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1987	400,000	9.25	1993	725,000	11.40
1988	440,000	9.75	1994	810,000	11.60
1989	480,000	10.25	1995	900,000	11.75
1990	530,000	10.75	1996	1,005,000	11.90
1991	585,000	11.00	1997	1,125,000	12.00

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Analyses of California Public Debt

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ANALYSES OF CALIFORNIA PUBLIC DEBT

by

John J. Kirlin and Associates

August 1983

(The views expressed in this report are those of the authors and are not necessarily those of the California Debt Advisory Commission or of the State Treasurer's Office.)

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(NOTE: The text of this report was completed in December 1982.)

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EXECUTIVE SUMMARY

California public debt exists in a context. Previously issued debt influences credit ratings available currently. Other state and local governments issue debt against which California issues compete for purchasers. Debt is issued pursuant to explicitly formulated public policies which limit the purposes for which tax exemption is granted and establish processes of regulatory review. Analysts and researchers seek understanding of how debt markets operate and of the impacts of alternative public policies so that the decision making of issuers, debt professionals, investors, and policy makers may be improved.

Thus, four dimensions of the context in which California public debt exists may be identified. The first encompasses historical patterns of debt issuance, use, and retirement in this state. The second includes market-relevant patterns of debt use by other state and local governments. The third dimension includes existing public policies and regulatory processes. Finally, the fourth dimension encompasses research and analyses.

This volume analyzes these four dimensions of the context of California public debt and is divided into six chapters:

I. Policy Considerations
II. An Example of Incidence Analysis Applied to Industrial Development Bonds
III. Segmentation and Policy Choices: A Model Evaluative Study and Discussion of Methodologies Appropriate for Policy Research
IV. Public Debt Regulation in California, With Comparisons to Other States
V. Baseline Statistics on Public Debt in California
VI. Models of Debt from the Research Literature and a California-Specific Research Agenda

Finally, an appendix providing additional data on public debt in California is provided.

Expanding from four dimensions of context to six chapters plus an appendix suggests that additional factors have influenced the preparation of this document. They have, but the theme of context runs through all of the chapters and all four dimensions are explored. The organization into these chapters reflects judgments as to which issues are most relevant to policy choices confronting California and the availability of data. (This research project was limited by design and by resources to secondary data.)

I. POLICY CONSIDERATIONS

Two common objectives of State policy making are to ensure that debt is used for specific purposes and to ensure lowest possible interest costs for the issuer, whether it be the State or local agency. Although there might be other objectives, this chapter identifies and evaluates some tools that the State can use to pursue these objectives. It will discuss these two goals as if they were independent for expositional purposes--in reality, they are often connected. For example, revenue debt backed by risky projects often commands higher interest rates. Included in the analysis of these "policy levers" will be a discussion of some interrelationships that exist among them.

It will be seen that, overall, the State can control purpose of debt far more directly and far more easily through direct regulation than it can control interest rates. The later can be usually affected only through six intermediate policy variables discussed below.

A. POLICY LEVERS

In order to make policy choices, the policy "levers" available in California must be identified. A "lever" is a feature of debt that is changed ("moved") in an attempt to achieve a policy objective. Table 1 illustrates six important levers that can be varied to affect the California tax exempt market, and the estimated level of control that the State can exercise.

Table I
ESTIMATES OF THE CAPACITY OF STATE POLICY
TO INFLUENCE SIX POLICY VARIABLES OF
CALIFORNIA PUBLIC DEBT

Policy Variable	State Capacity to Influence: High	Medium	Low
1. Issue Size	X		
2. Credit Rating		X	
3. Volume		X	
4. Maturity Schedule	X		
5. Placement			X
6. Technical Requirements	X		

1. Issue Size

There is some evidence to indicate that extremely small or extremely large issues are difficult to place, and thus command higher interest premiums to the issuer. Some control can be exercised over this variable--State or local government can be encouraged not to go to market as frequently, and therefore, when they do offer debt, the issues would be larger. Or, a bond bank could increase issue size. Conversely, if issues are too large, they may be difficult to place, and the issuing body could be encouraged to break up the issues into more than one component.

There were only 15 issues of less than $1 million offered by California local agencies in 1981 and 10 of those were special assessments. The smallest State issue was $8 million. The largest local issue was a $450 million anticipation note (five were over $100 million), while the largest State issue was $150 million (and again, five were over $100 million). Thus, issue size does not appear to be a major problem in California, although if, in the future, it does appear to be a concern, the State can have a significant effect in controlling it through regulation. There is also a potential relationship between purpose and size, since for some purposes, a minimum size might be necessary. Thus, while size might be easy to control, it may differentially affect the two primary goals.

2. Credit ratings

This variable only partially reflects the underlying strength of the issuer's finances. It also reflects such non-quantifiable political variables as the perceived responsibility of the legislature or the local city council, as well as the desires of the citizens to have more services, but at less cost.

Standard and Poor's, when they downraded State of California bonds from AAA to AA+ in early 1980, commented that the voter initiatives significantly altered California's flexibility to maintain financial health over a long period of time. They argued that "it is well documented that major reductions in governmental income will not be accompanied by like reductions in governmental expenditures until there is no other choice. Creditworthiness will be sacrificed before the populace and the electorate will permit elimination of services." As long as the rating agencies believe that there is little political responsibility within the State, they are unlikely to upgrade their ratings.

Included in this political responsibility context is the entire budget process at both State and local level. The State Legislature finds it difficult to make program cuts and has for the last two years balanced the budget by a series of

short-term remedies, designed to get through one more budget cycle. One popular method has been to cut aid to cities which has effectively passed through the State uncertainty to local government. This refusal to deal with long-term problems has affected the rating agencies' views of California debt.

If these credit ratings are lower than warranted, they will unnecessarily cost the State a great deal of money over the next several years. The State should consistently remind the rating agencies of its strong underlying economy and low existing debt levels, while working to bring expenditures into line with revenues. It might be noted that, empirically, credit ratings have been nearly useless in predicting the probability of the default of a tax-exempt issue, although once a rating is given, it does affect interest costs.

To conclude, since public debt issued in California is modest in scope compared to national averages, since it absorbs only a small portion of the local jurisdiction's budget and since there are existing State regulatory bodies designed to prevent abuse of debt, it is highly likely that the political dimensions of fiscal limits and budget temporizing have been the cause of the lowered rating. These can best be countered by budget discipline at the State level, at least until such a time as revenues increase.

Finally, purpose and credit ratings can be closely related. For riskier purposes, or debt not supported by a guaranteed revenue source, credit ratings will probably be lower. This, as noted above, would also affect interest rates.

3. Volume

Volume refers to the dollar amount of tax-exempt debt issued during the year, and might, in some cases, be even considered a goal of the State rather than a policy variable. The State could control this variable by either changing the timing of the sale of tax-exempt issues (especially large ones) or by limiting the amount that could be issued overall, by purpose or by agency.

For example, the State could postpone an issue if the market appears overcrowded. This is most likely to affect issuance of State debt, since a greater percentage of it is issued in large blocks. Or, as is currently done, the State can limit the amount of debt issued for a particular purpose--in the past, for example, IDBs were limited to an aggregate value of $200 million. Finally, State or local governments might be restricted to a total debt limit or a limit expressed in per capita or per income terms, either of which would be more flexible than a total limit.

The evidence is mixed concerning the effect of volume on interest costs. At the high end, the Congressional Budget Office (CBO) and U.S. Treasury claim that each additional $1 billion of tax-exempts issued raises the average national tax-exempt rate by five to seven basis points (1 percent equals 100 basis points). Other studies, under different assumptions, find much lower effects--on the order of 0.6 basis points for each additional $1 billion (Kormendi and Nagle, 1981). In 1981, California issued about $4.2 billion worth of debt. If all California issues had been eliminated, under the highest estimate, average national rates would have fallen by less than 30 basis points. The low estimate implies a 2.5 basis point drop. In either case, the effect is very modest.

4. Maturity

The term structure of debt is also important and could be reasonably well controlled depending upon the instructions given underwriters. Shorter maturity debt seems to sell at less of a discount than longer-term debt, and thus maturity schedule is an important influence on interest rates. However, debt purpose and maturity structures do not seem to be closely related and thus this policy level can be primarily used only for cost controls.

5. Placement

Placement refers to the buyers of the bonds, and is probably quite difficult to control directly by the State. It is principally important only to the extent that if debt is regionally placed (that is, not sold on a national market), it may tend to drive up interest rates within that particular region. There is some evidence to indicate a large amount of California debt, especially issues under $40 million, is sold to California residents or institutions. This evidence also seems to indicate that the debt is sold through a national market, and is purchased through underwriters rather than through direct placement. For issues $10 million or less, it appears that almost all are placed directly within California. Thus, placement and issue size appear to be related. Finally, placement and volume might also be related, since there is a demand for California debt by its residents because of the California State income tax exemption for California state and local debt. If volume were cut substantially, there would be an increase in the price of California debt to the ultimate purchaser and the possibility of lower costs to the issuer. Placement is a lever that cannot be very effectively controlled by the State. Moreover, indexing the California personal income tax rates is likely to reduce its strength over time. However, by itself, placement has little impact on purpose or interest rates, the primary policy objectives of the State.

6. Technical Requirements

Technical requirements are techniques that affect purposes or interest rates. One example could be demands for elaborate justification of purpose every time debt is issued. This could mean a formal capital budget or benefit-cost evaluation for each debt issue. This would require an economic justification for each project which could be used to regulate the purposes of the debt. Bond insurance can affect credit ratings and thereby indirectly affect interest rates. Finally, switching the bond bidding method from net interest cost to true interest cost for issues other than State general obligation and water bonds might marginally lower bond bids. The State has a high control capacity with these techniques.

B. OTHER VARIABLES

There is also a set of other intervening variables that can affect the policy options available to the State. These variables, which are not controllable by the State, would certainly include the following.

1. The California and U.S. Tax Systems

The advantage of tax free debt is just that--it is tax free. However, with reductions in both U.S. income taxation and the indexing of California income taxation, the advantages of tax-exempt bonds are lowered to their purchasers, and the enticements to buy (that is the yields) must increase. One reason why California debt is purchased largely by Californians is the State's progressive tax system. If indexing significantly slows the number of individuals entering higher brackets, demand for California debt by its residents should slow. This double tax slowdown could generate increased debt costs for California jurisdictions.

2. The National Economy

The national economy can have many different effects on California debt. During a recession, there is a decreased demand for business loans, and thus more cash available to purchase debt, thus yields can fall. However, if commercial banks drop out of the market since they no longer need the debt to shelter smaller profits, yields might rise to entice private investors. Further, there is also the possibility of competition for customers with national debt, and the Federal Reserve Board might intervene by changing the supply of money. All of these effects are outside the control of the State, but can impact it dramatically.

3. Other Controls

There are, of course, many other policy levers that policy makers in the State are utilizing for their own purposes, without consideration of impacts on debt. For example, land use controls are used by local jurisdictions to affect development patterns. These patterns partially determine need for infrastructure, which in turn affects need for debt. By forcing developers to provide capital facilities, a practice that is now common in California, there is less need for public debt, although the private debt market may pick up the slack, and thus indirectly, public yields are affected.

Other regulations may be national in scope. Because commercial banks are not allowed to purchase revenue bonds, this market is made less competitive, which affects the interest costs local governments must pay.

II. AN EXAMPLE OF INCIDENCE ANALYSIS APPLIED TO INDUSTRIAL DEVELOPMENT BONDS

Among reasons for issuance of debt by governments is that some benefits from use of the proceeds of the issue are received in future years. For example, the California State Water Project was constructed in the 1960s and 1970s, but its benefits are still being received and should continue far into the future. To match benefits with costs, debt repayment is similarly scheduled over future years. State Water Project bonds will be repaid over several decades, for example. Having chosen to issue debt, policy makers are often concerned with the distribution of costs and benefits of this choice. In practice, the distribution of these is much more complex than the simple example of matching benefits and costs over time.

Analysts study these issues as "incidence" concerns. The incidence of an economic activity is defined in terms of the way individuals' welfares are affected by that particular activity. Discussion of incidence is commonly formulated in terms of tax incidence, although benefit incidence is often also noted. Determining the incidence of economic activities is complex because effects of tax or activity may be shifted from the persons on whom they are legally placed to different individuals. In this vein, it is important to note that only individuals bear incidence effects, not institutions. For example, a tax on a corporation is either shifted forward to consumers in terms of higher prices, is not shifted and thus is borne by shareholders in the form of reduced corporate equity, or is passed back to factors of production, and is reflected in reduced wage payments or return on investment.

The ultimate incidence of any public policy thus reflects a variety of market conditions, including elasticity of demand and supply for the good or service affected by the policy, degree of competition for the product, and extent of information available concerning alternative economic activities that individuals may undertake. When incidence of debt activity is discussed, many of these same concepts are relevant.

Policy makers are also interested in incidence. As an example, much regulation of who has access to tax-exempt financing is based upon judgments about incidence. Recent regulation of industrial development bonds (IDBs) in California (AB74, 1980 and SB1526, 1982) are intended to direct these bonds to specific uses and to prohibit their use by some types of firms and for some specific purposes, partially based upon implicit judgements about desirable incidence consequences.

Like most states, California authorizes issuance of IDBs. However, California has quite narrowly defined permissible uses of IDBs. Initially there was an upper limit of $200 million on the total amount of such instruments that could be issued. SB 1526 increased the limit by $250 million annually for four years, for a total of $1 billion in additional authorization. Analysis of the general issues posed by allowing tax-exempt IDBs and of the choices California faces when the existing authorization is exhausted illustrates how concern over incidence enters into policy making.

A. IDBs: A CASE ANALYSIS

Unlike traditional tax-exempt securities which are used to finance local government expenditures such as school construction, roads, hospitals and other public improvements, tax-exempt IDBs are issued by state and local governments on behalf of private businesses to finance private commercial and industrial projects. /1/ Sometimes called "conduit" or "private purpose" bonds, they are rated on the basis of the particular firm's balance sheet. Hundreds of local and state agencies have issued IDBs to foster economic development.

However, many of their uses may not be in the spirit of the Revenue and Expenditure Control Act of 1968, (amended in 1978) the Federal law that regulates usage of IDBs./2/ This act attempted to control issuance of IDBs by limiting tax-exempt status to small issues or those that finance particular types of industrial facilities. Today, however, IDBs are also used to finance a wide variety of activity such as commercial real estate development, retail stores, recreational facilities and proprietary health facilities. They are also used extensively by large national retailers.

A lower estimate of the amount of IDBs issued during 1981 in the U.S. is about $7.6 billion, a growth of about 90 percent over 1980. For the Pacific Region of Alaska, California, Hawaii, Oregon and Washington, the lower estimate was about $378 million, representing a growth since 1980 of about 430 percent.

/1/ In recent years, IDB issues have been exclusively revenue bonds and have been increasingly called Industrial Revenue Bonds (IRBs). Following the terminology used in Congressional testimony, IDB will be used in this paper.

/2/ Prior to 1968, IDBs were virtually unregulated and were rapidly growing. The purpose of the 1968 act was to slow down their growth and save the Federal Treasury some money.

In order to be exempt from federal taxes, IDBs must meet either of two criteria. The first criteria relates to the size of the issue. With few exceptions, the size restriction means that the government agency that issues bonds must first select a limit of either $1 million or $10 million, and that nearly all proceeds from issues must be used to acquire, construct or improve depreciable property. The bond issue is within the $1 million limit if the proposed issue plus outstanding IDBs used to finance facilities for the principal user in the same jurisdiction are less than or equal to $1 million. Under the $10 million limit, all capital expenditures incurred by the user in the issuing jurisdiction during the six year time period beginning three years before issuance of the bonds must also be counted against the limit.

The 1968 Act also allows issuance of IDBs without limits on the size of the issue or total capital expenditures on the project being financed if substantially all proceeds are used for selected projects (that is, 90 percent of the bond proceeds less issuance costs and debt reserve funds). The list of projects that are eligible for special exemption and whose bonds are thus tax free is long, and includes such purposes as sewage or solid waste disposal facilities, electric energy and gas facilities, airports, docks and wharves, pollution control facilities, facilities for the furnishing of water, sports and convention or trade show facilities, qualified hydroelectric generating facilities, industrial parks, mass commuting facilities, and even some types of residential mortgage programs.

California is one of 47 states that permit issuance of IDBs. Prior to January, 1981, only charter cities in California could issue these types of bonds, and some did, for many of the purposes allowed by the federal government. However, in January, 1981, the California Industrial Financing Act went into effect. This Act authorized creation of an industrial development authority in each city and county which could then authorize issuance of IDBs by private industry. The principal activities that can be financed are industrial uses (including assembling, fabricating, manufacturing or processing activities) and energy development, production, collection, conversion, storage or conservation activities. The Act also takes power away from chartered cities, since they now have only until January 1, 1984 to issue bonds under other authorizations. Also, the Act sets up the possibility of a common reserve fund (with a maximum liability of $1,000,000 per issue) for use as a source of security guarantee for small businesses who want to go to the IDB market, yet do not have the market name or appropriate credit to be successful. Finally, the principal amount of an issue is limited to $10,000,000 and the total amount of bonds that can be issued under this Act was originally limited to $200 million.

The Act differs from Federal law primarily by being more restrictive in its definitions of allowable activities. For example, it specifically forbids airports, docks, wharves, community parking, sewage, solid waste disposal, air or water pollution control and industrial park construction--all of which are allowable under Federal law. It also does not include the $1,000,000 limit option. It is likely that incidence considerations played an important role in determination of these restrictions, since federal data indicated that a good part of the IDB activity did not go to strictly defined industrial development and California did not wish to subsidize these non-industrial type uses.

Although authorized in January, 1981, the State Commission did not begin to meet until later that year. Initially, business before it was slow. It did not address its first applications for IDBs until December 1981. But by mid-1982, it had considered a total of 27 applicants, with over $80 million of IDBs requested from March through June 1982. Given this intensity of use, it appeared likely that the $200 million initial total limitation could be reached within a short period of time. The State responded to this problem with the passage of additional authorization in SB 1526 (1982).

1. Incidence Results of IDBs

To regulate IDBs adequately, California policy makers should consider their incidence consequences. There are no empirical analyses available regarding the California law's effects within the State and thus experience nationwide must be utilized primarily to guide policy making. Four issues are relevant to such an incidence analysis--size of the subsidy offered by IDBs, effects on interest rates of other state and local debt, beneficiaries of subsidy, and effectiveness of IDBs in achieving their intended purposes.

a. Size of Subsidy: There is considerable disagreement concerning the amount of Federal tax revenues lost because of IDBs. The estimates range from zero at the low end to $30 million to $40 million per $1 billion issued at the high end. Table II shows high and intermediate estimates through 1986. The argument over the extent of federal subsidy hinges on two issues: the extent to which investors deprived of tax exemption would move into taxable instruments and the extent of economic growth generated by IDBs. The principal reasons for discrepancies in estimates of tax losses are assumptions about investment portfolio composition and change with respect to tax rate changes. Unfortunately, the little empirical data available on this issue is quite old./3/

/3/ For an analysis of the assumptions, see Kormendi and Nagle, 1981. The data used in the analysis is from a 1962 Federal Reserve Board Survey. Although elasticity estimates are not stated, it appears as if all assume that aggregate demand is highly inelastic and it is portfolio shifts among assets that cause yield changes.

Table II
THREE ESTIMATES OF FEDERAL TAX REVENUE LOSSES
DUE TO NEW SMALL ISSUE IDBs
(Millions of dollars)

Calendar Year	CBO	CBO minus borrowers taxes	Kormendi-Nagle
Pre-1975	$190.4	$ 99.1	$ 28.9
1975	37.4	19.5	5.7
1976	40.0	20.8	6.1
1977	51.7	21.9	7.9
1978	85.8	44.6	13.0
1979	171.4	89.1	26.0
1980	282.0	146.6	42.8
1981	349.9	181.9	53.1
1982	361.0	187.7	54.8
1983	378.8	196.9	57.5
1984	382.2	198.8	58.1
1985	367.5	191.1	55.8
1986	355.6	184.9	54.0

Source: Roger C. Kormendi and Thomas F. Nagle "A Critique of the CBO Estimates on the Federal Revenue Losses from Industrial Development Bonds." In: U.S. House of Representatives, Committee on Ways and Means, Subcommittee on Oversight. Hearings: "Small Issue "Industrial Development Bonds April 8-10, 1981, Serial 97-14, page 210.

Note: Average new issues and the CBO's tax revenue cost are taken directly from appendix E of CBO study. Estimates do not include any reflows that may occur due to more rapid economic growth.

It does seem reasonable to conclude that there is some Federal subsidy generated by the tax-exempt status of IDBs. However, the CBO estimates probably do reflect the higher bound of any such subsidy. /4/ Thus, as in the general case of tax-exempt debt, it can be concluded that IDBs receive a federal government subsidy in the form of tax revenues foregone, with local discretion on how the subsidy is to be used. For California, with both lower marginal tax rates and lower aggregate issue limits, the subsidy is less than at the national level.

b. Effects on Yields: It has often been argued that if too much tax free debt is issued, interest rates on the debt would have to rise in order to ensure that all the debt is sold. If different types of debt have different characteristics, including ratings, maturity and size, then the type of debt with the set of characteristics that most appeals to investors will be purchased first. If decision makers put limits on interest rates, then it might be possible that some debt will not be sold at the legal maximum and thus will be "crowded out" of the market. Note that crowding out is an indirect result of a conscious public policy decision.

There is disagreement as to the extent of increase in yield necessary to keep tax free debt competitive with other elements of the portfolio. The estimates range from a five to seven basis point increase for each $1 billion of new tax-exempt bonds issued to a low of 0.6 basis point for each $1 billion. Disagreement revolves around the way that portfolio adjustments are made, how inflation should be taken into account, and the degree of integration of capital markets. But, given that under SB 1526 California will not issue more than $250 million annually in IDBs, even under the worst scenario, there would only be an increase of 1.75 basis points per year that could be attributed to the IDBs. This is a negligible result.

c. Who Receives the Subsidy? There are two groups that receive subsidies afforded by issuing IDBs -- the firms that utilize the proceeds for developing facilities and the bondholders. Although the national purpose of the "Small Issue" exemption was to assist small industry in locating in a community, some studies have shown that many facilities have received IDB benefits that are not industrial and not small. This is not surprising since the bonds are typically sold on the basis of the firm's--not the local jurisdiction's--credit rating. This makes it harder to market (in both primary and

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/4/ For an extended discussion, reflecting a myriad of techniques to choose among for determining the extent of subsidy, see "Small Issue" Industrial Development Bonds, Hearings before the Subcommittee on Oversight, Committee of Ways and Means, House of Representatives, April 8, 9, 10, 1981; Serial 97-14.

secondary markets) the bonds, and biases their use towards large concerns. The Public Interest Research Group (PIRG, 1979) analyzed more than 2,000 outstanding IDBs issued before 1977, which totalled more than $18 billion./5/ This study found that $12 billion out of the $18 billion went to corporations employing 5,000 or more persons (in California, 96 percent went to the large employers) and $10 billion (53 percent) went to corporations with annual sales of more than $1 billion (in California, 83 percent went to the large sellers). Thirty three companies received more than $100 million in IDB financing, including such large corporations as DOW Chemical, Monsanto, American Airlines and U.S. Steel.

The loophole which allows this concentration is that although small issue IDBs are limited to $10 million per facility, there is no limit to the number of facilities owned by one corporation that can be financed with IDBs. Chains and franchise operations can gain a significant advantage. K-Mart and McDonald's are the examples often used to criticize this aspect of IDBs. In 1980, K-Mart financed 35 stores with IDBs; McDonald's financed 32 locations in 1979 in Ohio and Pennsylvania alone with this type of financing. Other examples of uses not contemplated by Congress abound. For instance, McDonald's paid for the establishment of a bonding authority to issue bonds for itself, and bond issues have been approved for a private golf course and an adult bookstore.

However, the recent California data do appear to be different from the national data, at least since the passage of AB 74 and the establishment of the California Industrial Development Financing Advisory Commission. All recent California IDBs have gone to industrial facilities. Further, they have been divided among different firms, with only one firm receiving more than one proposed issue.

Additional incidence issues are important when owners of the bonds are analyzed. Unfortunately, little data are available concerning tax-exempt bond holdings by income group, and almost nothing is known about IDB holders in particular or even the substitutability of IDBs for other tax-exempts. All that is known is that private placement (as opposed to competitive or negotiated underwriter placement) seems to frequently occur for IDBs.

Finally, there are an additional set of indirect incidence results concerning job creation and price changes. If IDBs create jobs, then the newly-hired gain income (and pay taxes which help to repay the Federal and state treasuries) and reduce their demand on state and local governments for welfare services. However, firms which do not receive IDBs are

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/5/ The PIRG study did include some IDBs that were issued before 1968 and some pollution control bonds--neither of which fall under the small issue heading. The examples in this section are taken from the statement of Jay Angoff, Public Citizens Congress Watch, in the Hearings cited earlier.

at a disadvantage, since they face higher costs than their subsidized competitors. If cost reductions that occur because of the availability of IDB financing are passed through to the consumer, inflation in product prices might be less. No available research empirically examines these possible price effects.

d. Do IDBs Work? There are two components to this question. How important are IDBs in the corporate decision making process. And, do they really facilitate creation of jobs as their defenders claim? Again, however, there is little evidence available concerning these effects.

According to both the Congressional Budget Office and the Public Interest Research Group, IDBs do not appear to be a significant factor in a firm's decision about where to locate or whether or not to invest. Closeness to markets, availability of reasonably priced housing, accessibility of raw materials, efficient transportation and labor and energy costs far outweigh the importance of IDBs as determinants of investment and location decisions./6/ This is really not unexpected, since other studies have generally shown that taxes are far down the list of items that corporations consider when they make location decisions.

This leaves jobs. The evidence of job creation comes almost entirely from the pro-IDB forces, and it is impressive. For example, Pennsylvania claims to have created over 39,500 new jobs and saved over 474,000 old jobs in the 13 years they have issued revenue bonds under their IDB laws. Of course, this was at a cost of over $5.4 billion in subsidized debt, or about $10,600 per job. Other reports are similar. A more recent example is the approval by the California Commission of $6.2 million in IDBs for a tomato processing plant in Colusa County. It is maintained that this new plant will reduce the cost of processing by $10 to $12 per ton and provide about 10 permanent jobs and 100 temporary jobs during its first year of operation. Jobs may be created by use of IDBs, but it is not a cheap process.

B. SUMMARY AND POLICY CONCERNS

Incidence analysis is concerned with who bears the burden of the program and who gets the benefits. Since nearly all State programs generate these distributional effects, it is worthwhile to investigate incidence effects and steps the State can undertake to minimize undesired results. A large portion of the debate concerning any public policy, and particularly policy regarding public debt, already revolves around issues of incidence. But debate is not often sharply

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/6/ Non-economic factors such as high quality schools for children of managers and a high level of public services are also important.

focused in those terms. Available research evidence on incidence effects is not always thoroughly examined. California-specific analyses of incidence are rare.

Using a case study of Industrial Development Bonds (with both national and California data) it has been found that much of the national benefits accrue to large corporations, not all of which engaged in industrial activity. Further, although jobs have been created, they have been expensive. However, the extent of the net subsidy by the U.S. Treasury is controversial, ranging from a high estimate of $40 million per one billion of tax exempts sold to zero per billion. These differences follow from estimates of the increased yield to investors required to induce them to purchase an additional $1 billion of tax exempt debt, which range from 0.6 basis points to 7 basis points.

California has tighter rules concerning IDBs than does the national government. IDBs are more constrained in use and there is a limit to the aggregate amount of their issue. However, it is still worthwhile to ask two important policy questions concerning California IDBs.

1. Is California meeting its policy objectives concerning IDBs?

California has capped (at least in the short run) the amount of IDB financing available and has precisely directed it to areas in which the State desires investment. Further, there is little evidence that interest rates for other California tax-exempt debt are affected by the limited amount of IDBs issued. Thus, present evidence suggests that California need not prohibit future issue of IDBs; to the contrary, the State appears to be directing this policy instrument to stipulated objectives without disruptive consequences for other public debt.

2. What "technical" concerns are important?

There are at least four tasks that should be undertaken as long as IDBs are issued in California:

a. Evaluate IDB applications on a case by case basis. IDBs are important to some jurisdictions. They may create jobs in localities where industry is leaving. However, a "beggar thy neighbor" policy using IDB enticements to raid employment from other locations should be prevented.

Included in this evaluation of proposed IDBs should be a consideration of the fee (if any) charged to the private firm for issuing the IDB. The fee, which is expected to cover the

jurisdiction's administrative costs, varies significantly across the United States, and can be used for a variety of purposes. For example, in New Jersey, this fee is also used to operate the state's urban real estate development programs, including acquisition, improvement and marketing of sites. This may be a generally unrecognized source of revenue and appropriately structured fees could offset some of the interest rate subsidy received by firms using IDBs.

b. Encourage small firms to become involved. Some recent, highly persuasive studies show that small firms create more jobs than do large firms. If job creation is a policy objective, small firms should be encouraged to participate in the IDB process. The common pool reserve fund is a step in this direction although California's interest rate and discount limits almost absolutely assure that only firms with AAA credit ratings will be able to sell their bonds on the open market. Embracing either the Arkansas plan in which bonds are backed by a special guaranty reserve account funded by premium payments made by each bond issuer or the Connecticut plan in which the Connecticut Development Authority makes direct loans to the small firm from proceeds of "umbrella bonds," which are both marketed and backed by the full faith and credit of the state, would be helpful in enticing more small firm participation in the State.

c. Monitor carefully the issuance of IDBs. This must be done to ensure that the California bond market remains orderly, particularly with respect to the timing of issues.

d. Collect and analyze evidence on effects of IDBs. There is a tremendous lack of knowledge concerning IDBs in California, although claims abound. A monitoring of effects over time would be helpful in evaluating the incidence of IDBs. With adequate data, any subsidy by the State could be determined, as could any crowding out that is occurring.

As these tasks are completed, policy options available to California become clearer. There are alternatives to the current methods of stimulating investment in industry, and a selection among different ways should use incidence considerations as one criterion (of several) in evaluating alternative policies. Among these alternative approaches to increasing industrial growth are specific tax cuts for certain industries or a restriction of use of IDBs to distressed areas. Each of these alternatives could have different incidence results.

A possible policy choice would be to allow local jurisdictions greater discretion as to who should receive the subsidy rather than have the State set statewide standards.

Efficiency could be increased if jurisdictions faced a statutory limit on the total amount of IDBs they could issue (rather than the State). In this case, they would be forced to make local tradeoffs which can be avoided under the present system. The trade-off here is that the subsidy afforded by IDBs may be more valuable (in an efficiency sense) in one jurisdiction than another. Targeting use of IDBs to certain types of jurisdictions addresses this ussue. So too would allowing localities to buy and sell increments of their limits to each other, perhaps under State regulation.

Incidence criteria were implicit in AB74, since the subsidy was deliberately structured to go to only certain industries and in limited amounts. Yet, it is rare that incidence results are even explicitly considered when debt policy is analyzed. However, this analysis of IDBs shows that these concerns are legitimate. As long as the State allows the issuance of debt oriented to specific purposes, these effects are usually important and should be considered as specific debt policies are enacted.

III. SEGMENTATION AND POLICY CHOICES: A MODEL EVALUATIVE STUDY AND DISCUSSION OF METHODOLOGIES APPROPRIATE FOR POLICY RESEARCH

Directing public debt to desired policy objectives while paying the lowest possible interest cost should be the two primary goals of California public policy makers considering debt issuance. Many factors influence their capacity to achieve these goals. Legal authorization must exist for any public debt issuance. Sufficient security must be available to credibly pledge retirement of the debt. A securities instrument appropriate for the desired project must be available and marketable. Other factors also bear on their success.

Among these additional factors, one is analyzed here. It is "market segmentation." Researchers have identified at least three types of market segmentation: by maturity of debt, by purchaser, and by geographic region. Segmentation is a product of marketplace dynamics, and is more complex in operation and harder to understand than is an "institutional" factor such as the existence of adequate legal authority for issuance.

Market segmentation can affect the interest costs borne by issuers. In general, available research suggests that segmentation increases costs to the issuer. Lowest interest costs, it is argued, are found in the most inclusive and, presumably, most competitive markets.

However, some underwriters and policy makers believe that geographic segmentation can have positive effects, lowering interest rates. They argue that California issues are (at least in some circumstances) so desired by investors that lower returns are accepted on investments, thus lowering the interest costs to issuers. If this is the case, or can be encouraged by policy making, it is of considerable importance. Whether or not such segmentation does occur, what California policy makers can do to exploit this possibility to lower interest costs, and what trade-offs they may incur on other objectives if they do so, are questions addressed in this analysis.

In conducting this analysis, self-conscious attention is paid to the methods used. This analysis is to serve as a "model evaluative study" for the CDAC, illustrating how future research on policy issues chosen by the CDAC may be undertaken. The intent is not to provide a mechanical, cookbook-like manual to be slavishly followed. That would be dysfunctional, for any detailed prescriptions of research procedures are not likely to fit future policy research questions and consequently yield worthless, distorted products. Instead, the objective is to develop several rather

general precepts by which policy research can be guided. The differences between detailed procedural prescriptions and the precepts developed here will soon be apparent. So too will be importance and usefulness of the precepts developed.

An exploration of how to do policy analysis, using the segmentation issue as an illustrative example, follows.

A. SEGMENTATION AND SELF-CONSCIOUS POLICY RESEARCH

Segmentation is primarily of interest to policy makers because of its potential relationship to interest costs.

1. The Primacy of Policy Objectives to Analysis

An important starting point for any policy analysis is not with "facts," but with policy objectives, with the values which are being sought. Should the policy maker's objective be "lowest interest costs"? This appears to be an appealing goal. But it is not sufficient, for it is merely the equivalent of saying "be economical." Is the "lowest interest cost" or "most economical" objective achieved by no expenditure of funds?

Intuitively, the limit of no expenditure is undesirable. Something of value has been abandoned. It is the pursuit of some purpose, a policy objective to be accomplished by commitment of resources, including interest payments or tax revenues lost because of the granting of tax-exempt status to state and local debt issues. It is defensible to choose no expenditure of resources for a specific purpose ("Not one cent in tribute!"), but not defensible to choose no expenditure of resources for any purpose.

More is involved in any policy choice or policy analysis than just minimizing costs. A way must be found to bring the goal of cost minimization into relationship with the goal of achieving some purposes. A moment's reflection reveals that a further question of resource allocation among more than a single purpose, indeed among many objectives, lies behind specification of the problem in terms of the costs of pursuing a single objective.

Colloquially, this is the "there is no free lunch" proverb. More precisely it is a central analytical problem of economics: maximization of the satisfaction of individual preferences in a world of scarcity. Economists discuss these matters formally in terms of indifference curves (sets of values which an individual equates, such as one movie to one baseball game, or a rewarding job to a long life) and budget constraints. The following discussion is less formal, but follows a similar logic.

Returning to segmentation, it is now apparent that the goals of policy makers (and of analysts) include both purposes to be achieved and interest costs to be minimized. While this is where this analysis began, with the first sentence making this statement, policy makers and commentators on policy choices sometimes appear to be seeking cost minimization as a single goal. The other excess, of pursuing the policy objective regardless of costs, also occurs.

2. Assessing the Theory Base

Even having established the objectives policy makers are interested in achieving, it is still premature to turn to the "facts" of empirical data to understand segmentation. The policy maker or analyst should consciously pose and consider questions concerning two different kinds of theories involved in all policy processes. The first set includes theories associated with understanding causes of what occurs. The second set includes theories associated with understanding strategies of inter- vention upon which any policy choice must be made.

For segmentation, the first question can become: what set of factors could explain the geographical segmentation in which we are interested? The second question becomes: if one wanted to use segmentation as a policy tool, what would have to occur for that effort to be successful?

Two theoretical explanations of investor preference for California issues are offered by those who believe geographical segmentation exists and benefits the state. The first theory holds that some investors prefer issues from California because it is expected to continue to have a healthy economy. The second theory focuses upon Californians as investors, arguing that the state has many individuals who seek to shelter their income from California's relatively high personal income tax rates.

The first level of analysis on these theories should examine their face plausibility. Is it logically conceivable that they could be true? In this case, both theories are plausible. It is plausible that investors expect a state with a stronger economy to be more likely to repay its debts. And there is little doubt that tax shelters are attractive to high income residents.

Understanding of the direction of change in any logical links in this theory base can generate additional insights. For example, indexing of the personal income tax in California should reduce the demand by Californians for tax shelters, including California state and local issues, from what it would have become in the absence of indexing. If so, potential interest savings from segmentation effects will be diminished.

Concerning theories upon which to base policy interventions, that is strategies for how to achieve the policy objective of using segmentation positively, there are two lines of thought. The first might be termed the passive theory ("passive" because policy makers need do little to receive the presumed benefits), holding that interest savings accrue to any California issue compared to similar issues (in terms of maturity schedules, pledged security, credit rating and so on) from less favored states (perhaps a frost-belt state with a declining manufacturing-based economy).

The second encourages a more active policy strategy, in which policy makers seek to schedule intervals at which California issues come to market, pacing them so that they (or at least large issues) do not come to market against each other. The intent is to match what might be called the sweet tooth of investors for California issues, avoiding satiating their sweeth tooth so that they are no longer willing to pay the premium. A more aggressive version of this policy strategy argues for widely spacing large California issues so that investors are "starved" for California municipals, anxious to pay even higher premiums, thus reducing interest costs. To continue the sweets analogy, in this theory, chocolate freaks are more likely to plunge for a purchase at high prices (low interest costs to the issuer) if no chocolate has been on the market for several weeks than if it were constantly on shelves or even available every third day or so.

As in examining theories regarding causes of segmentation effects, the standard at this time is face plausibility. Is it plausible that the logical relationships necessary for the intervention strategy to be effective exist? Again, both the passive and active policy strategies have plausible theoretical bases. Beyond the test that they are each internally logically consistent and accord with experience in other areas, the judgment as to their plausibility is buttressed by well-established theory in micro-economics. A preference for what is perceived to be "better" issues (in terms of California's underlying economy) is consistent with investors seeking to reduce the costs of acquiring information upon which to base decisions. "Issued in California" conveys positive information just as does a trusted brand name or "made in ..." The pacing/starving intervention strategy is congruent with the general axiom that demand must always be related to time (the demand for Chevrolets may be 10,000 per month, but not 10,000 this Friday afternoon). It is also congruent with the law of diminishing returns, which holds that demand for a product will be gradually satiated, the more of that product is consumed. At some point, the chocolate freak will not pay the same price for -- or buy at all -- another Hershey's bar, instead shifting demand to another product.

3. Appraising Capacity to Implement Chosen Policy Strategies

To have a policy objective and to choose a policy intervention (strategy) to pursue that objective does not, necessarily, achieve the objective. Neither the desire, nor the pursuit, equals accomplishment. Thus, the next issue to be considered is examination of capacity to implement any chosen strategy. The passive strategy requires no particular immediate implementing capacity beyond general ability to issue California state and local debt. In the longer run, however, policy makers must have capacity to maintain the positive image of the state's economy. The active strategy, of pacing large issues coming to market or of alternatively starving, then satisfying, demand, requires more active intervention.

Is there a policy maker or a body of policy makers who can control when issues come to market? None is so empowered in the California constitution or statutes. However, the centrality of the Treasurer's Office to oversight and regulation of debt in the state (the Treasurer serves on twenty-four different bodies related to state and local debt) gives that office some capacity to modulate how debt comes to market. Additionally, it must be recognized that if segmentation does occur (or is perceived to), issuers and underwriters both have a stake in not having large California issues come to market at the same time. They both want to increase their odds of getting lower interest costs and to sell the issue out quickly and profitably. Thus, information available to issuers and underwriters as to when other issues are coming to market may lead them to accomplish the policy objective without formal public policy intervention. Volatile and high interest rates work against this non-public-policy pacing occurring, however; as issues are targeted for "windows" of lower interest rates, they will jam up in time of issuance.

4. Identify Opportunity Costs

The impatient reader might conclude that it must, by now, be time to examine some evidence on this issue. Not quite yet. A final, pre-data-search step is important in policy analysis. It is to more carefully identify opportunity costs incurred by implementing the chosen policy. In economics, opportunity costs are the "best alternative" values foregone in using any resources. Ideally, full and accurate opportunity costs are confronted by a decision maker in prices, which allocate resources among alternative uses (so many tons of steel to auto manufacturing, so many to making dishwashers, so many to childrens' bicycles, and so on). Recognition that this ideal is not always met is the rationale for policy making which seeks to remedy externalities or spillovers such as environmental pollution.

A somewhat broader concept of opportunity costs is used here, but that terminology still best captures the thrust of this portion of the analysis: to identify alternatives foregone by choice of a particular policy. Two variants of opportunity costs should be identified. The first is very similar to the economist's definition, being the values of alternative uses to which the resources committed to a policy could have been directed. The available practical technique for identifying such opportunity costs is somehow to price (in analysis if not in the market) the resources committed to the policy.

The second variant of opportunity costs are those associated with consequences of the policy choice for policy makers and the political system itself. Risk of failure is an opportunity cost which can deter policy makers from a choice. Even where the potential social benefits to be obtained from a successful policy are large, policy makers may shun the choice because their personal calculus reveals costs for them in potential policy failure which outweigh their perceived benefits from success.

Policies can also impact the political system itself, changing it over time. This can occur in cases where the policy is successful or where it fails in meeting its stated objectives. Without judging the success or failure of the outpouring of national domestic programs that occurred in the period from the mid-1960s through the late 1970s, they definitely transformed the nation's political system. The policy processes and finances of local, state and national governments became dramatically more intertwined, whole new governmental entities were established, new clienteles created and mobilized, and so on. Alternative political systems -- a more neatly separated federal system, or a system with strong political parties -- were foregone. Moreover, not only did the policy choices made forego them during that time period, but resulting political dynamics reduce the possibility of ever making such a choice. It is now hard to imagine the policy strategies which might clearly delineate among levels of government or reinvigorate political parties.

How does this relate to segmentation? Consider the most active formulation of policy choices to exploit segmentation: the "pacing/starving" policy choice of regulating access to the market. Effective implementation of such a public policy would probably require strengthening the regulatory role of the State over local debt issues. Regulation over pacing could quite naturally -- probably inexorably -- transform into regulation of what issuers could bring what volume of debt to market for what purposes. Thus, an opportunity cost incurred in pursuing this policy is likely to be a dimunition of the authority of local governments and an increase in that of the

State. This would be an impact upon the political system itself.

The first, more traditional, variety of opportunity costs might also be incurred if the delay of issues (or direct prohibition) keeps some from coming to market at all. If an issuer's resources had found their best value by being committed to repayment of debt which now does not come to market, any alternative use will be less satisfactory in terms of meeting preferences of that issuer. Boundaries become important here. If the pacing/starving policy were successful in lowering interest costs, it is possible that the issuers who do get to bring issues to market would receive sufficient value from the lower interest costs to more than offset reductions in value received by issuers who do not come to market. But there currently exists no mechanism for transferring such benefits or costs among issuers.

5. A Perspective on Empirical Policy Research

What empirical testing should be done on the segmentation issue? One response would be: to determine if the expected positive relationship between California debt (in general or when paced to come to market) and lower interest costs exists.

But the foregoing discussion suggests that more than "just the facts" is involved in doing policy research. If it was determined that a positive segmentation effect existed, it is not clear what policy makers should do. And if it were discovered that the positive segmentation effect did not exist, but could be created by the choice of public policy makers, it is also not clear what choice they should exercise.

Empirical findings are just that: findings. They compel no choice. Choice can only be based in policy objectives, in values, pursuit of which uses empirical evidence as a guide to what is feasible (does this evidence support an expectation that a chosen policy will be effective?) and after action, desirable (does this evidence reveal that the desired objective was reached? does it suggest we should change objectives?).

Thus, empirical testing should be focused in terms of policy objectives being pursued and strategies being chosen. The empirical evidence needed is not just accumulation of the facts, but a quite focused empirical testing designed to resolve issues identified in the process just completed. This implies the following sorts of questions would need to be subjected to empirical testing.

(a) What is (are) the policy objective(s)?
(b) How adequate is the theory base?
    (i) On causes of positive segmentation:
        - Why would investors nationwide place a premium on California issues?
        - Why would Californians place a premium on California issues?
    (ii) On strategies of intervention:
        - Do investors nationwide place a premium on California issues?
        - Under what conditions, if any, do Californians place a premium on the issues of the State and its local governments?
(c) Appraising capacity to implement chosen public policies:
    (i) Can California maintain, or create, so positive an image to investors nationwide that they pay a premium for its debt?
    (ii) Can California policy makers so pace the issuance of new debt as to cause the state's residents to pay an additional premium for California municipals? If they cannot now, what would be required for them to be able to do so?
(d) Identify opportunity costs:
    (i) What are the alternatives foregone by pursuit of the policy?
    (ii) What are the consequences of the policy choice for policy makers and the political system itself?

This research project did not undertake any original research. It was limited, by design, to secondary analysis of existing data. Even if the analyst has the resources for original research, including the collection and analysis of new data, a secondary analysis of existing data should be undertaken first. It almost always serves to sharpen new data collection and analysis and very often leads to the conclusion that more is known about an area of inquiry than was perceived when the commitment of resources to original research was made. In the case at hand, of analyzing the potential of any positive uses of geographical segmentation, secondary analysis provides several insights.

Before turning to that analysis, a final generic issue about policy research needs to be raised and addressed. By what standards should "evidence" be accepted as "true"? The possible answers range from "because it agrees with what I already believe," through "because it was obtained by following certain research procedures," and "because I am willing to act as if it were true," to "evidence makes no difference, my job is to remake society/mankind/these existing practices so that they fit my values."

Much of contemporary writing on research methods generally, and (to a somewhat lesser degree) on policy analysis specifically, advocates adherence to the second standard: reliance on sanctioned method. Most commonly this is the so-called "scientific method," emphasizing hypothesis formulation and rejection/retention according to certain conventions regarding data collection, analysis and interpretation. Analytical philosophy or logical positivism are the philosophies of science associated with this approach.

Many individual policy makers (and analysts) practice the first or fourth standard -- congruence with present beliefs or evidence is not important, it is values that are critical. Some political systems are built on these premises. A traditional authoritarian regime would be an example of the first (present beliefs) and a communist or theocratic regime an example of the second (ultimate values).

The remaining standard is advocated here: evidence is "true" if it is acted upon. If it changes behaviors, if a policy maker shifts from advocating the abolition of the tax-exempt status of state and local debt to advocating its retention and extension on the basis of some evidence developed in the course of analysis, that evidence is "true." Importantly, policy choices are rarely decisions of single individuals, but are, instead, products of processes including many individuals, such as legislatures, organizations, or legal systems. In these larger systems, "evidence" judged to be "true," and usable as the basis for action is a product of social interaction. It is literally a construction of reality rooted in understandings produced by individuals interacting, testing whether what they believe reality to be ("the evidence") and their values ("policy objectives") are acceptable to others. This standard encourages rigorous empirical research; such research is one mechanism by which to convince oneself and others that action is warranted. But it also encourages recognition of the primacy of values expressed as goals (the intent is action in pursuit of some goal) and that empirical evidence is rarely perfect or overwhelmingly compelling. Choice is usually made on the basis of incomplete evidence.

6. Marshalling Evidence on Geographic Segmentation

After such a long preamble, the actual marshalling of evidence is a relatively brief task. Each of the questions posed above is addressed separately, reporting evidence uncovered.

Concerning policy objectives, the evidence is inferential, but strong. Policy makers do pursue both of objectives suggested. They seek to use debt to achieve valued policy objectives and they seek low interest costs. This is an

unexceptional statement. What is more relevant, although not surprising in a complex federal political system, is that a wide diversity of policy objectives are pursued. Equally important is the finding that some policy objectives are presently more easily pursued through issuance of debt than are others. Because of the loss of capacity to issue general obligation debt, local governments face substantial barriers to building infrastructure and public facilities with long lives but little capacity to generate revenue (such as a city hall). The institutional structure in which policies are pursued is biased toward use of tax-exempt state and local debt for some purposes and against others.

Concerning adequacy of the causal theory base, conflicting evidence is available. The Average Net Interest Cost (ANIC) incurred by California long-term issues (in this case, longer than 13 months) in 1981 was slightly higher than the average for the whole of the nation (10.92% vs. 10.78%). Even though some variation exists among types of issues (on G.O. Bonds, the California ANIC was 10.37%, the nation's was 10.47%; on negotiated sales, the California ANIC was 12.08% and the nation's was 11.67%), the general conclusion is that this evidence does not support the theory that investors nationwide are willing to pay a premium for California debt.

Nevertheless, an interview with a high official of an investment bank which places California issues nationwide (it is a division of a brokerage firm) revealed that his experience was that some investors had a strong preference for California issues. Further inquiry might resolve this discrepancy, but present evidence suggests that any preference that exists is not strong enough to result in lowering California's interest costs.

Finding evidence on the California purchaser-specific variant of the segmentation theory, which relies on sheltering income from California income taxes, is very hard. No data series exist on who purchases municipals in any public or private source we were able to discover. Available research on this issue uses estimates of how much different income groupings invest in tax-exempt securities. Controversy surrounds the procedures used for the estimates, and no state-specific estimates are available in national data.

The Governor's Budget, 1982-83, estimates that tax revenues lost to the State because of the exemption of interest paid on issues of debt by California state and local governments were $60,000,000. If the average rate of interest received were 5 percent and the average state income tax bracket of the investor were 9 percent, this would imply that Californians owned roughly half of the state's outstanding debt ($13.3 billion).

Interviews with knowledgable individuals revealed that they had no hard evidence on where California issues were ultimately purchased but that they suspect the percentage finally held in the portfolios of California investors is greater than 50 percent. A dramatically complicating factor in this is sales to tax-exempt bond funds, which may have headquarters in Chicago, but sell to California investors. The industry's internal data systems would only track this debt to Chicago. The new registration requirements will only partially resolve this issue as any registered securities they purchase will be held by the bond funds, while the ultimate investors will hold unregistered shares in the bond fund.

At a more detailed level, several knowledgable individuals interviewed all believed that small issues ($10 million or less) and any non-G.O. instrument were more likely to be purchased by a California resident than an out-of-state investor. Another way of saying this is that State of California G.O. bonds are sold disproportionately out-of-state, while everything else (revenue bonds, certificates of participation, tax allocation, TRANS, etc.) is sold mostly in California (estimates ranged from 60 percent upward, depending on the type and size of issue). 1915 Act bonds were perceived as being sold virtually totally within the state.

This evidence, if given credence, suggests several policy-relevant issues. First, non-G.O. issues comprise the bulk of the new issues; thus expansion of non-G.O., issues may be particularly sensitive to California investors interest in purchasing tax-exempts. Second, the potential market for some issues (1915 Acts are the clearest example) would be broadened if they were made "more like" G.O. bonds, which could be attempted through a variety of instruments, such as insurance, credit-rating, or bond-banking.

Evidence on the theory underlying any policy strategies intended to exploit positive market segmentation of California issues is mixed into the previous discussion. The passive strategy requires little policy choice (it would help to keep public expenditures in line with revenues and to keep the state's economy healthy) and does not appear to have much promise of benefit in any case. The active strategy of pacing/starving relies on Californians being willing to pay a premium for tax-exempt issues of this state. Rationally they should be willing to do so, and those involved in the sales of issues believe that Californians do purchase a majority of the issues brought out in the State. The Department of Finance estimates of tax expenditures on the interest exclusion are in line with this perception.

But there is no substantial evidence that this purchasing pattern is turned into a premium which lowers the interest costs borne by issuers. The ANIC is too close to the national average to claim a premium. Moreover, in the areas where California placements are likely to be highest, the ANIC is also higher than the national average (12.08% in California and 11.67 % nationwide on negotiated sales, for example).

One underwriter believes strongly that a single issue of hospital revenue bonds sold in February 1982 sold at a California premium of 1 1/4% below the national market. Thirty-eight percent of this issue was sold directly to California individuals and one-third to bond funds, some of which was undoubtedly indirectly purchased by California investors. Such a discrepant interpretation suggests that a finer-grained analysis than that possible in this project is desirable, although to be of much promise, a better way must be found to identify California investors in tax-exempts and to determine what part of their portfolios consist of California issues. Some better understanding of this phenomenon could also be provided by analysis of interest costs of different types and sizes of issues. But to support the segmentation hypothesis, small issues of unusual type, which apparently sell disproportionately in California, would have to have lower interest rates than large issues of G. O. bonds. This is counter to most understanding of how the market works. Using a technique of statistical analysis which isolated other effects (such as differences in credit ratings) would be critical here.

On capacity to implement the chosen policy strategy, the major finding, alluded to above, is that the State of California already has an extensive apparatus for the regulation of debt issuance. Some 31 different State entities oversee or regulate debt in one way or another. Because the Treasurer is a member of the governing body of 24 of these commissions, authorities, and committees, and chairs several of the most important entities, he and his staff do have capacity to regulate when a sizable portion of proposed issues come to market.

No direct evidence was discovered on opportunity costs. In large part this is because California issues appear to be incurring interest costs very similar to the national pattern. In such a case, the presumption is that prices reflect opportunity costs. If policy makers pursuing a pacing/starving strategy succeed in lowering the interest costs incurred for California issues below those prevalent in the nation, then opportunity costs along the lines suggested in the earlier discussion may become visible.

B. CONCLUSION: SEGMENTATION, POLICY CHOICES AND POLICY RESEARCH

This analysis of the prospects of using positive geographical segmentation of the market to lower interest costs incurred by California issuers provides more cautions than prescriptions for policy makers. While the underlying logics of the arguments in favor of seeking to exploit segmentation are plausible, available evidence suggests that any segmentation effects that exist are modest. They may also be very focused (by type of issue, for example) or occur only in certain situations (where investors really are starved for California issues, for example). In the absence of improved information on likely success and the opportunity costs that would be incurred, policy makers should be hesitant about regulating the flow of issues to market.

Two specific analyses would provide information that could reduce existing uncertainty and provide an improved basis for policy making. The first would be an analysis of demand for California municipals by residents of the state and estimation of premiums they are willing to pay for satisfaction of this demand at different levels of issuance. Given the paucity of data on such investment decisions, this research would be difficult to complete with enough confidence in the findings to provide a firm basis for policy making. But a good bit of national policy making concerning policy on tax-exempt securities is based on similar analyses, so it should not be rejected out of hand.

The second analysis would examine much more closely the price behavior of California issues for a few years in comparison to national patterns during the same period. The statistical techniques used would seek to estimate the impact of all of the various variables known to affect interest rates (maturity schedule, security pledged, credit rating, and so on). California, as a place of issue, can be entered into such an analysis and an estimate of the California premium (or penalty) derived, holding all other variables included in the analysis constant. To fully capture the theory underlying the argument, the analysis would have to include one or more variables related to the supply of California municipals available. One such variable could be the volume of California issues sold in the previous ninety days. Again, obstacles exist to such an analysis. The basic data base is imperfect, for example. The data maintained by the Public Securities Association would serve for long-term issues, but no adequate data base exists on issues with maturities of less than thirteen months.

As noted in the discussion of how to do policy research, the results of such analyses would not conclusively suggest policy directions to be followed. They could, however, provide an improved base for choice making.

IV. PUBLIC DEBT REGULATION IN CALIFORNIA, WITH COMPARISONS TO OTHER STATES

Table III lists debt regulatory agencies of several selected states, other than California. While this table is not meant to be all inclusive, it does illustrate the variation that occurs among states as they attempt to regulate the flow of debt. It is likely that all states exhibit some degree of concern about the amount of local and state tax-exempt debt issued from within their borders, although not all have set up specific regulatory agencies to monitor or manage debt flow. It is likely that in those states without regulatory agencies, any powers over debt reside in the state Treasurer or in state Finance Departments. Most of the data in this table were gathered through formal state documents available in the Library of Congress or surveys done by the Advisory Commission on Intergovernmental Relations.

As is evident, there is a great deal of variation in the way that states attempt to regulate debt. Regulatory bodies range from voluntary trade associations that provide information on debt and its regulation (in Texas) to extensive control over all debt issues (in North Carolina). Further, although they are located in all sorts of places in state government--some are even in State Boards of Education, as in Illinois -- most are in the executive branch, with members being ex-officio or appointed by the Governor. Some states centralize a great deal of power in a relatively few agencies, while others have more agencies. Finally, although not evident from the table, many of the regulatory agencies have been formed recently, primarily to deal with actual or potential fiscal stress at the local level. This is the same reason why many of the older agencies were formed during the depression--also to deal with stress at the local level. States which are rapidly growing or which have not been in a fiscal stress environment seem to have either fewer agencies or allow greater leeway in marketing debt.

Perhaps the state with the greatest control over debt is North Carolina. In 1931, when over 50 percent of the local property tax revenue was needed to pay principal and interest on outstanding bonds and notes, the North Carolina General Assembly enacted the Local Government Act in order to restrain and control local debt issuance. This Act created the Local Government Commission. This Commission's chief responsibilities have been principally the same since 1931--the approval and sale of bonds and notes and the supervision of local financial management practices.

The Commission is a Division of the Department of the State Treasurer. The Treasurer's Division of State and Local Government Finance effectively acts as staff to the Local Government Commission. Before a local unit incurs debt, it must apply to the Commission for approval of the proposed

Table III
DEBT REGULATORY AGENCIES OF SELECTED STATES

State	Regulatory Agency	Membership/Staff	Duties
Alaska	1) Dept. of Commerce and Economic Development	Dept. of Commerce and Economic Development	Registers securities offered for sale and registers people in business
	2) State Bond Commission	Commissions of Revenue, Commerce, Administration	Adopts resolutions and prepares documents for issuance, sale and delivery of bonds
Connecticut	State Bond Commission	Governor, Treasurer, Comptroller, Atty. General, Commission of Finance, Commissioner of Public Works	Allocates for legislatively authorized capital projects, authorizes State Bonds and determines amount & timing of bond sales
Florida	1) Office of Comptroller	Office of Comptroller	Examines disclosure statements
	2) Office of Governor	Office of Governor	Resolves local financial emergencies, prohibits debt issuance
	3) Financial Emergency Board	Members picked by Governor	Reviews local records, consults with local officials and makes recommendations to Governor
Hawaii	1) Dept. of Finance	Dept. of Finance	Prepares formal 6-year capital budget
	2) Advisory Board/a/		Sets overall capital limits and priorities
Illinois	1) Office of Debt Management/b/	Bureau of Budget	Executive debt management
	2) Legislative Oversight/b/	Economic and Fiscal Commission	Legislative management
	3) Office of Facilities Planning/b/	Executive Branch	Better capital planning
	4) State Board of Education	State Board	Helps school districts in easing financial pressures

Table III (Continued)

Massachusetts/c/	1) Bureau of Accounts	Bureau of Accounts	Develops standards/regulates municipal financial practices, provides informal consultation, formal audits, instructional letters and manuals
	2) Emergency Board	Director, Bureau of Accts., Atty. General; State Treasurer	Reviews and approves emergency loan applications (unforeseen expenditures after tax rate set)
	3) Emergency Finance Board	Director, Bureau of Accts.; State Treasurer; 3 private citizens	Reviews and approves certain specific bond authorizations (schools, sewers, "stabilization") and enforces statutory debt ceilings
Minnesota	1) Commissioner of Securities	Dept. of Commerce	Receives notice that project will serve purposes of Municipal Industrial Development Act
	2) Department of Economic Development	Executive	Provides investigation, assistance, advice to municipalities and reports to Governor/Legislature on Revenue Bonds
Nevada	State Dept. of Taxation	State Board of Finance Supervisors	Adjusts expenditures by restricting capital outlays, hiring, and debt issuance for goverments in financial difficulties.
New Jersey	State Finance Board	Chaired by Director of Local Government Services	May change revenue administration, name financial administrator, and make city draw up long range plans for cities in unsound financial conditions

Table III (Continued)

North Carolina	1) Local Government Commission/ Dept. of Treasury	Treasurer; Secretary of State; State Auditor; Secretary of Revenues; 5 appointees, at least 2 from local government	Approves sale and delivery of all North Carolina (state and local) bonds, helps local governments with financial and accounting systems, establishes new systems, education, helps design project and issue before presentation to voters and helps any unit that defaults to refinance
	2) Division of State and Local Government Finance	Department of Treasury	Maintains records of indebtedness
	3) Revenue & Special Obligation Section	Division of State & Local Government Finance	Oversees hospital tax exempts, IRBs, electric power generating facilities, housing bonds, and advanced refunding
	4) Fiscal Management Section	Division of State & Local Government Finance	Requires issuer to follow generally accepted accounting practices
Ohio	State Auditor	State Auditor	May regulate all debt issuance from a city in financial emergency
Oregon	Municipal Debt Advisory Commission	Treasurer; Attorney General 2 local Financial officers; 2 public members	Provides assistance and consultation to issuers, clearinghouse of information
Texas	Municipal Advisory Council of Texas	Voluntary Trade Association	Provides information service on debt, regulations

NOTES

/a/ Recommended by Peat, Marwick and Mitchell, 1976. Implementation status unknown.
/b/ Recommended by Touche, Ross, 1978. Implementation status unknown.
/c/ All data prior to Proposition 2 1/2, 1980.

issue. The bond authorization section of the Treasurer's office, in their staff roles, helps the local government in developing a project it can afford and then helps in designing debt obligation issues to finance the project. Local capital planning is thus shared with the state. After these developments, and approval by the Local Goverment Commission, the issue is presented to the voters. If they approve, another section of the Treasurer's office sells the bonds, and then after the debt is incurred, the Treasurer's Division of State and Local Government Finance maintains all the debt records. If the local government defaults, the Local Government Commission helps the local government restructure its finances. North Carolina has dramatically centralized local debt.

Table IV describes the California scene. There are at least 31 different agencies, authorities or commissions that have some control over debt, its issuance, or its marketing. Some of these agencies overlap with one another in their duties; for example, the California Debt Advisory Commission (CDAC) overlaps most of the others. Most of them are primarily concerned with bond act compliance. The State Treasurer serves on 24 of 31 Authorities, and in one is the entire Commission (the Districts Securities Commission). Many of these units were formed in the recent past when the State and local governments began to issue specific types of new debt. This appears to have led to the establishment of many different units focusing on narrow purposes. The duties or oversight responsibilities of the agencies vary a good deal.

Despite all of these oversight authorities, state and local debt in California is not as rigidly controlled as in North Carolina. The CDAC is advisory in nature, and there is no unit in the Governor's office that assists in local capital budgeting or planning prior to debt issuance. Debt in the state appears to be more regulated than most, but is still not as constrained as it could be. Existing regulations are by purpose of debt rather than generically limiting all debt of a jurisdiction.

Table IV: California Authorities That Have Some Control Over Debt

	TYPE OF PROGRAM					STATUTORY AUTHORITY	MEMBERSHIP							
	General	Regulatory	Allocatory	Bond Act Compliance	Other		Governor	Treasurer	Controller	Dir. of Finance	Appointee-Governor	Appointee-Speaker	Appointee-Rules Com.	Other
1. California Alternative Energy Source Authority	X					PRC § 26000 et seq		X	X	X				Chair, Public Utilities Commission Chair, California Energy Resources Conservation and Development Commission
2. Clean Water Finance Committee				X		WC § 13970 et seq; § 13985 et seq	X	X	X	X				Chair, Water Resources Control Board
3. Clean Water and Water Conservation Finance Commission				X		WC § 13955 et seq	X	X	X	X				Chair, Water Resources Control Board
4. Community College Construction Program Commission				X		Statutes 1971, page 1835, Chapter 937	X	X	X	X				Chancellor, California Community Colleges
5. State Construction Program Committee				X		GL 6447 (c-g)	X	X	X	X				Director, Department of General Services (Others depending on terms of bond)
6. Districts Securities Commission				X		WC § 2000 et seq		X						Full authority in Treasurer

Table IV (Continued)

	TYPE OF PROGRAM					STATUTORY AUTHORITY	MEMBERSHIP							
	General	Regulatory	Allocatory	Bond Act Compliance	Other		Governor	Treasurer	Controller	Dir. of Finance	Appointee-Governor	Appointee-Speaker	Appointee-Rules Com.	Other
7. California Educational Facilities Authority	X		X			EC § 94100 et seq		X	X	X	2			
8. Harbor Improvement Bond Committee				X		H&NC § 3900 et seq		X	X	X				
9. California Health Facilities Authority	X					GC § 15430 et seq		X	X	X	2	2	2	
10. Health Facilities Construction Program Commission				X		Statutes 1971, page 1315, Chapter 665	X	X	X	X				Chairman, Regents of U.C.
11. Hastings College of the Law Board of Directors	X					EC § 92400 et seq								
12. Housing Bond Credit Committee		X			X	H&SC § 51350 et seq	X	X	X	X				Director, California Housing Finance Agency
13. California Industrial Development Financing Advisory Commission	X	X				GC § 91550 et seq		X	X	X				Director, Economic & Business Development, Commissioner of Corporations
14. California National Guard Finance Commission				X		M&VC § 270.365 et seq; § 480 et seq.		X	X	X				Commander, California Military Director of Veteran Affairs

Table IV (Continued)

	TYPE OF PROGRAM					STATUTORY AUTHORITY	MEMBERSHIP							
	General	Regulatory	Allocatory	Bond Act Compliance	Other		Governor	Treasurer	Controller	Dir. of Finance	Appointee-Governor	Appointee-Speaker	Appointee-Rules Com.	Other
15. Parklands Program Finance Committee				X		PRC § 5096.201 et seq	X	X	X	X				Secretary of Resources
16. Park and Recreation Finance Committee				X		PRC § 5096.11 et seq; § 5096.71 et seq; § 5096.111 et seq	X	X	X	X				Secretary of Resources
17. Pollution Control Financing Authority	X		X			H&SC § 44515 et seq		X	X	X				
18. Mortgage Bond Allocation Commission			X			H&SC § 50171 et seq	X	X	X			1	1	Director, Housing and Community Development Director, California Housing Finance Agency
19. State Public Works Board	X	X		X		GC § 15800 et seq				X				Director, Department of General Services Director, Department of Transportation Member, Assembly Member, Senate
20. Recreation and Fish and Wildlife Enhancement Finance Committee				X		WC § 11922 et seq	X	X	X	X				Secretary, Resources Agency

Table IV (Continued)

	TYPE OF PROGRAM					STATUTORY AUTHORITY	MEMBERSHIP							
	General	Regulatory	Allocatory	Bond Act Compliance	Other		Governor	Treasurer	Controller	Dir. of Finance	Appointee-Governor	Appointee-Speaker	Appointee-Rules Com.	Other
21. Regents of the University of California	X					EC § 92400 et seq								
22. Safe Drinking Water Finance Committee				X		WC § 13850 et seq	X	X		X				Director, Department of Water Resources Director, Department of Health Services
23. State School Building Finance Committee				X		EC § 15900 et seq	X	X	X	X				Superintendent of Public Instruction
24. Student Loan Authority	X					EC § 69905 et seq	X		X					Director, California Post-Secondary Education Commission Director, Student Aid Commission
25. California Transportation Commission	X					S&HC § 30000 et seq					7			
26. Trustees of the State University & Colleges	X				X	EC § 90010 et seq								

Table IV (Continued)

	TYPE OF PROGRAM					STATUTORY AUTHORITY	MEMBERSHIP							
	General	Regulatory	Allocatory	Bond Act Compliance	Other		Governor	Treasurer	Controller	Dir. of Finance	Appointee-Governor	Appointee-Speaker	Appointee-Rules Com.	Other
27. Veterans Debenture Financing Committee				X	X	M&VC § 1000.1 et seq	X	X	X	X				Director Veterans Affairs
28. Veterans Finance Committee				X		M&VC § 991	X	X	X	X				Director Veterans Affairs
29. Department of Water Resources	X					WC § 11100 et seq					X			
30. Water Resources Development Finance Committee				X		WC § 12930 et seq	X	X	X	X				Director Water Resources
31. California Debt Advisory Commission					X	GC § 8855 et seq	X	X	X			2	2	2 from Treasurer

KEY:

PRC	Public Resources Code	GC	Government Code
WC	Water Code	H&SC	Health and Safety Code
GL	General Laws	M&VC	Military and Veterans Code
EC	Education Code	S&HC	Streets and Highways Code
H&NC	Harbor and Navigation Code		

V. BASELINE STATISTICS ON PUBLIC DEBT IN CALIFORNIA

One of the first discoveries made in analysis of the amount and type of debt issued is that not all agencies use the same categories or time spans as they gather and classify information on debt. For example, some data are collected on a calendar year, while others are collected on a fiscal year. Many small issues are privately placed and may never be reported. Others may just slip through the collection agencies' files. Thus, the tables that follow are subject to some error, although since it does appear as if most major debt issues are captured by these national statistical collection agencies, these tables do give a good indication of underlying trends. This discussion will first focus on California and then turn to comparing the state to both a group of several other states and to the entire country.

In fiscal year 1980-81, tax-exempt debt was not a critical burden on California city or county government. For cities, total principal and interest payments on all long-term debt constituted only about two percent of their operating expenditures, down from 2.7 percent in fiscal year 1977-78. For counties, the figure is even less significant; principal and interest payments on long-term debt constituted only about 1/2 of 1 percent of their operating budgets. It should be noted that these numbers are lower bounds, since they do not appear to include short-term debt, such as Tax and Revenue Anticipation Notes. Yet, even if they were doubled, they would still be relatively small.

Table V identifies the six basic types of debt issued by the State during 1981. Of the approximately $1.4 billion in debt issued, eight revenue issues constituted over 29 percent. Anticipation notes, all of which were marketed competitively, were the next largest category, accounting for over 21 percent. These two categories together accounted for over half of the new State issues during 1981. It should also be noted that although there were only two G.O. issues offered, and they were both awarded competitively, they accounted for 11.7 percent of the State total. In distinction, none of the pollution issues were competitively awarded, although these eight issues accounted for over 15 percent of the new issues. Finally, the six education issues accounted for only 9 percent of the new issues, the smallest of any category.

The same data for local debt are shown in Table VI. It can be seen immediately that local debt issues were about twice state issues, $2.8 billion compared to $1.4 billion. Local debt appears to be both more concentrated and more

Table V
1981 CALIFORNIA STATE DEBT ISSUES

	G.O.	Rev.	Anticipation	Education	Housing	Pollution
Number Competitive	2	3	4	2	3	0
Amount Competitive*	165,000	275,000	300,000	77,150	93,100	0
Number Negotiated	0	5	0	4	1	8
Amount Negotiated*	0	138,745	0	50,500	100,000	213,750
Total*	165,000	413,745	300,000	127,650	193,100	213,750
Percent of Total	11.7	29.3	21.2	9.0	13.7	15.1

TOTAL*: 1,413,240

Source: California Municipal Statistics, Inc.

Note: * Thousands of dollars

Table VI
1981 LOCAL DEBT ISSUES IN CALIFORNIA

	G.O.	Rev.	Anticipation	Special Assess.(1915)	Certificates of Participation	Leases	Tax Allocation	Housing	Misc.
Number Competitive	22	14	36	15	1	13	8	4	1
Amount Competitive*	115,865	275,790	1,290,025	20,561	3,460	88,860	66,915	52,715	6,220
Number Negotiated	0	5	7	18	3	0	3	25	3
Amount Negotiated*	0	54,570	98,105	41,040	13,550	0	13,975	596,617	84,360
Total*	115,865	330,360	1,388,130	61,601	17,010	88,873	80,901	649,361	90,584
Percent of Total	4.1	11.7	49.3	2.2	.6	3.2	2.9	23.1	3.0

Total*: 2,816,408

Source: California Municipal Statistics, Inc.

Note: *Thousands of dollars

diverse: there are nine classification categories rather than six; yet the anticipation note category by itself accounts for nearly half of new issues. This is probably explained by the strained fiscal environment of local governments during 1981, since it appears many borrowed in advance of their tax collections. This strategy also helped to generate additional funds for their budgets via any short-term arbitrage profits realized. Almost all anticipation notes, and all of the G.O. and leasing debt, were awarded by competitive bid. Only housing debt issues seem to have been primarily negotiated. Other interesting facts can be seen from this table. Special assessment districts (at least under the 1915 Act) are relatively unimportant; although numerous issues were offered, they still accounted for only 2.2 percent of the debt volume. It is interesting to discover that G.O. issues were possible at the local level, although they were almost entirely issued by water districts. However, tax allocation bonds, representing the amount of traditionally financed redevelopment activity still ongoing in the State are still small in both number and quantity: there were only 11 issues during 1981, and they accounted for only 2.9 percent of the total local debt. The average issue size was under $7.5 million dollars.

California's average net interest cost (ANIC) in 1981 was 10.92 percent; the national weighted average was 10.78 percent, so California's was slightly greater. However, the national G.O. average was 10.47, compared to the California average of 10.37, while the national revenue average was 11.26 compared to the California average of 11.27. All of these numbers are close and seem to indicate that California is paying about what other states pay in interest. However, the ANIC for negotiated debt in California is 12.08, while the national rate for negotiated debt is 41 basis points less, at 11.67. Although there is a great deal of variation in negotiated rates throughout the United States, and thus it is not likely that this difference is statistically significant (the unweighted standard deviation is 128 basis points), it is still relatively large.

Table VII shows several different ways of examining California debt in order to facilitate comparisons with other states. Tables VIII through XIII show the available data for other states, although in somewhat less detail than Table VII. As can be readily seen, states vary widely in how they use debt, and further, they vary in whether their use is increasing or decreasing both by category and in total. For example, Massachusetts is cutting back across the board on its use of debt, while Texas is increasing its use of debt. California is in the middle, with some categories such as transportation, social welfare, and recreation increasing, while pollution control and public services are decreasing.

Table VII
CALIFORNIA DEBT ISSUES
(1980 Population = 10.4% of nation)

California Long-Term Debt Issued as a Percentage of National Issues, 1977 Compared to 1981

	1977	1981
State	6.7%	8.8%
Counties	0	1.8
Municipalities	2.0	5.1
School Districts	2.5	0
Special Districts	21.2	31.0
Statutory Authorities	45.0	20.3
Total	4.4	6.0

Use of Proceeds of California Long-Term Public Debt Issued as a Percentage of National Issues, 1977 Compared to 1981

	1977		1981	
	G.O.	Rev.	G.O.	Rev.
K-12 Education	4.2%	11.1%	1.3%	18.9%
Colleges & Universities	14.5	1.8	-	15.0
Other education	-	2.7	2.4	0.4
All education	5.1	4.1	1.3	7.0
Roads & Bridges	0.8	-	0.7	17.8
Ports and airports	1.3	0.3	6.4	-
Other transportation	3.8	8.0	-	9.7
All transportation	1.5	1.1	1.1	3.5
Pollution control	0.5	8.6	3.1	-
Water & sewer	13.2	12.6	10.8	20.9
Electric & gas	15.5	4.6	-	4.2
Other, utilities & conservation	9.2	-	-	4.3
All, utilities & conservation	11.4	6.1	8.8	7.5
Public Housing	55.1	1.1	36.2	11.4
Hospitals	-	2.8	-	4.7
Other, social welfare	12.3	-	22.2	64.8
All social welfare	19.0	1.9	24.8	8.9
Industrial aid, other	71.5	-	-	0.2
Industrial aid, pollution control	-	2.0	-	4.9
Public services	0.4	52.4	0.7	-
Recreation	25.6	14.4	33.3	20.2
Classified misc.	0.5	-	-	-
Various purposes	0.5	4.3	0.3	2.1
Total, new capital	6.1	3.4	4.9	6.4
Refunding	1.5	8.4	14.4	5.2
Advance refunding	-	1.8	-	-
Total refunding	0.7	4.2	14.1	2.0
Grand total, all issues	5.5	3.7	5.1	6.2

Table VIII
ILLINOIS DEBT ISSUES
(1980 Population = 5.0% of nation)

Illinois Long-Term Debt Issued as a Percentage of National Issues, 1977 Compared to 1981

	1977		1981	
	G.O.	Rev.	G.O.	Rev.
State	7.0%	0 %	7.25%	0 %
Counties	2.1	.4	1.3	2.6
Municipalities	3.2	3.5	9.1	7.4
School Districts	10.1	0	11.1	0
Special Districts	18.3	0	22.1	4.0
Statutory Authorities	.1	4.8	6.4	1.8
Total	6.2	3.9	8.6	2.7
Combined Total	4.8		4.2	

Use of Proceeds of Illinois Long-Term Public Debt Issued as a Percentage of National Issues, 1977 Compared to 1981

	1977		1981	
	G.O.	Rev.	G.O.	Rev.
K-12 Education	12.0%	1.3%	8.4%	0 %
Colleges & Universities	.1	9.8	2.6	3.9
Other education	6.7	0	2.7	0
All education	10.3	6.6	9.0	1.3
Roads & Bridges	8.6	0	.9	.3
Ports and airports	.6	0	.2	0
Other transportation	24.4	0	28.1	0
All transportation	10.8	0	10.5	.3
Pollution control	25.9	0	19.1	0
Water & sewer	6.8	1.2	12.6	.7
Electric & gas	0	1.0	0	0
Other, utilities & conservation	24.1	0	5.5	0
All, utilities & conservation	10.8	.9	11.9	.1
Public Housing	0	2.3	7.6	2.4
Hospitals	.4	11.7	0	8.5
Other, social welfare	0	6.4	.4	.3
All social welfare	.1	7.1	3.0	5.3
Industrial aid, other	8.6	.3	15.2	4.5
Industrial aid, pollution control	0	6.2	0	2.2
Public services	13.9	7.5	5.8	0
Recreation	14.9	27.9	13.0	0
Classified misc.	1.7	0	0	0
Various purposes	2.4	0	8.1	2.9
Total, new capital	6.9	3.9	8.6	2.7
Refunding	1.8	2.6	9.4	1.3
Advance refunding	1.0	4.4	0	0
Total refunding	1.4	3.7	9.3	.5
Grand total, all issues	6.2	3.9	8.6	2.7

Table IX
MASSACHUSETTS DEBT ISSUES
(1980 Population = 2.5% of nation)

Massachusetts Long-Term Debt Issued as a Percentage of National Issues, 1977 Compared to 1981

	1977		1981	
	G.O.	Rev.	G.O.	Rev.
State	4.1%	0 %	6.4%	0 %
Counties	0	0	0	0
Municipalities	4.3	0	.3	.4
School Districts	1.4	0	0	0
Special Districts	0	0	0	0
Statutory Authorities	0	3.7	8.8	2.1
Total	6.2	2.4	2.9	1.6
Combined Total	2.6		1.9	

Use of Proceeds of Massachusetts Long-Term Public Debt Issued as a Percentage of National Issues, 1977 Compared to 1981

	1977		1981	
	G.O.	Rev.	G.O.	Rev.
K-12 Education	4.0%	0 %	0 %	0 %
Colleges & Universities	1.1	6.6	0	0
Other education	3.2	0	0	0
All education	3.6	4.2	0	0
Roads & Bridges	12.8	14.2	0	0
Ports and airports	.8	0	0	0
Other transportation	.2	0	10.6	0
All transportation	8.8	5.2	3.3	0
Pollution control	7.9	.6	0	0
Water & sewer	2.3	.1	.5	0
Electric & gas	0	5.3	0	3.2
Other, utilities & conservation	2.5	12.2	0	0
All, utilities & conservation	2.9	4.8	.4	2.3
Public Housing	2.9	7.4	0	2.6
Hospitals	0	0	0	2.6
Other, social welfare	1.0	0	0	2.3
All social welfare	1.2	3.9	0	0
Industrial aid, other	0	2.2	0	2.4
Industrial aid, pollution control	0	0	0	.7
Public services	1.1	0	0	.7
Recreation	.8	0	0	0
Classified misc.	11.5	0	0	0
Various purposes	1.4	0	5.9	0
Total, new capital	3.2	3.4	2.9	.5
Refunding	0	0	0	1.5
Advance refunding	0	0	0	0
Total refunding	0	0	0	3.1
Grand total, all issues	2.8	2.4	2.9	1.6

Table X
MICHIGAN DEBT ISSUES
(1980 Population = 4.1% of nation)

Michigan Long-Term Debt Issued as a Percentage of National Issues, 1977 Compared to 1981

	1977		1981	
	G.O.	Rev.	G.O.	Rev.
State	0 %	0 %	1.4%	0 %
Counties	7.7	.4	22.5	2.8
Municipalities	1.9	.1	4.8	1.0
School Districts	4.7	0	.9	0
Special Districts	1.0	0	0	0
Statutory Authorities	2.7	18.7	.9	3.0
Total	2.4	11.9	4.5	2.5
Combined Total	8.2		3.0	

Use of Proceeds of Michigan Long-Term Public Debt Issued as a Percentage of National Issues, 1977 Compared to 1981

	1977		1981	
	G.O.	Rev.	G.O.	Rev.
K-12 Education	4.5%	0 %	1.5%	0 %
Colleges & Universities	1.1	43.5	0	1.3
Other education	.4	0	2.8	7.0
All education	4.7	27.9	1.5	4.4
Roads & Bridges	3.5	0	1.0	0
Ports and airports	0	0	0	.1
Other transportation	.2	44.1	13.5	0
All transportation	2.4	5.2	4.8	0
Pollution control	0	0	0	0
Water & sewer	1.7	1.1	2.4	4.0
Electric & gas	0	6.0	0	.1
Other, utilities & conservation	3.0	0	0	0
All, utilities & conservation	1.7	3.9	1.9	.8
Public Housing	2.1	4.3	0	3.0
Hospitals	5.3	10.3	0	2.9
Other, social welfare	0	0	.7	0
All social welfare	2.0	7.2	.4	2.9
Industrial aid, other	.3	.3	0	7.0
Industrial aid, pollution control	0	.3	0	3.7
Public services	2.5	0	.3	0
Recreation	0	0	0	0
Classified misc.	15.2	69.6	0	0
Various purposes	1.0	64.9	8.2	0
Total, new capital	2.6	8.2	4.6	2.6
Refunding	1.3	39.6	0	0
Advance refunding	0	10.0	0	0
Total refunding	.6	20.7	0	0
Grand total, all issues	2.4	11.9	4.5	2.5

Table XI
NEW YORK DEBT ISSUES
(1980 Population = 7.8% of nation)

New York Long-Term Debt Issued as a Percentage of National Issues, 1977 Compared to 1981

	1977		1981	
	G.O.	Rev.	G.O.	Rev.
State	7.5%	0 %	4.6%	0 %
Counties	30.3	.4	6.7	0
Municipalities	24.9	.1	6.9	0
School Districts	4.3	0	.2	3.2
Special Districts	0	0	0	0
Statutory Authorities	1.1	18.7	0	9.3
Total	13.8	11.9	4.4	6.6
Combined Total	12.7		6.0	

Use of Proceeds of New York Long-Term Public Debt Issued as a Percentage of National Issues, 1977 Compared to 1981

	1977		1981	
	G.O.	Rev.	G.O.	Rev.
K-12 Education	3.8%	0 %	.1%	1.3%
Colleges & Universities	7.2	43.5	1.2	18.9
Other education	.2	0	0	1.0
All education	3.9	27.9	.2	6.8
Roads & Bridges	3.0	0	4.0	0
Ports and airports	1.2	0	4.4	0
Other transportation	30.2	44.1	15.1	28.5
All transportation	8.4	5.2	7.6	4.8
Pollution control	51.7	0	38.7	0
Water & sewer	16.9	1.1	1.0	0
Electric & gas	6.6	6.0	5.8	4.0
Other utilities & conservation	10.6	0	0	0
All, utilities & conservation	19.6	3.9	3.4	2.9
Public Housing	8.4	4.3	0	5.9
Hospitals	17.8	10.3	7.5	8.4
Other, social welfare	0	0	0	0
All social welfare	7.1	7.2	.8	7.0
Industrial aid, other	0	.3	0	1.6
Industrial aid, pollution control	0	.3	0	.9
Public services	2.7	0	4.5	0
Recreation	6.0	0	1.3	28.3
Classified misc.	3.2	69.5	0	0
Various purposes	26.8	64.9	6.8	47.8
Total, new capital	14.2	8.2	4.4	6.8
Refunding	1.9	39.5	0	0
Advance refunding	19.0	10.0	0	0
Total refunding	11.0	20.7	0	0
Grand total, all issues	13.8	11.9	4.4	6.6

Table XII
TEXAS DEBT ISSUES
(1980 Population = 6.3% of nation)

Texas Long-Term Debt Issued as a Percentage of National Issues, 1977 Compared to 1981

	1977		1981	
	G.O.	Rev.	G.O.	Rev.
State	1.5%	0 %	0 %	0 %
Counties	1.6	2.1	8.5	1.4
Municipalities	7.0	7.9	12.9	12.8
School Districts	19.3	0	29.4	0
Special Districts	21.7	7.3	26.8	5.0
Statutory Authorities	5.8	4.2	4.9	5.1
Total	7.4	5.0	10.2	5.7
Combined Total	5.9		6.8	

Use of Proceeds of Texas Long-Term Public Debt Issued as a Percentage of National Issues, 1977 Compared to 1981

	1977		1981	
	G.O.	Rev.	G.O.	Rev.
K-12 Education	18.7%	0 %	23.0%	0 %
Colleges & Universities	10.6	5.4	5.8	12.9
Other education	1.7	0	3.7	.3
All education	16.8	3.5	21.2	4.3
Roads & Bridges	5.2	1.7	4.2	.2
Ports and airports	1.9	21.3	4.5	14.2
Other transportation	1.4	0	0	2.4
All transportation	4.0	11.5	9.4	10.9
Pollution control	0	3.5	0	100.0
Water & sewer	13.1	11.3	10.2	14.4
Electric & gas	1.6	3.1	0	3.3
Other, utilities & conservation	5.0	38.2	53.7	34.1
All, utilities & conservation	10.6	9.5	14.3	7.7
Public Housing	0	0	0	3.1
Hospitals	6.2	2.6	17.9	4.1
Other, social welfare	3.6	0	0	0
All social welfare	3.5	1.3	2.0	3.5
Industrial aid, other	0	.2		3.8
Industrial aid, pollution control	0	8.0	0	8.0
Public services	4.3	0	7.2	0
Recreation	.8	0	4.0	.5
Classified misc.	.4	0	0	0
Various purposes	5.8	1.9	7.0	.2
Total, new capital	8.0	4.9	10.2	5.4
Refunding	13.9	2.0	12.5	36.0
Advance refunding	1.0	6.8	0	1.1
Total refunding	3.4	5.0	12.2	14.8
Grand total, all issues	7.4	5.0	10.2	5.7

Table XIII
WASHINGTON DEBT ISSUES
(1980 Population = 1.8% of nation)

Washington Long-Term Debt Issued as a Percentage of National Issues, 1977 Compared to 1981

	1977		1981	
	G.O.	Rev.	G.O.	Rev.
State	3.5%	0 %	4.8%	0 %
Counties	1.8	.4	2.4	0
Municipalities	1.0	2.2	1.3	1.8
School Districts	4.5	0	2.1	0
Special Districts	1.1	3.2	1.7	13.1
Statutory Authorities	0	3.3	1.9	6.0
Total	2.4	2.8	2.9	4.9
Combined Total	2.9		4.4	

Use of Proceeds of Washington Long-Term Public Debt Issued as a Percentage of National Issues, 1977 Compared to 1981

	1977		1981	
	G.O.	Rev.	G.O.	Rev.
K-12 Education	1.9%	0 %	2.4%	0 %
Colleges & Universities	10.3	.2	24.3	0
Other education	2.9	0	0	0
All education	2.9	.1	3.3	0
Roads & Bridges	0	0	3.9	0
Ports and airports	0	9.1	6.5	.1
Other transportation	5.8	0	4.7	.4
All transportation	1.2	4.6	4.4	.6
Pollution control	0	0	0	0
Water & sewer	3.6	2.1	1.0	3.7
Electric & gas	0	18.7	0	24.2
Other, utilities & conservation	0	0	0	2.4
All, utilities & conservation	2.7	11.9	.8	18.6
Public Housing	0	0	0	0
Hospitals	9.1	0	19.3	2.2
Other, social welfare	3.5	0	0	2.9
All social welfare	4.3	0	2.2	.1
Industrial aid, other	0	0	0	0
Industrial aid, pollution control	0	0	0	0
Public services	.4	0	6.8	0
Recreation	7.9	0	3.7	0
Classified misc.	6.3	0	0	0
Various purposes	.6	0	3.0	.2
Total, new capital	2.2	3.6	2.9	5.0
Refunding	5.5	1.9	0	0
Advance refunding	1.4	.4	0	0
Total refunding	3.3	.9	0	0
Grand total, all issues	2.4	2.8	2.9	4.9

California had 10.4 percent of the population of the United States in 1980. Yet, it offered only 6 percent of the total debt issued in 1981. However, of the six states selected for comparison purposes, only Texas and Washington issued more debt than their population percentage. California slightly increased its issues proportionate to population between 1977 and 1981. This might indicate, given the sample selection, that California, while still quite conservative in issuing debt, is increasing its investment in public capital like other western states.

With the exception of school districts and statutory authorities, California's percentage of national debt issues increased in all categories. Yet, it exceeds its population percentage in only special districts (in which it offers 31 percent of all new national issues) and statutory authorities (in which it offers 20.3 percent of all new national issues). The figures for counties and municipalities are quite low.

Table XIV expresses much of the previous data in per capita or per $1,000 of personal income terms. In 1981, the total debt issued in California was only about 57 percent of the U.S. rate in terms of per capita and only about 50 percent of the U.S. rate when standardized for income. California's total issues were also less than any of the other six states in these categories. The only category in which it is greater than the U.S. average is in special districts. Finally, this table again shows the variation among states in terms of the use of debt. For example, Massachusetts issued no debt for counties, schools, and special districts, while Texas issued no new state debt. It can also be seen that the State of Washington had the highest debt issued per capita, although over two-thirds of that was issued by statutory authorities, primarily public utility districts financing still non-functioning nuclear reactors.

Overall, when looking at the numerical descriptions of debt issued by California jurisdictions, it appears as if the state is one of the more conservative in the U.S. By any measure, its debt issuance is below national levels for almost all of the debt-issuing agencies. Further, although the trend is slightly up, the amount of debt is remarkably low. This implies strong fiscal controls at both the State and local level, and any regulations to be implemented should take advantage of these and augment rather than fight them. Further, with the possible exception of special districts, whch should be studied further, there is no indication that any group of agencies is increasing its debt liabilities at a rate that should cause concern.

Table XIV
COMPARISONS OF DEBT LEVELS IN SEVEN STATES

	Calif.	Illinois	Mass.	Mich.	NY	Texas	Wash.	Average All U.S.
Per Capita								
Cities	$ 9.74	$ 57.78	$ 5.18	$ 22.29	$ 13.08	$ 74.05	$ 31.13	$ 36.17
Counties	2.76	10.20	0	45.09	5.26	11.91	8.26	22.63
Schools	.04	14.79	0	1.47	.34	31.38	7.63	7.17
Special Dist.	12.60	20.99	0	0	.02	20.54	35.45	8.40
Stat. Auth.	77.45	42.49	101.50	81.27	133.50	91.88	367.30	113.66
State	17.53	29.76	52.29	6.91	12.25	0	54.58	23.03
Total	120.13	176.00	158.98	157.03	164.45	229.77	504.35	211.06
Per $1,000 of Personal Income								
Cities	$ 1.17	$ 7.35	$ .69	$ 2.87	$ 1.73	$ 10.12	$ 3.90	$ 4.91
Counties	.33	1.30	0	5.81	.70	1.63	1.03	3.07
Schools	.005	1.88	0	.19	.05	4.29	.96	.97
Special Dist.	1.51	2.67	0	0	.003	2.81	4.44	1.14
Stat. Auth.	9.28	5.40	13.60	10.47	17.68	12.56	45.99	15.42
State	2.10	3.78	7.01	.89	1.62	0	6.83	3.12
Total	14.39	22.38	21.31	20.24	21.78	31.40	63.15	28.63

Source: Public Securities Association

Note: Population and Income figures are for 1980. Debt totals are for 1981.

VI. MODELS OF DEBT FROM THE RESEARCH LITERATURE AND A CALIFORNIA-SPECIFIC RESEARCH AGENDA

This chapter examines a sampling of recent research literature with the intention of highlighting results that lend themselves to policy ramifications. As in all surveys of literature, however, it must be remembered that often studies can be contradictory, controversial, and, especially when attempting to be theoretical, their underpinnings can sometimes approach nothing more than ad hoc selection of variables.

Finally, many of these articles were published in the mid- to late 1970s. There are at least two changes in the debt market that have occurred since then: revenue bond issues now far outstrip general obligation debt issues and the aggregate amount of debt in real terms is now growing at a much slower rate. In fact, for some years since that period, it actually showed a negative real growth. Thus, without redoing many of these studies, it is difficult to generalize their results into the 1980s. This review should be examined more for insights that it can generate, rather than for any specific findings that are universally applicable.

This chapter is divided into three parts. The first analyzes literature relating to the general market for tax-exempt debt, with empirical work usually centered around topics that overlay concerns of how well the market works. The second part investigates some specific issues about the tax-exempt market, including costs to issuers, market segmentation, and taxable bond options. The final part identifies some areas for future research.

A. GENERAL ANALYSIS

Demand for tax free debt has been recently analyzed in two works originating from two different Federal Reserve Banks. Rosenbloom (1976) attempts to explain changes in the ratio of tax-free to commercial rates of similarly rated, similar maturity bonds. He argues that changes in this ratio are primarily a demand phenomena, since supply has been steadily increasing. He identifies commercial banks, individuals and fire and casualty insurance companies as the principal purchasers of debt. He argues that commercial banks purchase municipals only after commitment to other borrowers are met, and thus bank participation in this market can be explained by variation in loan demand; as loan demand increases, demand for municipal debt decreases. He then argues that as banks leave the market, municipal yields rise (price falls) until individuals purchase enough to clear the market. It is this interaction between these two groups of purchasers which gives rise to any instability of the market, and he concludes that commercial banks are currently leaving this market for a variety of reasons.

Kimball (1977) concurs with this conclusion, and offers a variety of explanations for why the banks are leaving. The one that he particularly favors revolves around greater availability of tax shelters for commercial banks. Utilizing internal Federal Reserve Bank documents, he discovers that large banks utilize more shelters than do small banks, and by 1975, for the 25 largest banks in the United States, tax shelters generated a greater proportion of after tax income than bonds. Yet, small banks still use bonds to generate the majority of their after tax income. Kimball identifies three types of tax shelters that banks use: leasing, foreign tax credits, and depreciation, and concludes that although foreign tax credits will remain unimportant for small banks, leasing and depreciation will become increasingly more important for all banks. He agrees with Rosenbloom that bank demand for tax-exempts will continue to decline. It is interesting to note that under the Economic Recovery Tax Act of 1981, both leasing and depreciation provisions were expanded, increasing their use for banks. It may be that municipals would have even higher yields today if it were not for the severely depressed economy which has affected the demand for commercial bank loans.

Forbes and Peterson (1976) also address the question of how to increase the size of the municipal bond market, with the (implicit) intention of lowering borrowing costs for the issuers. Primarily descriptive, their work describes the market in detail (both primary and secondary markets) and then concludes with a series of recommendations. In particular, they tend to believe that there is too much debt issued (for example, they are clearly not supporters of IDBs or advanced refunding), and in general urge a more active role for states in the market, particularly in providing technical assistance to small jurisdictions in order to improve debt management techniques and in forming state bond banks (they claim savings of 40 to 50 basis points). This book was a background paper for the 20th Century Fund.

Finally, Livingston (1982), in a very sophisticated theoretical piece, derives a municipal bond pricing equation, relating bond price to such variables as its yield, face value and maturity. He predicts a negative yield effect for discount bonds, if there is a falling term structure. Yet he notes that in real life, exactly the opposite occurs. His explanation for this is that bond market imperfections must exist. If this is so, then the works cited above are ignoring a major concern as they discuss demand patterns for municipal debt.

Although the above works are, at times, analytic, they do not use statistical techniques to arrive at their conclusions or recommendations. However, there is a body of literature that deals with general market problems that does employ statistical analysis--typically regression analysis. Rubinfeld

(1973) examines credit rates and market for general obligation debt by postulating a simultaneous three equation model, with interest rates, underwriter's spread and ratings as the three left hand variables. He first estimates ratings and then interest rates as a function of ratings, bond characteristics, and community attributes. He concludes that credit ratings affect yields independent of the market evaluation of the financial status of the rated community. A drop in rating from Aaa to Baa leads to a 34 basis point increase in interest.

There are two other examples of use of ordinary least squares as a technique for understanding general market phenomena. West (1967) and Yawitz (1978) use regression analysis to explain underwriters spread and risk premiums respectively. West finds that issue quality (negative), average term to maturity (positive) and competition among underwriters (negative) are the significant variables, while Yawitz, in a more sophisticated model, finds similar results.

Finally, Hendershott (1977, 1977a) and Hendershott and Koch (1977) utilize econometric models to investigate price behavior of municipal bonds. Hendershott develops a twelve sector flow of funds model, including three classes of financial intermediaries -- households and fiscal and monetary authorities -- to predict short-term, long-term and home mortgage rates. Nine of the sectors are solved internal to the system. The model consists of 47 behavioral equations, and assumes that sources of funds must equal uses of funds and markets must clear. Hendershott uses this aggregative national model to investigate effects of various tax treatments on municipal bonds, and determines that in the long run, if taxes are increased on thrift institutions, they will demand more municipal debt. Although Cassidy (1977) criticizes the underlying theoretical structure of the model, it should be noted that Hendershott is willing to postulate behavioral equations based on specific objective functions to be maximized. Hendershott and Koch later slightly disaggregate the model, and use it to predict increasing tax-exempt yields because of their predictions of falling bank profits and increasing issuance of state and local debt.

In examining much of the empirical work, it becomes obvious that many of the variables used in the regressions, while logical, are based on strictly ad hoc reasoning. Only Hendershott refers to any maximization behavior on the part of any actor, and even many of his regressions internal to the model appear to use goodness of fit as their theoretical base. Thus, all of these results, while demonstrating sophisticated empirical techniques, must be carefully considered before they can be generalized. Further, none of the data sets used are California-specific, and this, with the lack of theoretical underpinnings, mandates caution in generalizing from the results.

B. SPECIFIC CONCERNS

There is also a body of literature that revolves around more specific issues of the tax-exempt market. This section examines examples that might relate to the California policy making process: articles dealing with costs, market segmentation, bond-banking, taxable bond options and service demands are discussed.

1. Costs

Kessel's (1971) study of effects of competition on the bond market is one of the most cited in the literature. In it, after examining a series of regression results (all ordinary least squares), he concludes that underwriters' spreads decrease as degree of competition increases, yet reoffering yields (the coupon rate attached by the underwriter as the bond is prepared for resale) fall--that is, prices rise as competition increases. Kessel's explanation for this latter unexpected result is that bids for a new issue by underwriters are a means of scanning the population of potential buyers of tax-exempts. The object of this scanning is to identify the particular subset of buyers for whom the upcoming issue is the most valuable. The bid by the underwriter thus includes knowledge of what its customers are willing to pay for the upcoming issue and resulting bids reveal the underwriters whose customers will pay the most.

Some of Kessel's empirical results are particularly interesting. They show, for example, that G.O. bonds receive slightly more bids than revenue bonds, and over the time covered by this study, it appears that G.O. bids are becoming even more numerous. However, he also finds that the marginal value of the last bid to the issuer falls as the number of bids increase; and in fact becomes ambiguous at the sixth bid for revenue bonds and the ninth bid for G.O. He also statistically finds that if commercial banks could bid on revenue bonds, there would be an increase in the number of bids. Using Saxon G.O.s as a test, he concludes that this does seem to be the case./7/ Unfortunately, Kessel's empirical work does not reflect any formal underlying economic model, and thus specification is again somewhat suspect. Further, it appears as if many of the relationships he discovers might be better estimated using some sort of simultaneous estimation techniques. Thus, his results must be carefully considered.

Hopwell and Kaufman (1977) also use ordinary least squares regression techniques to investigate determinants of number of bids and true interest costs. They found that credit ratings and issue size (among others) were positively related to number of bids, while longer maturity, lower credit rating and fewer bids all were positively related to interest costs. Interestingly, they found that bank eligibility was not important with respect to obtaining more bids although if

/7/ James Saxon, Federal Comptroller in 1962-1966, declared that a number of issues that had been previously thought to be revenue bonds were really G.O. bonds, and thus banks could bid on them. When he left office, the ruling was reversed by his successor. The particular bonds affected are called Saxon G.O.s.

banks were eligible to underwrite revenue bonds the true interest costs for revenue bonds would fall by 14 basis points. Although some of their statistical techniques generate distrust of their precise estimates, their general conclusions do seem reasonable.

An important side issue in any discussion of costs relates to whether bids should be proposed in terms of net interest cost (NIC) or true interest cost (TIC)./8/ Hopewell and Kaufman (1974) argue that using NIC leads underwriters to place the highest coupons on the earliest maturing securities, and then, in order to reduce NIC, place low coupons on later maturing securities. This pattern does not cost the underwriter extra, the purchaser benefits, yet the issuing jurisdiction does not receive any additional benefits from this gift of quick interest payments. These authors estimate that there was a $20 million overpayment of interest in 1973 because of NIC bids rather than TIC bids. Further, as Mumy (1978) indicates, if Kessel's search hypothesis is accurate, then the NIC criterion will encourage a search for good customers of long maturity bonds to the detriment of finding good customers of short maturity bonds. If more competition accentuates this search there may very well be an increase in issuer costs (TIC) because of more competition, and thus with the use of NIC criteria, more competition may not be beneficial. If competition is to be increased, care should be used in structuring the format for bids.

2. Segmentation

There are at least three different types of market segmentation possible: by maturity of the debt, by purchaser, and by geographic region. Generally, the research seems to indicate that regardless of the type of segmentation, the more of it that occurs, the greater the costs to the issuer.

Elliott and Echols (1976) examine time segmentation by analyzing the term structure of U.S. Treasury interest rates. They find, using regression techniques to discover discontinuities and utilizing yield as the left hand variable with maturity and coupon value as right hand variables, that the significant break is at 8 years. They conclude that under 8 years, securities appear to be fully arbitraged, and that election of maturity dates is inconsequential. Once over 8 years, there appears to be insufficient arbitration, and there are significant interest rate discontinuities. Thus, it is important how the maturity date is assigned after 8 years.

Kessel, in his previously cited work, determines that the number of bids submitted for General Obligation issues is affected only by flow of G.O.s during the week of issue; the flow of revenue issues plays no role. Further, he also

/8/ The principal difference between NIC and TIC is that the time value of money is included in the computation of TIC and ignored in NIC.

discovered that the number of bids submitted for revenue issues is affected by the number of revenue issues coming to market, but not by the number of G.O.s. From these results, he concludes that underwriters of G.O.s are not interested in underwriting revenues (which is not surprising since banks cannot underwrite revenue issues anyway), and that the underwriters of revenue issues do not generally underwrite G.O.s. This segmented buyers market might indicate that different policies should be utilized to broaden the market for both G.O.s and revenues.

Finally, there is some evidence available on geographic segmentation of markets. Hendershott and Kidwell (1978) examine small bond sales (under $1,000,000), which have a primarily regional market, and large bond sales (over $10,000,000), which are sold primarily in a national market, using Indiana data. They conclude that regional segmentation does exist, since an increase in relative supply of small size tax exempt bonds in a regional market does increase both regional borrowing costs and costs of the particular bond isue, relative to national issues./9/ In a follow-up article, Kidwell and Hendershott (1978) examine effects of advanced refunding on borrowing costs. This technique involves selling a refunding bond issue before the bonds to be replaced can be called. The proceeds of this issue are put in escrow until the old issue can be retired, and arbitrage profits are possible since the rate at which municipalities can invest exceeds their borrowing costs. This technique has been heavily regulated by the Treasury, and is now rare, but it still sometimes occurs. Note that it does increase the supply of debt without any offsetting capital improvement, since there are now two outstanding issues for the same project. Again using Indiana data, they discover that advanced refunding does affect regional interest rates, and is thus not costless. It seems possible to conclude from these results that small refunding issues act just as any other small issue in terms of regional effects, while larger issues act just as any large issue would act, and do not affect regional rates.

3. Bond-Banking

The municipal bond bank is a special arrangement for pooling general obligations of localities and special districts within a state. By pooling, a bond bank can offer larger issues that attract more bidders and can be sold nationally, reduce the costs of underwriting and marketing, and reduce the risk of holding debt of small, unrated issues.

/9/ Small denomination tax-exempt bonds, which are almost always regionally placed (Lehan, 1980), are typically sold at interest rates below those reoffered by underwriters.

The banks have been used in Vermont, Maine and New York (Hart, 1982) where there are many issues that are small and unrated. Katzman (1980) has found that, extrapolating from other work, the banks have saved about 4.4 percent of issue volume in Maine and 3.8 percent of issue volume in Vermont. However, despite these savings, he argues that there will be slow diffusion of this innovation, since the state's credit might be lowered if the state guarantees the bank, and thus there is a subsidy from large to small issuers.

Further, it appears as if bond insurance gives almost as many benefits as the bank. Solano and Hoffman (1982) generally agree with Katzman that diffusion will be slow, but they argue that there are more important reasons for this slowness. In particular, they identify (based on attempts to get a bond bank established in Delaware) institutional self interest and current borrowing patterns as crucial. They found that local bankers, bond counsels, small lot bond dealers, and investment banks all were strongly opposed to bond banks. And they were able to play on the fears of the small jurisdiction finance officer, who was afraid of having to go to open market rather than to a local commercial bank to get loans. Another fear of locals was that the bond bank might end up being the first step towards state-mandated local capital programming. Closely related to bond banking is the set aside program of New Jersey in which state aid to an issuing locality is set aside for transfer directly to the paying agent. This reduction of uncertainty has resulted in lower interest rates and a significant cost saving (Howard).

4. Taxable Bond Options

One suggestion for broadening the tax-exempt market is to allow state and local governments to issue bonds that can be taxed, and then have the federal government subsidize some portion of the higher interest rates. Suggested subsidies have ranged from 30 to 50 percent. In a quantitative, but non-statistical work, Mussa and Kormendi (1979) argue that this would not work because the portfolio composition of investors, which emphasizes tax sheltering, suggests that money would ultimately leave a taxable municipals market, and thus narrow it.

However, Fortune, (1973a, 1973b) argues somewhat differently. He utilizes another large scale econometric model to investigate effects of a taxable municipal bond. This model, developed by the Federal Reserve Bank of Boston, is a capital market model of financial flows for three types of bonds (one of which is state and local debt) and two types of deposits. It has eight sectors with 45 equations, includes time as a variable and allows for solutions of zero or 100 percent. Fortune presents simulations of the impact over a three year period of introduction of taxable municipal bonds, using subsidy rates of 33, 40 and 50 percent. He finds that the 50 percent subsidy rate is the most suitable on the

criteria of equity of income distribution and volume of interest savings going to state and local governments, while on the criterion of least cost to the U.S. Treasury, the 33 percent rate is best. He also discovers that at the 50 percent rate all new tax-exempt issues are eliminated. Since he believes that taxable bonds would reduce volatility and market uncertainty, compared to tax-exempt bonds, he implicity believes that the taxable bond option would effectively broaden the market.

5. Service Demand

DeBartolo and Fortune (1982) utilize municipal bond referenda (in Ohio) to examine whether or not demand for public services can be discovered from these results. Using logit analysis (a more sophisticated type of regression analysis), they discover that the probability of approval of bonds can be related to service levels and changes, income, tax prices and socio-demographic variables. Somewhat surprisingly, they discover that the tax price demand elasticity is much lower than previously thought and that the primary effect of changing factor prices is on the budget, which expands to accommodate price increases. What all this means is that how citizens vote on bond referenda is primarily based on desired service levels, not on the effect that the new debt will have on the jurisdiction's budget or their individual taxes. If service levels are low, there is a greater probability of bond passage.

C. A CALIFORNIA-SPECIFIC RESEARCH AGENDA

This literature review suggests an agenda for future work analyzing the California debt market. In particular, the following would be crucial studies:

1. Buyer Segmentation

Any policy of broadening the market must be based on the market itself. At present, we only have aggregate data on buyers. A study of who buys California debt, including competitive, negotiated, and private sales would greatly aid in the formulation of broadening market policy for California.

2. Regional Segmentation

This study would attempt to discover effects of regional debt on California debt issues. If the results are similar to Indiana, they would indicate that small issues sold in the region have costs that are spread over all bonds issued. Further, it might be that privately placed or negotiated sales are more regionalized than are competitive sales, and thus hidden costs are even higher.

3. NIC and TIC Bids

The studies reviewed here indicate that there are premiums, in terms of present value costs, being paid for jurisdictions using NIC. However, there have been no studies that determine the costs for California. If they are low (which is probably doubtful), it may not be worth encouraging the conversion to TIC.

4. Impact of Lower Credit Ratings

There has been some evidence that indicates lower ratings cause higher interest costs to the issuer, regardless of other market data. A study identifying how much the current lower rating will cost California over time, examining both present and future issues, would be useful in pinpointing this effect, and would give additional support to the State as it approaches rating agencies asking for improvements.

5. Secondary Debt Markets

Very little is known nationally, and almost nothing is known in California regarding many of the institutional chracteristics of the debt market. Underwriters may have procedures that differ among themselves in making markets, and the secondary market is almost invisible. Merely finding out structural characteristics of the industry would be important.

Most of this research agenda can be done. However, it either has not been done for California, or in some cases, has only been done in a cursory way nationally. Yet, many policy recommendations and policies are implemented on the basis of this slim body of work. Policy makers would be advantaged by a more solid research foundation upon which to make choices.

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APPENDIX

Appendix Table I
BOND SALES IN CALIFORNIA AND THE UNITED STATES, 1981

	California	U.S.
Total G. O. and Revenue Bond		
Sales (number)	157	4,679
Amount*	2,843,127	46,916,539
ANIC (Average Net Interest Cost, %)	10.92	10.78
G. O. Only		
Sales	55	2,220
Amount*	627,541	12,396,055
ANIC	10.37	10.47
Revenue Only		
Sales	102	2,459
Amount*	2,215,586	34,520,484
ANIC	11.27	11.26
Competitive Sales		
Sales	77	2,419
Amount*	1,568,988	16,371,963
ANIC	10.49	10.60
Negotiated Sales		
Sales	79	2,007
Amount*	1,271,339	28,486,121
ANIC	12.08	11.67

Source: Public Securities Association. Statistical Yearbook of Municipal Finance, The New Issue Market in 1981.

Notes: * Amount in thousands of dollars
ANIC weighted by averaged maturity and size of issue.

Appendix Table II
RAW DATA ON CALIFORNIA ISSUES, 1981

LOCAL DEBT ISSUED IN CALIFORNIA IN 1981

Issuer	Issue Type	Principal (000's)	Neg./ Comp.	Legal Code
Alameda Co. Board of Education Public Facilities Corp.	BLR	$ 9,000	C	1
San Leandro Redevelopment Agency	RMR	20,000	N	2
San Leandro (Hospital Revenue)	HR	12,000	N	
Hayward Redevelopment Agency	PLR	4,400	C	3
Berkeley	TRAN	6,000	N	4
Oakland Redevelopment Agency	TA	2,600	C	3
Fremont	TRAN	4,000	C	4
Oakland	TRAN	16,000	C	4
Newark Redevelopment Agency	RMR	20,375	N	2
Hayward	BCP	1,410	N	5
Oroville-Wyandotte Irrigation District	ER	16,000	C	6
Butte County Library Corp.	BLR	2,800	C	7
Chico	1915	4,804	N	8
Calaveras County Water District	1915	819	N	8
Pleasant Hill Redevelopment Agency	TAn	5,500	C	3
Pittsburg Redevelopment Agency	RMR	31,250	N	2
Contra Costa County	TRAN	30,000	C	4
Richmond	TRAN	8,250	C	4
Clovis	GO	900	C	9
Fresno County	TRAN	35,000	C	4
Reedley	GAN	2,570	N	10
Fresno	1915	1,258	C	8
Fresno County (Housing Finance Revenue - FHA insured)	RMR	40,000	N	
Arcata Public Improvement Corp.	RLR	1,495	C	7
Pioneer Memorial Hospital Public Facilities Corp.	BLR	2,800	C	7
North of the River Municipal Water District	1915	3,518	C	8
Redbud Hospital District	HR	4,500	N	11
Los Angeles Co. - El Monte Comp. Health Center Authority	BAN	23,000	C	12
Beverly Hills Parking Authority	PLR	6,650	C	14
Monrovia Redevelopment Agency Public Parking Fac. Authority	PLR	8,365	C	15
Los Angeles Redevelopment Agency	RMR	16,165	N	2
Los Angeles Co. - El Monte Comp. Health Center Authority	BLR	20,000	C	13
Los Angeles Redevelopment Agency	RCL	15,285	N	2
Huntington Park Redevelopment Agency	TA	3,320	C	15
Los Angeles County	TAN	450,000	C	4
Glendale Redevelopment Agency	CIN	6,220	C	15
Los Angeles Redevelopment Agency	RCL	2,735	C	2

Issuer	Issue Type	Principal (000's)	Neg./ Comp.	Legal Code
Pasadena (Marks Historical Rehabilitation Notes)	HRN	$ 1,000	N	
Huntington Park Redevelopment Agency	RMR	40,000	N	2
Los Angeles LOMOD Development Corp.	RCL	47,180	C	16
Los Angeles LOMOD Development Corp.	RCL	47,100	N	16
Pomona Redevelopment Agency	RMR	118,500	N	2
Southern California Rapid Transit District	RAN	31,500	C	4
Huntington Park Redevelopment Agency	TA	2,675	N	15
Cresenta Valley County Water District	1915	7,060	N	8
Palmdale Civic Center Corp.	BLR	5,000	C	7
Industry Redevelopment Agency	BAN	70,000	C	15
Industry Redevelopment Agency	BAN	7,000	C	15
Industry	GO	25,000	C	9
Duarte Redevelopment Agency	RMR	15,750	N	2
Metropolitan Water District of Southern California	BAN	100,000	C	17
Los Angeles County	TRAN	125,000	C	4
Los Angeles County (Revolving Credit and Related Notes)	RCA	75,000	N	
Bellflower Public Facilities Corp.	BLR	4,250	C	7
Los Angeles Redevelopment Agency	TA	30,000	C	15
Los Angeles (Certificates of Participation)	BCP	3,460	C	
Culver City Redevelopment Agency	TA	14,995	C	15
Los Angeles Redevelopment Agency	RMR	30,610	N	2
Pasadena (Historical Rehablitation Revenue)	HRB	2,140	N	
Belvedere	SR	1,100	C	18
Southern Marin Sewerage Agency	SR	4,000	C	19
Mendocino County	TRAN	8,000	C	4
Merced Union High School Dist.	TRAN	2,400	C	4
Monterey Regional Water Pollution Control Agency	SR	18,000	C	19
Napa	CMRN	1,500	N	23
Anaheim Redevelopment Agency	CMRN	2,800	N	4
Irvine Ranch Water District, Improvement District #102	GO	1,575	C	20
Irvine Ranch Water District, Improvement District #103	GO	275	C	20
Irvine Ranch Water District, Improvement District #105	GO	2,100	C	20
Irvine Ranch Water District, Improvement District #106	GO	1,505	C	20

Issuer	Issue Type	Principal (000's)	Neg./ Comp.	Legal Code
Irvine Ranch Water District, Improvement District #109	GO	$ 800	C	20
Irvine Unified School District	RMR	1,000	C	9
Santa Ana Redevelopment Agency	TRAN	15,730	N	2
Orange County	TRAN	50,000	C	4
Brea	TRAN	2,000	C	4
Brea-Olinda Unified School District	TRAN	1,775	C	4
Capistrano Unified School District	TRAN	7,500	C	4
Fullerton School District	TRAN	2,200	C	4
Fullerton Union High School District	TRAN	4,100	C	4
Huntington Beach City School District	TRAN	1,500	C	4
Huntington Beach Union High School District	TRAN	6,000	C	4
Irvine Unified School District	TRAN	8,500	C	4
Laguna Beach Unified School District	TRAN	800	C	4
Newport-Mesa Unified School District	TRAN	5,500	C	4
Palcentia Unified School District	TRAN	4,700	C	4
Irvine Ranch Water District, Improvement District #102	GO	1,250	C	20
Irvine Ranch Water District, Improvement District #103	GO	4,450	C	20
Irvine Ranch Water District, Improvement District #105	GO	2,600	C	20
Irvine Ranch Water District, Improvement District #106	GO	1,170	C	20
Irvine Ranch Water District, Improvement District #102	GO	3,745	C	20
Irvine Ranch Water District, Improvement District #103	GO	3,750	C	20
Irvine Ranch Water District, Improvement District #105	GO	7,950	C	20
Irvine Ranch Wter District, Improvement District #106	GO	3,570	C	20
Yorba Linda County Water District, Improvement District #2	GO	7,875	C	21
South Coast Air Quality Management District	RN	2,000	C	4
Santa Ana	1915	3,500	C	8
Moulton-Niguel Water District, I.D. #7	GO	2,500	C	22
Moulton-Niguel Water District, I.D. #8	GO	4,400	C	22
Placer County	TRAN	12,000	C	4

Issuer	Issue Type	Principal (000's)	Neg./ Comp.	Legal Code
Tahoe-Truckee Sanitation District	SR	$ 13,890	C	19
Auburn	1915	1,172	N	8
Placer County	1915	366	C	8
Western Municipal Water District	1915	2,090	N	8
Corona	1915	10,409	N	8
Riverside County	TRAN	45,000	C	4
Palm Springs Public Facilities Corp.	BLR	18,000	C	7
Rancho California Water District	GO	23,000	C	20
Rancho California Water Facilities Corp.	BLR	4,600	C	16
Norco	1915	594	C	8
Riverside County	RMR	21,830	N	30
Sacramento Municipal Utility District	ER	50,000	C	18
Sacramento Municipal Utility District	ER	60,000	C	18
Sacramento County	1915	3,244	N	8
Sacramento	TRAN	9,500	C	4
San Bernardino Redevelopment Agency	TA	5,100	C	15
San Bernardino Redevelopment Agency	TA	4,800	C	15
San Bernardino Redevelopment Agency	TA	1,800	C	15
San Bernardino	1915	3,000	N	8
Grand Terrace Redevelopment Agency	RMR	30,000	N	2
San Bernardino	HR	27,500	N	23
San Bernardino Redevelopment Agency	TA	5,600	N	15
San Bernardino Redevelopment Agency	TA	5,700	N	15
San Bernardino Co. Housing Finance Authority	RCL	2,775	N	
San Bernardino Co. Housing Finance Authority	RCL	2,795	N	
San Bernardino County	TAN	27,500	N	4
San Bernardino County	1915	3,733	C	8
San Bernardino Redevelopment Agency	TA	4,300	C	15
Carlsbad Parking Authority	PLR	1,500	C	14
San Diego Open Space Park Facilities District	GO	15,000	C	23
San Diego County	TRAN	35,000	C	4
San Marcos	1915	1,097	N	8
Chula Vista Redevelopment Agency	CMR	4,000	N	2
San Diego	TAN	23,000	N	4

Issuer	Issue Type	Principal (000's)	Neg./ Comp.	Legal Code
Vista (Commercial Mortgage Revenue - Faith Gardens)	CMR	$ 9,995	N	
Cardiff Sanitation District	SR	1,300	C	19
Solana Beach Sanitation District	SR	1,000	C	19
San Diego Redevelopment Agency	RMR	26,260	N	2
San Francisco	SR	50,000	C	19
San Francisco Redevelopment Agency	RCL	6,842	N	2
San Francisco Redevelopment Agency	RMR	7,385	N	2
San Francisco Redevelopment Agency	RMR	6,075	N	2
Arroyo Grande	1915	405	C	8
El Paso de Robles	1915	760	C	8
El Paso de Robles	1915	48	C	8
San Luis Obispo County	TRAN	8,300	C	4
Brisbane Redevelopment Agency	BAW	4,900	C	3
Brisbane	1915	2,000	C	8
Santa Maria	GAN	2,055	N	4
San Jose	1915	1,800	N	8
Gilroy	SR	1,000	N	19
Santa Clara County	TRAN	100,000	C	4
Northern California Power Agency	ER	40,000	C	24
Milpitas	BCP	2,590	N	25
San Jose	TRAN	21,250	N	4
Palo Alto (Health Facility Revenue)	HR	9,570	N	
Santa Clara	1915	1,059	N	8
Mountain View	1915	1,005	N	8
San Jose	1915	244	N	8
San Lorenzo Valley Water District	1915	38	C	8
Santa Cruz County	TRAN	15,000	C	4
Santa Cruz County	1915	36	C	8
Santa Cruz County	1915	275	C	8
Solano County	TRAN	15,000	C	4
Solano Irrigation District	ER	17,000	C	26
Fairfield Redevelopment Agency	RMR	22,625	N	2
Santa Rosa	1915	1,085	N	8
Santa Rosa	1915	1,104	N	8
Santa Rosa	1915	842	N	8
Santa Rosa	1915	158	N	8
Yuba City	1915	79	C	8
Ventura County Waterworks District #19	WR	1,500	C	19
Simi Valley	1915	539	C	8

Issuer	Issue Type	Principal (000's)	Neg./ Comp.	Legal Code
Ventura County	TRAN	$ 40,000	C	4
Port of Ventura (Certificates of Participation)	BCP	9,550	N	
Moorpark County Sanitation District	GO	1,700	C	27,28
Ventura County Waterworks, District #1	GO	750	C	27,29
Marysville	CMR	1,800	C	2

STATE DEBT ISSUED IN CALIFORNIA IN-1981

Issuer	Issue Type	Principal (000's)	Neg./ Comp.	Legal Code
California Housing Finance Agency	BAN	$ 25,000	C	e
California	GO	65,000	C	h,i,j
California Educational Facilities Authority	HER	18,000	N	c
California Housing Finance Agency	RMR	36,300	C	e
California Educational Facilities Authority	HERN	8,500	N	c
California Pollution Control Finance Authority	SBPCR	9,475	N	a
California Housing Finance Agency	BAN	25,000	C	e
California Educational Facilities Authority	HER	53,150	C	c
California Educational Facilities Authority	HER	24,000	C	c
California Pollution Control Finance Authority	PCR	26,500	N	a
California Pollution Control Finance Authority	PCR	60,000	N	a
California Housing Finance Agency	RHR	27,500	C	e
California	VET	150,000	C	d
California Transportation Commission	BR	25,000	C	g
California Department of Water Resources	BAN	150,000	C	f
California Health Facilities Authority	HR	8,000	N	b
California Pollution Control Financing Authority	PCR	8,300	N	a
California	GO	100,000	C	h,i,k,l
California Health Facilities Authority	HR	40,000	N	b
California Educational Facilities Authority	HER	14,000	N	c
California Pollution Control Finance Authority	PCR	13,400	N	a
California Health Facilities Authority	HR	52,800	N	b
California Pollution Control Financing Authority	PCR	70,000	N	a
California Educational Facilities Authority	HERN	10,000	N	c
California Health Facilities Authority	HR	9,945	N	b
California Department of Water Resources	BAN	100,000	C	f

Issuer	Issue Type	Principal (000's)	Neg./ Comp.	Legal Code
California Health Facilities Authority	HR	$ 28,000	N	b
California Housing Finance Agency	RCL	100,000	N	e
California Pollution Control Financing Authority	SBPCR	15,575	N	a
California Housing Finance Agency	RHR	29,300	C	e
California	VET	100,000	C	d
California Pollution Control Financing Authority	PCR	10,500	N	a

TYPES OF LOCAL DEBT ISSUES IN 1981

1915	1915 Act Special Assessment Bond
BAN	Bond Anticipation Note
BCP	Building/Facility Certificates of Participation
BLR	Building/Facility Lease Revenue Bond
CIN	Capital Improvement Note (Payable from any available revenues)
CMR	Commercial Mortgage Revenue Bonds
CMRN	Commercial Mortgage Revenue Notes
ER	Electrical System Revenue Bond
GAN	Grant Anticipation Note
GO	General Obligation Bond
Hr	Hospital Revenue Bond
HRB	Historical Rehabilitation Bond
HRN	Historical Rehabilitation Note
PLR	Parking Facility Lease Revenue Bond
RAN	Revenue Anticipation Note
RCA	Revolving Credit Agreement
RCL	Residential Construction Loan
RLR	Recreational Facility Lease Revenue Bond
RMR	Residential Mortgage Revenue Bond
RN	Revenue Note
SR	Sewer Revenue Bond
TA	Tax Allocation Bond
TAn	Tax Allocation Note
TABAN	Tax Allocation Bond Anticipation Note
TAN	Tax Anticipation Note
TRAN	Tax and Revenue Anticipation Note
WR	Water Revenue Bond

TYPES OF STATE DEBT ISSUES IN 1981

BAN	Bond Anticipation Note
BR	Bridge Revenue Bond
GO	General Obligation Bond
HER	Higher Education Facility Revenue Bond
HERN	Higher Education Facility Revenue Note
HR	Hospital Revenue Bond
PCR	Pollution Control Revenue Bond
RCL	Residential Construction Loan
RHR	Rental Housing Revenue Bond
RMR	Residential Mortgage Revenue Bond
SBPCR	Small Business Pollution Control Revenue Bond
VET	Veterans Housing Mortgage Revenue Bond

CODES AUTHORIZING LOCAL DEBT IN 1981

1) Title 1, Division 2, Part 2 of the California Corporation Code.

2) Chapter 8 (commencing with Section 33750), Part 1, Division 24 of the California Health and Safety Code.

3) Part 1, Division 4 of the California Health and Safety Code.

4) Article 7.6, Chapter 4, Part 1, Division 2, Title 5 (commencing with Section 53850) of the California Government Code.

5) Section 37350 of the California Government Code.

6) Section 20500 et. seq. of the California Water Code.

7) Nonprofit Corporation Law of the State of California.

8) Improvement Bond Act of 1915 (Municipal Improvement Act of 1913).

9) Voter approved general obligation.

10) Section 53939 et. seq. of the California Government Code.

11) Local Hospital District Law of the State of California.

12) Article 2, Chapter 5, Division 7, Title 1 (commencing with Section 6540 of the California Government Code.

13) Article 2, Chapter 5, Division 7, Title 1 (commencing with Section 6500 of the California Government Code.

14) Parking Law of 1949 (Part 2, Division 18 of the California Health and Safety Code).

15) Part 1, Division 24 (commencing with Sectio 33000) of the California Health and Safety Code.

16) Part 1, Division 2, Title 1 of the California Corporations Code.

17) Metropolitan Water District Act.

18) Revenue Bond Law of 1941 (commencing with Section 54300).

19) Revenue Bond Law of 1941.

20) California Water District Law, Division 13 of the Water Code of the State of California and Sections 53531.5 and 53541 of the California Government Code.

21) Division 12, Part 6, Chapter 2, Article 4 (commencing with Section 31425) of the California Water Code.

22) California Water District Law, Division 13 (commencing with Sectio 34000) of the California Water Code.

23) Pursuant to the powers of a Chartered City.

24) Chapter 5, Division 7, Title 1 (Section 65000 et. seq.) of the California Government Code.

25) Pursuant to the powers of a General Law City.

26) Irrigation District Law, (Section 20500 et. seq.) of the California Water Code.

27) Sections 53540 and 53541 of the California Government Code.

28) County Sanitation Districts Act (commencing with Section 4700).

29) County Waterworks District Law (commencing with Section 55000).

30) Chapters 1-5, Part 5, Division 31 (commencing with Section 52000) of the California Health and Safety Code.

CODES AUTHORIZING STATE DEBT IN 1981

a) Division 27 of the California Health and Safety Code (commencing with Section 44500).

b) California Health Facilities Authority Act.

c) California Educational Facilities Authority Act.

d) Veterans Bond Act of 1980.

e) Zenovich-Moscone-Chacon Housing and Home Finance Act (constituting Division 31 of the California Health and Safety Code).

f) Part 3 (commencing with Section 11000) of Division 6 of the Water Code of the State of California (Central Valley Project Act).

g) Chapters 1 and 2, Division 17, Streets & Highways Code of the State of California.

h) The State Beach, Park, Recreational, and Historical Facilities Bond Act of 1974 (Statutes 1972, Chapter 912, and Statutes 1973, Chapters 550, 1064, 1121 and 1174).

i) The Nejedly-Hart State, Urban and Coastal Park Bond Act of 1976 (Statutes 1976, Chapter 259).

j) The State School Building Aid and Earthquake Reconstruction and Replacement Bond Law of 1974 (Statutes 1974, Chapter 475).

k) The California Parklands Act of 1980 (Statutes 1980, Chapter 250).

l) The Clean Water Bond Law of 1974 (Statutes 1973, Chapter 994).

m) The Clean Water and Water Conservation Bond Law of 1978 (Statutes 1977, Chapter 1160).

Source: California Municipal Statistics

Appendix Table III
TYPES OF CALIFORNIA DEBT ISSUES IN 1981
(Thousands of dollars)

A.	Local Issues	
	1915 Act Special Assessment Bond	$ 61,601
	Bond Anticipation Note	204,900
	Building/Facility Certificates of Participation	17,010
	Building/Facility Lease Revenue Bond	66,450
	Capital Improvement Note (Payable from any available revenues)	6,220
	Commercial Mortgage Revenue Bonds	22,495
	Commercial Mortgage Revenue Note	4,300
	Electrical System Revenue Bond	183,000
	Grant Anticipation Note	4,625
	General Obligation Bond	115,865
	Hospital Revenue Bond	53,570
	Historical Rehabilitation Bond	2,140
	Historical Rehabilitation Note	1,000
	Parking Facility Lease Revenue Bond	16,515
	Revenue Anticipation Note	31,500
	Revolving Credit Agreement	75,000
	Residential Construction Loan	124,712
	Recreational Facility Lease Revenue Bond	5,895
	Residential Mortgage Revenue Bond	447,785
	Revenue Note	2,000
	Sewer Revenue Bond	90,290
	Tax Allocation Bond	80,890
	Tax Allocation Note	56,000
	Tax Allocation Bond Anticipation Note	--
	Tax Anticipation Note	450,000
	Tax and Revenue Anticipation Note	646,005
	Water Revenue Bond	$ 1,500
		$ 2,771,268
B.	State Issues	
	Bond Anticipation Note	300,000
	Bridge Revenue Bond	25,000
	General Obligation Bond	165,000
	Higher Education Facility Revenue Bond	109,150
	Higher Education Facility Revenue Note	18,500
	Hospital Revenue Bond	138,745
	Pollution Control Revenue Bond	188,700
	Residential Construction Loan	100,000
	Rental Housing Revenue Bond	56,800
	Residential Mortgage Revenue Bond	36,300
	Small Business Pollution Control Revenue Bond	25,050
	Veterans Housing Mortgage Revenue Bond	$ 250,000
		$ 1,413,245
		$ 4,184,513

Source: California Municipal Statistics, Inc.

Appendix Table IV
INDEBTEDNESS, DEBT TRANSACTIONS AND CASH AND SECURITY HOLDINGS
OF STATE AND LOCAL GOVERNMENTS, CALIFORNIA 1979-80
(Millions of dollars)

	Total	State	Local
Total Debt Outstanding	24,209.4	8,361.7	15,847.7
Long-Term	23,928.5	8,259.7	15,668.8
Full Faith & Credit	13,779.5	6,318.0	7,461.5
Non-Guaranteed	10,149.1	1,941.8	8,207.3
Short-Term	280.9	102.0	178.9
Long-Term Issues	3,021.0	1,097.8	1,923.2
Long-Term Retired	1,189.0	385.5	803.5
Cash & Security Holdings Total End of Fiscal Year	60,236.0	38,598.3	21,637.6
Insurance/Trust	36,360.0	27,355.7	9,004.2
Other	23,876.0	11,242.6	12,633.4

Source: U.S. Bureau of the Census, Government Finances in 1979-80 Series GF 80, No. 5 USGPO, 1981

Appendix Table V
Public Debt Outstanding Per Californian

	Cities		Counties		Schools		Special Dist.		State		Total	
	Debt (millions)	$ Per Capita	Debt (millions)	$ Per Capita	Debt (millions)	$ Per Capita	Debt (millions)	$ Per Capita	Debt (millions)	$ Per Capita	Debt (millions)	$ Per Capita
1969-70	2877.3	144.65	305.5	15.36	4696.3	236.09	5724.1	287.76	4692.4	235.89	18,295.6	919.75
1970-71	3183.4	157.65	313.9	15.54	4699.6	232.73	6245.1	309.27	5108.3	252.97	19,550.3	955.07
1971-72	3420.0	167.07	326.8	15.96	4687.6	229.00	5688.5	277.89	5487.1	268.06	19,610.0	957.99
1972-73	3783.5	182.45	316.7	15.27	4620.5	222.81	5891.8	284.12	5426.0	261.65	20,038.5	966.32
1973-74	3904.4	185.61	297.3	14.13	4595.4	218.45	6248.4	297.03	5470.7	260.06	20,516.2	975.29
1974-75	4306.3	201.47	282.5	13.22	4617.1	216.01	6933.3	324.38	5724.0	267.80	21,863.2	1022.89
1975-76	4334.1	199.20	264.2	12.14	4641.1	213.32	7393.9	339.84	5738.4	263.75	22,371.7	1028.25
1976-77	4476.1	201.95	248.3	11.20	4591.2	207.15	8364.8	377.40	6126.5	276.42	23,806.9	1074.12
1977-78	5373.5[a]	237.65	213.3	9.43	4386.2	193.99	9591.7	424.2	6296.2	278.46	25,860.9	1143.73
1978-79	5526.0[a]	239.50	205.0	8.88	2172.1[c]	94.14	9347.3	405.12	6720.7	291.28	23,971.1	1038.92
1979-80	6055.0[a]	257.29	180.8	7.68	1983.9[c]	84.30	10626.9	451.56	7545.5[d]	320.62	26,392.1	1121.45
1980-81	6424.2[a]	259.20	1189.3[b]	49.53	3503.7	145.91			7954.8	331.27		

a. Lease/Purchase obligations reported
b. Lease/Purchase first reported here
c. Explanation needed for sudden decrease
d. Revenue Bond Component of this amount is estimated

Source: Office of the State Controller, Office of the State Treasurer