1981.³ A key policy question, therefore is whether, and if so to what extent, the drastic and often painful revenue limitation measures have provided effective inducements.

This paper will seek to offer a general framework to identify major efficiency effects, suggest methods for the analysis of these potential effects, and provide some qualitative comments about their importance. But first we will summarize key aspects of revenue limitation measures, with special emphasis on California's Proposition 13, mainly because it is one of

the earliest and most stringent measures enacted anywhere.

2. Highlights of the Revenue Limitation Movement

The tax revolt in the United States began in the late 1970s. By June 1981, 29 states had enacted specific local property tax rates limits, 19 property tax levy limits, 14 overall property tax rates limits, 6 general expenditure limits, and another 6 limits on assessment increases; 5 states had general revenue limits. Additionally, 18 state governments had enacted state limits.⁴ Massachusetts and California had voted in favor of particularly severe tax limits, Arizona had in effect as many as five such limitations.

The Massachusetts measure, Proposition 2 1/2, limits the property tax levy of all communities to 2 1/2% of the "full and fair" market value of the properties concerned, with the existing tax rate being somewhere between 6 and 12 percent. The total sum of the levy must be reduced by 15% each year until it represents 2 1/2% of the market value. It has been estimated that local governments may have lost up to \$350 million in property taxes in the first year alone. The importance of this reduction can be gleaned from the fact that 60% of the city of Boston's 1981 budget of \$870 million was financed by property taxes at 10.2% tax rate on full and fair cash value.⁵ Thus, Boston can expect its property tax to decline greatly, until it finally stabilizes at a 2 1/2% level.

California's constitutional amendment known as Proposition 13 rolled back property tax assessments to their 1975 levels and restricted increases in assessments to 2% per year for as long as the property is retained by the same owner. Property taxes exceeding 1% of the property's full value are prohibited; increases in state taxes are permitted only if approved by a 2/3 majority of both houses of the state legislature; and local taxes must be

approved by a 2/3 majority of a jurisdiction's voters. In the face of a multi-billion dollar State surplus, California's legislature enacted permanent bail-out legislation (Assembly Bill 8) which, for example, in fiscal 1979-80 provided local governments with \$4.84 billion. As of July, 1979, the state assumed most costs previously borne by counties for welfare programs. Part of the property taxes formerly levied by school districts were transferred to counties, cities, and special districts. As a consequence, special districts and counties now rely almost exclusively on property taxes, whereas cities, while retaining their share of the sales tax, have increased their reliance on the property tax to some degree.

The effects have been startling. Whereas state and local taxes collected in California totaled \$27.4 billion in fiscal 1977-78, the last year before Proposition 13 went into effect (and would probably have climbed to \$31.0 the following year in the absence of Proposition 13), collection in fiscal 1978-79 dropped to \$24.0 billion.⁶ In 1979-80, the total climbed back to \$27.4, barely below the earlier peak. However, in view of a 31% personal income increase on California during this two-year period, the relative tax burden declined from \$157 per \$1000 of personal income in 1977-78 to \$121 in 1978-79 (a 23% decline), and \$120 in 1979-80.⁷ Expenditures by California's state and local government also changed drastically, from 10% above the national norm in fiscal 1977-78 to 1% below it in 1978-79. If, for the sake of simplicity, we assign retail sales and use taxes to individuals, and bank and corporations taxes to business, i.e., if we neglect the difficult question of tax incidence, significant tax shifts from businesses to individuals occurred. Specifically, before the passage of Proposition 13, business paid 39.3% of all state and local taxes, while individuals paid 60.7%. In the immediate post-Proposition 13 period, the tax share of business declined to 26.2%, while that

of individuals increased to 73.8%.

3. A General Framework

We propose to look upon the revenue limitation movement as having the sole, immediate purpose of bringing about significant across-the-board reductions in local property taxes. These large reductions change the economic and institutional environment within which local governments make decisions. On the one hand, there are direct efficiency effects of service and expenditure decisions and on the other of revenue decisions. But there are also secondary efficiency effects that relate to private sector decisions made in the new local government environment. Again, effects on the private sector occur that stem from changed local government services and expenditures on the one hand and local revenues on the other. The general framework which is presented in Figure 1 can be used to prepare a balance sheet which records on one side likely positive efficiency effects and on the other likely negative ones.

We next will examine the four major boxes of Figure 1 in some detail.

Box 1 includes four major direct local government service and expenditure effects. First there is the wholesale transfer of power from local governments to a centralized state government. This transfer has significant efficiency effects, virtually all of them negative. Secondly, major distortions in resource use by local governments are likely to occur, resulting in underinvestment in capital improvements, repair and maintenance as well as innovation. A third negative effect relates to increased instability and unpredictability of local revenue.⁸ However, on the positive side is a fourth consideration, i.e., an improved environment for public managers and employees to become more productive as revenues decline.

Box 2 identifies two direct local revenue effects. One effect relates to heightened borrowing costs in a revenue limitation era and the second to an altered revenue mix which in turn distorts resource use, in some cases it produces mainly negative and in others positive results.

As the private sector adjusts to the new local government service and expenditure environment, two major effects are likely, as presented in Box 3. Private spending and investment and therefore economic growth, can be retarded, as well as distorted.

But perhaps even more significant are the likely indirect effects on the private sector that result from the new revenue environment, presented in Box 4. Advocates of revenue limitation measures have tended to emphasize their supply side effect and have promised substantial increases in private spending, investment and economic growth. A second, indirect effect involves distorted private investment and economic growth resulting from steps taken by local governments to replace property tax losses. Finally, as a far fetched case, we would like to mention that property tax reductions which have pitted landlords against tenants have contributed to the imposition of rent control in some major California jurisdictions. The efficiency effects of rent control have been negative on balance, in that it has resulted in a tendency to reduce rental housing quality and supply.

Rather than discussing each and every one of these elements presented in Figure 1, we will concentrate on a few of the major efficiency effects, first those which promise to be mainly positive on balance and then those which are likely to be mainly negative.

4. Financial Exigencies Tend to Heighten Local Government Efficiency

As funding levels, or at least their annual growth rates, have declined, many local governments have been forced to make major changes in the manner in which they produce and deliver services. To make do with less money is the goal. In addition to eliminating some services, four major approaches toward raising productivity are being tried. Measuring the performance of the labor force is a first step, which many governments have pursued perhaps more aggressively than before. In this effort they are being aided by recent improvements in electronic and computer-based office machines. Thus, better performance measurement has enabled local governments to tie wages more closely to performance. Some have even begun to institutionalize the monitoring and evaluation of their employees by instituting productivity bargaining, and basing wage increases on agreed upon performance standards to be met by workers.

A second set of steps relates to the performance of local government managers. Managers can raise the productivity of local government employees in two major ways -- by selecting and implementing efficient production and distribution methods, and by inducing workers under their supervision to exert themselves more and thereby become more productive. Some local governments have begun to make changes in the methods by which they fulfill their missions.

But perhaps even more important has been the effort by managers to inspire their employees to exert themselves more fully. To bring this about managers performance had to be tied more closely to their rewards and offer great flexibility in rewards. Of particular interest is the performance appraisal system established by the city of Phoenix, Arizona in 1978, and the system of San Francisco, started shortly thereafter. Both include a

"Cafeteria" benefit plan for senior managers. The "Cafeteria plan" offers a list of items a manager may choose to "buy" with his or her merit increases at no greater cost to the government. Managers can take cash over such items as health insurance with built-in income protection, family dental plan, reimbursed tuition, membership dues in professional associations, paid attendance at professional conferences or seminars, sabbatical leave, etc.

Some governments have undertaken the horizontal movement of managers in place of the conventional intradepartmental promotions. Moving managers horizontally has the advantage of overcoming many of the shortcomings of the old vertical movement of management personnel. Managing in a given department at different levels tends to perpetuate a static, and often outdated, vision. Moreover, friendships tend to be formed and obligations accumulated, all of which can interfere with the making of tough decisions which are necessary for the sake of improved performance. Finally, as managers stay in their old jobs because no openings occur at higher levels, they tend to go stale and spend much of their time covering up mistakes made earlier in their administration.

Perhaps the most exciting steps have moved us into a third direction which seeks to provide a more competitive environment for the delivery of local government services. Contracting out or privatization has increased by leaps and bounds. It would be incorrect to assume that contracting out commenced with the emergence of the revenue limitation movement. Instead, it is more correct to say that this option has received a major impetus in the last few years. Some great efficiency gains have resulted. Perhaps the best known was revealed by studies by E.S. Savas of refuse collection in the city of Minneapolis and of 1,377 communities in 200 SMSAs.⁹ The per household cost of trash collection in large cities was found to be 29% greater for municipal

than for private collection.

As a fourth step we should mention changes in the legal environment controlling local government employees. For example, a number of local governments have begun to modify their civil service provisions. Towards this end, efforts have been made to place more emphasis on merit and less on seniority in determining promotions. Furthermore, procedures have been streamlined to implement discipline. In some instances, adverse action can now be taken against public employees who perform poorly by merely requiring managers to show "substantial evidence" rather than the presently commonly required "preponderance of evidence" to prove a case. Also, the appeals procedure (which in the past entitled employees for the smallest adverse action to an evidentiary hearing, which could be followed by a rehearing and then still an appeal to a court) is now being reserved only for major disciplinary action.

A further legal development is the repeal of prevailing wage laws by a number of local jurisdictions. Being forced to pay wages at least equal to those in private employment has had an inflationary wage effect, which some governments are seeking to counteract.

A caveat is in order here. Quite a few decisions made to cope with declining revenue are not primarily governed by efficiency considerations. It is often politically easier to use a meat-ax approach, in which all departments are cut back by roughly the same percentage. Since various local government services tend to have distinctly different demand elasticities, an across-the-board cut is inefficient. Also, layoffs are rarely selective with regard to performance; many of the least productive workers are protected by seniority rules.¹⁰

5. Supply-Side Effects

Supply-side economics has been advanced by Arthur B. Laffer, Robert Mundell, Norman Ture, among others. Some supply-siders have emphasized the macroeconomic effects of tax reductions on aggregate savings, investment and labor supply as well as on tax revenues, which in turn affect the general level of economic activity.¹¹ Those who consider supply-side economics as the application of price theory to government fiscal measures focus on how tax rate changes affect the relative prices of leisure, consumption, non-market production and investment. Though perhaps less than an income tax reduction, a substantially lower property tax rate also ultimately raises the relative price of leisure and of current compared to future consumption, and increases the value of market work compared to work in the underground economy and of taxable investment compared to tax shelter.

Supply-siders like to talk about a capital wedge, the divergence between return to the lender and the cost to the borrower resulting from the fact that taxes are paid to government. If taxes are high, a substantial reduction can increase the amount of capital demanded and the amount of capital supplied. This occurs because of the size of the wedge. The increase in the use of capital leads to output and employment growth.

Figure 2 illustrates the capital wedge which comes about because taxes paid to government increase capital cost to entrepreneurs beyond what they actually pay for capital. Only in the extreme case at E, i.e., in the absence of taxes, will price paid for capital and price received for it be equal. As taxes on capital income increase, the cost of capital rises, while the return to those who provide capital declines, and vice versa. The tax increase, therefore, causes a decline in capital demanded as well as supplied. Consequently, the size of the wedge in Figure 2 increases up to Y_2 indicating

a growing divergence between the cost of capital and yield to those who provide capital (D_c is the demand function for capital and S_c the supply function for capital). At Q_1 capital spending, capital cost is Y_2 , whereas those who provide capital receive only Y_1 . As taxes decline, we move towards E and Q_2 , and a smaller wedge and greater capital spending. This analysis can be applied to a state-wide property tax reduction by using the "new view"¹² of the incidence of property tax, though it assumes a nationwide uniform property tax. According to the "new view" the incidence of a uniform property tax is borne at least partly by all owners of capital instead of the consumers or just the owners of land. The burden cannot be passed entirely onto consumers because their mobility allows them to move out of the jurisdiction to escape increased prices. The burden cannot be passed entirely onto landowners because the supply of developed land is not a fixed factor.

Since the property tax is a tax on land and capital,¹³ the after tax rate of return on capital in the state will increase if property taxes are reduced. Capital will shift into the jurisdictions. With the supply of capital not being perfectly elastic, this decrease in the supply of capital outside California will result in an upwards adjustment in the rate of return to all owners of capital. The capital wedge is decreased due to the increase in the after tax demand for capital.

This decrease in the capital wedge will not be as dramatic as the decrease caused by a capital income tax reduction of equal relative magnitude. We have only a statewide, and not nationwide, property tax. Still, the implications of the reduction in the capital wedge are the same; an increase in the total stock of capital, an increase in the remuneration to labor, and an increase in productivity.

There exists virtually no empirical evidence of the supply-side effects on the federal level and most economists appear to expect them to be rather small. Even less evidence has been produced so far on the local or state level and one must suspect that the employment and growth effects will also be quite small, particularly since California's \$7.0 billion local property tax reduction was accompanied by an increase in federal income tax obligations of at least \$2.5 billion. This resulted from the fact that property taxes are deductible from federal income taxes and user fees levied in place of property taxes are not deductible.

6. Improved Government Resource Use by Altered Revenue Mix

Since local revenue limitation measures have rolled back property taxes, the relative importance of the latter has declined while that of sales taxes, subventions from higher levels of government and various fees has increased. This tendency has become even more pronounced where state governments increased their subventions which are predominantly financed by income and sales taxes. When property taxes vary from community to community, as they did for example in California prior to Proposition 13, local communities have a strong incentive to practice exclusionary zoning which can result in inefficient resource use.¹⁴ These tendencies are reduced once a uniform statewide property tax is imposed.

Furthermore in the face of a reduction in the relative importance of property taxes, those governments which provide people-related services tend to become more efficient. This condition holds for school districts and for county governments which in many states provide mainly health and welfare services. Municipal governments and special districts that provide flood control or street repair and street cleaning, i.e., those who mainly engage in

property related services, will tend to lose some efficiency.

7. Transfer of Power to Centralized State Government

Even if the state does not increase the flow of funds to local governments after their property taxes have been slashed, the relative share of state funds in support of local budgets increases. But in most states, local property tax reductions have been followed by major increases in state subventions. For example, following the passage of Proposition 13, state annual aid to local governments increased by about \$5 billion in real terms, and with it power and control has shifted away from local governments to the state. The result has been a general decline in home rule and local control, and greater intervention by a centralized state government. Citizens, special interest business groups and labor unions are increasingly negotiating with the state legislature and governor, rather than with local officials. The latter have fewer and fewer resources with which to respond to pleas.

The efficiency implications of increased control over local governmental services by state government which lead to their homogenization are, by and large, negative. It can be demonstrated that, in the absence of economies of scale due to centralization and of spillover effects between localities, decentralized provision of a publicly provided good is more efficient than centralized provision. To begin with, assume a two person, two-good economy, represented by the Edgeworth Box in Figure 3. Assume initially that both goods A and B are private goods. The locus of all possible tangency (i.e., Pareto optimal) points for individual 1's indifference curve (U_1) with that of individual 2 (U_2) is given by O_1O_2 . Suppose 1 and 2 reach a tangency at point M. If, suddenly, a uniform quantity B^* is imposed on both individuals, the outcome will no longer be Pareto efficient. This outcome is shown by the new

position at point N, at which the individuals are no longer on their efficiency locus. The outcome would be efficient only if both 1 and 2 would have chosen the imposed level anyway, a choice they could have made, but obviously did not. In short, imposing a specific quantity constrains the range of choice and is inefficient. (By the way, Point C in Figure 3, in which equal quantities of the public good are consumed, is also Pareto-optimal. However, in the absence of a specific social welfare function that can justify massive redistributions there is no a priori reason for preferring C to M.)

This argument can be generalized to groups making collective choices. If communities arrive at different choices concerning how much of a publicly provided good to consume, it may be assumed that their decisions reflect the divergent tastes of each community. To the extent that members of a community "vote with their feet," small communities particularly would tend to be composed of members with roughly similar preferences regarding major public goods, e.g., education and police protection.¹⁵ Centralization can take into account few of these differences among communities, and would probably result in imposing a uniform quantity of a good. Again, each community could have chosen this level under decentralization, but not all did. As in the case of two individuals, the uniform quantity is inefficient.

Of course, in any real-life situation inefficiencies of centralization must be balanced against gains due to economies of scale and internalization of spillover effects. For certain services gains from centralization will tend to outweigh losses due to centralization, but this does not seem likely for the major local government services. There is no reason to expect large economies of scale to result from more centralized decision making about, for example, police and fire protection, and education, since production will

continue in about the same units. The issue of spillovers, however, is less clear. There are spillover effects, in the sense that other communities benefit from one locality's provision, for example, of education when an individual moves to one of those other areas. However, if these effects were very significant, one would expect to see high-expenditure communities reducing the amounts they spend because they do not fully receive the benefits they provide. The final result would be a more or less uniformly low level of public expenditures across communities. In fact, this is not observed in California, for example, where before the passage of Proposition 13 there were large differences among jurisdictions in the resources they devoted to various local government services. Since neither economies of scale nor spillover effects appears to be significant in relation to most public services, centralized financing and decision making is likely to result in inefficiencies in a revenue limitation environment.

8. Distorted Resource Use By Local Government

Drastic revenue limitation measures can lead to major distortions in the manner in which resources are used. Specifically, tight local budgets can lead to underinvestment in capital improvements, repair, maintenance and innovation. At the same time, overinvestment is likely in state and federally funded, compared to locally funded, programs for two reasons. One reason is related to the matching features of most of the programs and a second to the functional disjuncture between spending and revenue raising in the former. These issues will be taken up below.

Underinvestment in Capital Improvements

When budgets are slashed by revenue limitation measures, politicians are more inclined to defer new capital investment, repair and maintenance and

innovative programs than to cut operating funds for the present delivery of services. This strategy tends to minimize the political damages that elected officials must fear to result from service cuts. These officials always worry about re-election and have, therefore, a short time horizon.

This tendency is reinforced by the higher borrowing costs local governments must pay in the wake of revenue limitation measures. Public facilities are usually considered a limited collateral at best, and investors in bonds tend to emphasize the surity of payment. Tax limitation measures have reduced the ability of governments to make debt service payments and to some extent, increased the probability of default. Therefore, investors have come to consider municipal debts more risky than before and to insist on higher interest payments in line with the increased risk. This is not to say that risk and default are the only determinants of interest rates; size of debt burden and marketability of issue also play an important role.

When the property tax rate ceiling has become inflexible as the result of a measure such as Proposition 13 or 2 1/2, the legally provided security of full faith and credit cannot be attached to new bonds. Proposition 13 also changed the legal security behind tax allocation bonds, in that the incremental property tax assessment from which the debt previously was repaid will not be as large as before. Moreover, tax collection and control functions have been shifted from the tax-allocation districts to the larger county level of government. Ann R. Thomas, in examining this new legal arrangement, concludes, "The effect is to limit severely, if not to eliminate, this form of financing future urban redevelopment projects."¹⁶

Revenue bonds that are secured in part by funds from the operating budget of the issuing government tend to become riskier when revenue from the project declines in a limitation era. This development is even more important for

lease-purchase bonds that are totally dependent on operating funds via lease contract payments. While the legal security of the bonds has not changed, ability of local governments to provide debt service has been reduced.¹⁷

Not only has it become more costly for local governments in revenue limitation states to sell bonds, but sometimes it has virtually become impossible. A good example is California. Since debt service is not exempt from the limitations imposed by Proposition 13 (except that approved by voters prior to July 1, 1978), local governments are severely limited in their access to credit markets. This fact is especially damaging since increased productivity in local government requires investment in equipment, computers and more efficient physical facilities. Thus, certain cost effective production and distribution methods cannot be implemented by local governments, or they will have to use their limited tax sources to replace otherwise available bond revenue.

A study by Jack H. Beebe of new-issue interest costs for different categories of California municipal bonds, from the time Proposition 13 was placed on the ballot at the end of 1977 through March 31, 1979, produces the following results --¹⁸

1. Proposition 13 increased the cost of California's general obligation bonds by roughly 25 basis points and may have induced the state to issue higher yielding revenue bonds in place of some general obligation debt.
2. Newly approved general obligation debt has ceased.
3. Interest cost of hybrid-revenue bonds has been significantly affected.
4. Interest costs of lease-purchase bonds has increased 50 basis points.
5. Tax-allocation issues initially suffered an increase in risk premium of over 200 basis points.

The postponement of capital investment can distort America's settlement pattern. Insufficient funds to build new physical infrastructure will tend to retard suburban and exurban development and growth. While it might be argued that such a tendency is desirable in a high energy cost era, the fact remains that lack of investment funds is an arbitrary influence and possibly results in inefficient resource use. Moreover, the former automatic link between infrastructure expense and public revenue from property taxes has been weakened, if not altogether broken. This has led to inefficiency.

Underinvestment in Repair, Maintenance and Innovation

As local governments find themselves short of funds, another of the less painful decisions open to elected officials is to defer repair and maintenance. Yet, as upkeep of buildings, roads, bridges, sewer systems, and buses is underfinanced year after year, large losses are likely to occur. These losses, in both monetary and human terms, are compounded by the fact that the eventual cost of restoring these facilities tends to be substantially higher than the savings from deferred maintenance. This is simply the well-known principle that preventive maintenance is less costly over the long run than corrective maintenance. Possible losses can result not only from public buildings and bridges collapsing, but also from accidents due to washed out roads, and inadequate mechanical maintenance of trucks, buses, and other equipment used by the public sector.

An optimal maintenance policy must take into account not only monetary costs of repair and maintenance, but also the benefits of preventing the human losses described above. The decision maker's problem is to maximize the net benefit stream, $B(t)$, through choice of the optimal stream of maintenance expenditure, $m(t)$.¹⁹ The choice of $m(t)$ will affect both costs and the rate at which benefits depreciate, $(m(t))$.

The net benefit at time t is

$$B(t) = (b(t)e^{-\delta t} - m(t))e^{-it}$$

where $\delta = \delta(m(t))$, i is the discount rate, and $b(t)$ is benefits at t . The decision maker's problem is to maximize the stream of these net benefits over time.

The effect of incurring maintenance costs is to both shift the net benefit stream down by the discounted expenditure and to "flatten out" the stream by reducing the depreciation rate. Under increasing cost conditions, maintenance costs in each period should be increased until the increase in benefits due to slower depreciation is balanced by the increase in repair costs. Such a pattern of expenditure should constitute an optimum annual policy. If because of political considerations, these expenditures are curtailed, then the optimum will not obtain. The net benefit path would shift up by the amount of cost savings, but the increase in the depreciation rate would more than offset this gain. The result would be a net social loss.

We have some tentative empirical information on budgetary changes -- Although expenditures budgeted for fiscal year 1979 by California counties increased more than 12% over actual fiscal 1978 expenses, budgets for property management (which include custodial services and maintenance and remodeling of facilities) declined by 0.5%. Los Angeles County, for example, planned to delay building maintenance and alterations and to cancel the scheduled replacement of all non-emergency county vehicles.²⁰ A further example is capital spending on libraries, which as a percent of all spending declined in Los Angeles County from 11.1 percent in 1978 to 0.9 percent in 1980.²¹

Also funding of research and innovation has been cut in California. For example, the Los Angeles City Attorney reduced his staff in the Planning and Research Division by more than 50%, while all planning, research, and

innovation activities of California's criminal justice system suffered.²²

Moreover, to the extent that new-book circulation reflects innovative activities, such circulation per thousand persons declined from 1978 to 1980 in Los Angeles City from 50 to 9 and in Los Angeles County from 293 to 174.²³

Warren E. Walker and Jan M. Chaiken in a study of innovation concluded, "...fiscal contraction will cause the innovative process in the public sector to fall on hard times."²⁴ Altogether, these reduced levels of planning, research and innovation effects will tend to be inefficient.

Overinvestment in State and Federally Funded Programs

When local revenues decline, officials tend to protect federally and state subsidized programs at the expense of locally funded programs, which are cut most severely. The result is distorted local government resource use. In a program funded 75% by federal and state funds, for example, a cut that saves only 25% in local revenue would nevertheless have the consequence of reducing the program by a ratio of 4:1. This reduction of \$4.00 of total program resulting from \$1.00 of local fund reduction, must be compared to a \$1.00 loss per dollar of local funding cut.

This hypothesis is borne out in New York City where budget-cutting in 1975 and 1976 led to major cuts primarily in locally funded services not eligible for federal or state funds, e.g., police, fire and sanitation.²⁵ Likewise, passage of Proposition 13 resulted in local governments proposing greater retrenchment in locally supported basic services than in social-service programs that receive high federal and state funding.²⁶

Further distortions and inefficiencies can result from local governments tending to use different standards of monitoring and of diligence in cost cutting, in relation to locally versus non-locally funded programs. The functional disjuncture between spending and raising revenue relative to

heavily subsidized local operations, weakens local incentive and determination to be cost-effective.

9. Impeding and Distorting Economic Growth

Since under most revenue limitation measures, local governments' property taxes cannot exceed a specific, relatively low rate of market value, new land uses can cost governments more in services than will be covered by prospective tax receipts. Moreover, since governments have great difficulty in floating bond issues to fund an infrastructure, construction permits tend to be denied, though construction is actually efficient.

To illustrate, assume there exists in a locality a cost function for public services:

$$C = C(Q,n)$$

where Q is units of public services per household and n is number of households. Derivatives of the function with respect to both arguments are assumed to be positive. Any decision on land use must take into account the condition that costs of services provided must be balanced by tax revenues, that is:

$$rA = C(Q,n)$$

where r is the property tax rate and A is aggregate value of assessed real property. The following condition must be satisfied by any new construction in the community:

$$r\left(\frac{\partial A}{\partial n}\right) = C_n(Q,n)$$

In words, the tax revenues from additional building must balance the additional costs. Now, let the tax rate be halved. In order to preserve the equality, it is necessary that the increment to assessed property value be raised, or else that Q be cut back (this assumes, of course, that the second

cross partial of C is positive). While it is likely that such a cut in the tax rate will lead to a one-time cut in services offered, it is less likely that each time a new construction permit is issued, Q will be cut. Rather, permits will only be issued to those with very high incremental value relative to expenditures. Consequently, many building permits will be denied for uses which would previously have been granted, including some that are highly efficient. Growth may be further retarded, because some firms facing a location decisions will not tolerate service cuts. Their decision against locating in the jurisdictions will tend to redistribute the geographic demand for public services.

In those instances in which construction permits are granted, frequently onerous terms are imposed on the developer. An example is a construction permit issued by the City of Santa Monica in California after lengthy negotiations for the development of commercial property on 15 acres.²⁷ After the development company had made a multi-million dollar investment in land starting before the moratorium was enacted, a development agreement was signed to break a city imposed construction moratorium. The conditions approach extortion. Under the agreement, the developer must dedicate 29% of the land to open space and parks, land for which he had paid \$1.9 million. In addition the developer was forced to pay an arts and social services fee of 1 1/2% of the development's value, amounting to about \$1/2 million. Furthermore, the developer had to agree to build a day care center of not less than 800 square feet, a community center of not less than 1500 sq. ft. and maintain them together with the park in perpetuity. Finally, the developer was forced to build 30 units of residential housing with at least 43 bedrooms under inclusionary zoning terms.²⁸

When burdens on developers in the form of construction fees, in lieu fees, exactions and inclusionary zoning provisions exceed costs placed on the community by the development, and have a chilling effect on new construction and retard economic growth, inefficiencies result.

There also exist distortions. Where such new taxing devices are not used, the relative decline in property taxes associated with revenue limitation will tend to increase investment in real property as compared to capital. Likewise, as a result of reassessment features exemplified by Proposition 13, repair of existing facilities will be more advantageous than constructing new ones.

This reassessment feature has also an effect on oil, gas, coal and other mineral resources exploitation. These mineral resources, with crude oil the shining example, have substantially increased in price since 1975. Yet, they qualify for a 1975 base year evaluation plus 2% per year. Thus, the property tax payments on these mineral lands are relatively small compared to what they would be if assessments were in terms of present values. One result is a delay in exploitation of these resources.

The opposite result can occur in relation to investments in orchards and vineyards, which cost relatively little and the cost per unit of property improvement is low. While the economic productivity of orchards and vineyards increases with the passage of time, the initial low value is used as the evaluation base. Specifically, since assessed valuation is assessed upon fair market value at the time of planting, plus 2% a year compounded, compared to other investments orchards and vineyards are grossly undertaxed which in turn can result in overinvestment.

Some Concluding Thoughts

While there can be little doubt about a groundswell of sentiment in favor of stringent revenue limitation measures, the relative importance of the driving forces that motivated Americans is less clear. To the extent that surveys have shed light on reasons and motivation for the limitation movement, local government efficiency is only one of many concerns, and most likely not the dominating one.

Still there is interest in evaluating the likely efficiency effect of revenue limitation measures. In the absence of careful empirical studies for the short time during which these measures have been in effect, I have attempted to engage in some limited deductions and qualitative evaluation. My tentative conclusions are as follows:

Of the various efficiency effects of revenue limitation measures, three on balance are likely to be positive. Shrinking funding levels, or at least growth rates, have had a salubrious, disciplining effect on public managers and their employees. As a result a remarkable increase has occurred in the willingness of government officials to consider methods that can substantially increase efficiency. These tendencies are mitigated by a lack of funds and by archaic civil service rules that often leave the less productive workers on the public payroll. Secondly, there is so far little evidence of a positive supply-side effect of the tax cuts although they occurred in a period of prosperity. If heightened investment and economic growth will make their appearance somewhat later, I expect them to be rather small. Thirdly, the revenue mix change that has resulted from a decline in the importance of the local property tax is likely to have had on balance a small positive efficiency effect.

A number of other effects are strongly negative. By shifting much

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decision making power from local governments to the state, great centralization of power has occurred and with it homogenization of services and service levels. The result has been a significant efficiency loss. A similar result has most likely occurred because of major distortions in the use of resources by local governments. The distortions have been in the form of underinvestment in capital improvements, repair and maintenance and innovative activities on the one hand and overinvestment in State and Federally funded compared to locally funded programs. Also, private sector investment and economic growth have been retarded and distorted, in part as a consequence of local governments justifiable reluctance to issue building permits or only after attaching most onerous terms. Moreover, the changed property tax provisions have distorted major investment decisions as well as decisions about the exploitation of mineral resources. Finally, it is quite likely that in California, local rent control has followed a clash between landlords and tenants who saw themselves frozen out of benefiting from property tax reductions. As a result, rental housing is deteriorating and its supply shrinking.

In summary, although not all the evidence is in, it appears that the revenue limitation movement must be justified on other than efficiency grounds.

FOOTNOTES

*Paper prepared for 38th Congress of the International Institute of Public Finance, in Copenhagen, Denmark, August 23-26, 1982.

¹Jack Citrin and Frank Levy, "From 13 to 4 and Beyond -- The Political Meaning of the Ongoing Tax Revolt in California," in The Property Tax Revolt -- The Case of Proposition 13, George G. Kaufman and Kenneth T. Rosen, eds. (Cambridge, MA: Ballinger, 1981), pp. 16-18.

²Paul B. Courant, et al., "Why Voters Support Tax Limitation Amendments: The 'Michigan Case'", National Tax Journal, vol. 33, #1 (March 1980), pp. 1-20.

³Significant Features of the Fiscal Federalism, 1980-81 Edition, (Washington, D.C.: Advisory Commission on Intergovernmental Relations, December 1981), M-132, p. 12.

⁴Ibid., p. 30.

⁵James R. Adams, "Boston's Curious Financial Crisis," Wall Street Journal, August 12, 1981, p. 24.

⁶The reduction in property taxes had some far reaching side effects. It resulted in a substantial decrease in the deductions Californians were able to claim on their federal income tax returns, and therefore in a multi-billion dollar increase in tax payments by Californians to the federal government. At the same time federal payments to state and local governments in California decreased by \$96 million, i.e., 1.1% in the first year under Proposition 13 (because of Revenue Sharing provisions), while these payments increased in the remainder of the United States by \$5.6 billion or 9.2%.

⁷Security Pacific Bank, Monthly Summary of Business Conditions in Southern California, vol. 60, #3 (March 1981), 4 pp.

⁸As the relative importance of property taxes has fallen, more cyclical taxes take their place. Moreover, since states are facing serious fiscal problems, their subventions to local governments have become less and less dependable. For example, the California bail-out legislation includes a safety valve in the form of a deflator. It permits the state to cut its subsidies by almost one half in any year a state revenue shortfall in excess of \$200 million is expected. While not making so far such a drastic cut, subsidies have been reduced by almost \$0.5 billion.

⁹E.S. Savas, "An Empirical Study of Competition in Municipal Service Delivery," Public Administration Review, v. 37 (Nov.-Dec. 1977), pp. 717-24, and "Policy Analysis for Local Government: Public Versus Private Refuse Collection," Policy Analysis, v. 3, #1 (Winter 1977), pp. 1-26.

¹⁰Ronald G. Ehrenberg, "The Effect of Tax Limitation Legislation on Public Sector Labor Markets: A Comment," National Tax Journal, vol. 32, #2 (June 1979), supplement, pp. 261-266.

¹¹Victor A. Cantor, Douglas H. Joines and Arthur B. Laffer, "Tax Rates, Factor Employment and Market Production," The Supply-Side Effects of Economic Policy, Laurence H. Meyer, ed. (St. Louis: Federal Reserve Bank of St. Louis, 1981), pp. 3-33.

¹²Peter W. Mieszkowski, "The Property Tax: An Excise Tax or a Property Tax," Journal of Public Economics, vol. 1 (1972), pp. 72-96.

¹³To the extent labor is immobile or land is fixed they will bear parts of the tax incidence.

¹⁴Werner Z. Hirasch, "The Efficiency of Restrictive Land Use Instruments," Land Economics, vol. 53, #2 (May 1977), pp. 145-56.

¹⁵Charles M. Tiebout, "A Pure Theory of Local Expenditures," Journal of Political Economy, vol. 64, pp. 416-24.

¹⁶Ann R. Thomas, "Fiscal Limitations and Municipal Debt -- The Extreme Case of Proposition 13," in The Property Tax Revolt -- The Case of Proposition 13, op. cit., p. 110.

¹⁷Ibid., p. 110.

¹⁸Jack H. Beebe, "California Bonds After Proposition 13," in The Property Tax Revolt -- The Case of Proposition 13, op. cit., pp. 135-61.

¹⁹The analysis here was inspired by work dealing with the maintenance of housing, specifically Stephen E. Margolis, Depreciation of Capital in Housing, unpublished Ph.D. dissertation, UCLA 1977. However, his analysis differs from the present one in very fundamental respects. His is not a function of $m(\)$. Rather, it is either constant or increasing with time. His constrained maximization involves the following objective function:

$$\int_0^{\infty} e^{-it} [F(K(t)) - m(R(t))] dt$$

where $F(\)$ is the gross profit function, $K(t)$ is capital embodied in a dwelling at time t , and $R(t)$, the chosen variable, is capital purchased at time t . A condition resulting from his maximization is that the marginal cost of capital be set equal to its value of marginal product, that is:

$$(1+i)m'(R) = F'(K)$$

For a simple illustration of the problem of maximizing a continuous flow over time, see Jack Hirshleifer, Investment, Interest, and Capital (Englewood Cliffs, NJ: Prentice-Hall, 1970), pp. 92-96.

²⁰An Analysis of the Effect of Proposition 13 on Local Governments, Legislative Analyst, State of California, Sacramento, October 1979, and Proposition 13: How California Government Coped With A \$6 Billion Revenue Loss, Comptroller General of the United States, Report GGD-79-88, Washington, D.C., December 23, 1979.

²¹Mark D. Menshik, et al., How Fiscal Restraint Affects Spending and Services in Cities (Santa Monica, CA: RAND Corp., January 1982) R-2644, p. 39.

²²Warren E. Walker, et al., The Impact of Proposition 13 on Local Criminal Justice Agencies: Emerging Patterns, (Santa Monica, CA: RAND Corp., June 1980) N-1521-DOJ, 61 p.

²³Mark D. Menshik, op. cit., p. 85.

²⁴Warren E. Walker and Jan M. Chaiken, The Effects of Fiscal Contraction on Innovation in the Public Sector, (Santa Monica, CA: RAND Corp., April 1981) P-6610, p. 42.

²⁵Temporary Commission on City Finances (TCCF), An Historical and Comparative Analysis of Expenditures in the City of New York (New York: TCCF, 1976).

²⁶Comptroller General of the United States, Proposition 13 -- How California Governments Coped with a \$6 Billion Revenue Loss (GGD-79-88) (Washington, D.C.: General Accounting Office, 1979).

²⁷Development agreement between Colorado Place Associates, a California General Partnership, and the City of Santa Monica, California, December 24, 1981, 37 pages.

²⁸The inclusionary zoning provisions provided that (1) at least 7 units will be affordable and rented to persons and families with an annual income of less than 50% of median income, (2) at least 16 units will be affordable and rented to persons and families with an annual income of from 50-99% of median income, and (3) the remainder shall be affordable and rented to persons and families with an annual income of less than 120% of median income. The annual rental rate for each unit could be no greater than 25% of the income of the three groups.

FIGURE 1

REVENUE LIMITATION IN THE FORM OF

LOCAL PROPERTY TAX REDUCTION

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graph TD; A[LOCAL PROPERTY TAX REDUCTION] --> B[1. Direct Local Government Service and Expenditure Effects: a. Transfer of Power to Centralized State Government b. Distorted Resource Use by Local Governments c. Increased Uncertainty d. Pressures for Heightened Efficiency]; A --> C[2. Direct Local Revenue Effects: a. Higher Borrowing Costs Interfere With Capital Investment b. Altered Revenue Mix Distorts Some Resource Uses and Improves Others]; B --> D[3. Indirect Effects on Private Sector: a. Decreased Private Spending and Investment and Economic Growth b. Distorted Private Investment and Economic Growth]; C --> E[4. Indirect Effects on Private Sector: a. Increased Private Spending and Investment and Economic Growth (Supply-Side Effects) b. Distorted Private Investment and Economic Growth c. Emergence of Rent Control With on Balance a Negative Effect on Rental Housing Quality and Supply];
```
1. Direct Local Government Service and Expenditure Effects:
- a. Transfer of Power to Centralized State Government
  - b. Distorted Resource Use by Local Governments
  - c. Increased Uncertainty
  - d. Pressures for Heightened Efficiency

2. Direct Local Revenue Effects:
- a. Higher Borrowing Costs Interfere With Capital Investment
  - b. Altered Revenue Mix Distorts Some Resource Uses and Improves Others

3. Indirect Effects on Private Sector:
- a. Decreased Private Spending and Investment and Economic Growth
  - b. Distorted Private Investment and Economic Growth

4. Indirect Effects on Private Sector:
- a. Increased Private Spending and Investment and Economic Growth (Supply-Side Effects)
  - b. Distorted Private Investment and Economic Growth
  - c. Emergence of Rent Control With on Balance a Negative Effect on Rental Housing Quality and Supply

FIGURE 2

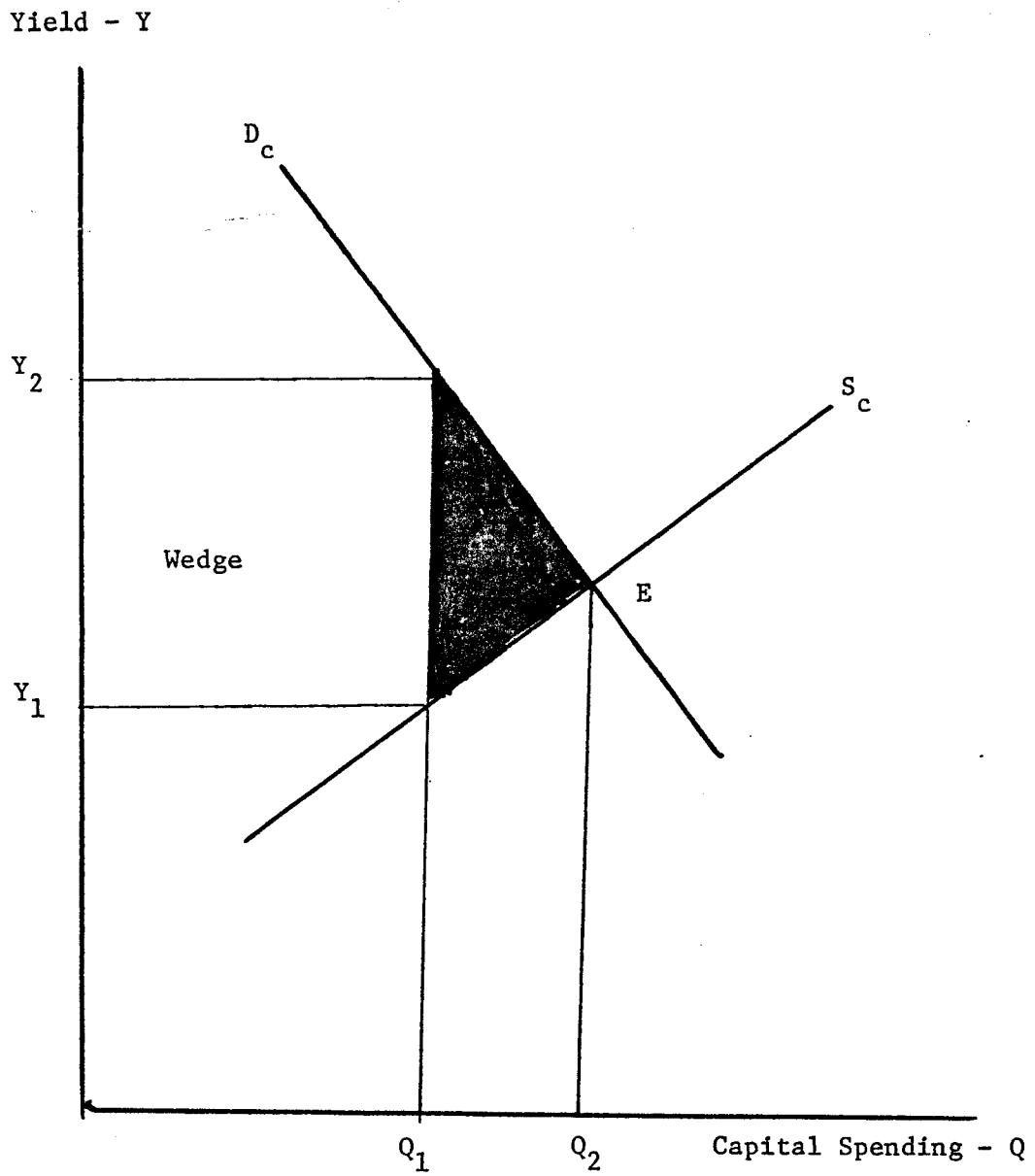


Figure 3

