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J. E. Prieger

University of California - Davis

T. A. Sexton

California State University - Sacramento

Annette M. Nellen

San Jose State University, annette.nellen@sjsu.edu

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Special Report / Viewpoint

The Taxation of Telecommunications In California in the Information Age

by James E. Prieger, Terri A. Sexton, and Annette Nellen

James E. Prieger is assistant professor of economics at the University of California, Davis. Terri A. Sexton is professor and chair of economics at California State University, Sacramento, and associate director of The Center for State and Local Taxation at UC Davis. Annette Nellen is professor of accounting and finance in the College of Business at San Jose State University.

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Tables in this excerpt are numbered for internal consistency; tables 1 through 4 here are tables 10 through 13 in the full report.

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Executive Summary

The telecommunications industry is undergoing rapid change due to technological advances and deregulation. The industry that began with the telephone now includes cable, wireless and satellite communications, and the Internet.

California's tax system has not kept pace with the telecommunications industry. The myriad taxes and charges on telecommunications in California were established for an industry that was legally, technologically, and structurally very different than it is today. Many taxes remain targeted to a

specific technology (for example, telephone taxes or cable franchise fees), despite the blurring of distinctions between technologies that provide similar services (for example, the telephone and Internet telephony). The convergence of formerly distinct communications technologies renders the existing tax structure difficult to justify in terms of economic efficiency or equity.

In this report, we review and analyze telecommunications taxes and fees in California. The primary objectives of our research were (1) to provide a comprehensive overview of the telecommunications tax system in the state, including all taxes, fees, and surcharges paid by telecommunications service providers and their customers; and (2) to examine the economic consequences of current tax policy, including inequity, inefficiency, and administrative complexity.

California's tax system has not kept pace with the telecommunications industry. The convergence of formerly distinct communications technologies renders the existing tax structure difficult to justify in terms of economic efficiency or equity.

As policymakers at all levels of government confront the challenge of reforming our tax system to encourage new technology and broad access to various telecommunications services, including Internet access, while at the same time addressing the needs of tax equity and revenue sufficiency, they must first have a clear understanding of the current tax system and the incentives it creates.

Tax Rates

We find that the cumulative tax rates (including all taxes, fees, and surcharges) are higher for telecommunications services than other goods and services. The total tax rate on intrastate services (for example, within-state long-distance) ranges from 7.83 percent to 18.83 percent and includes the federal excise tax of 3 percent, various statewide taxes and surcharges totaling 4.83 percent, and a local tax that varies across cities from zero to 11 percent.

The total tax rate on interstate services (that is, long-distance calls to other states) is even higher, ranging from 10.28 to 21.28 percent or higher. This rate consists of the 3 percent federal excise tax, a 7.28 percent federal universal-service charge

(which is sometimes passed on to consumers at a higher rate), and the zero to 11 percent local tax.

Equity

The distribution of the burden of current telecommunications taxes is not equitable according to any accepted equity principle. According to the benefit principle, the burden of a tax should be distributed according to the benefits received from the governmental activities financed by the tax. Many of the taxes imposed on telecommunications are revenue-based, and companies pass them along to consumers in proportion to their expenditure. However, the benefit these taxpayers receive from goods and services financed by these taxes is not linked to their tax burden in any way, as would be required by the benefit principle.

Furthermore, because the share of household income spent on telecommunications decreases as household income increases, the telecommunications tax burden is distributed regressively with respect to income. This violates the ability-to-pay principle, which holds that tax burdens should be distributed among taxpayers according to their ability to pay, typically as measured by income.

Finally, horizontal equity requires that taxpayers of equal ability to pay bear equal tax burdens, which is impossible with revenue taxation because taxpayers with similar incomes may spend differing amounts on telecommunications.

Taxation Differences Across Technologies

Today there are many alternatives to the traditional wireline telephone call, including wireless service and voice communication over the Internet (Internet telephony). Our research shows that the tax burden varies across technologies. For example, traditional telephone companies are subject to a much broader range of federal, state, and local taxes than are some of their new competitors (for example, cable or satellite providers).

Consumers of cable or satellite services do not pay the federal excise tax or federal and state taxes and charges to support universal service. The largest potential "leakage" for voice communications is Internet telephony, which escapes federal and state universal-service taxes, the federal excise tax, and the local utility tax.

Other potential sources of discriminatory tax treatment are local franchise fees, which cable companies pay and local exchange carriers do not, and property tax laws. The property of most telephone carriers is state-assessed annually at market value, while cable television companies are locally assessed with annual increases in assessed value limited to 2 percent.

There is little economic justification for these differences in treatment across technologies, because efficient taxes (which introduce the least distortion in consumer and producer decisions) depend on the demand for the final service produced, not on the technology underlying the service. Favoring one technology over another may reduce consumer and producer welfare over time.

Efficiency

Efficient economic outcomes maximize the total economic benefits received by consumers and firms. Excess burden, the term for the inefficiency caused by a tax, is the loss in a taxpayer's well-being above and beyond the tax revenue collected. Taxation of revenue causes excess burden because the higher prices that result decrease consumption of telecom-

munications services. The decrease in consumption and subsequent excess burden will be greater when taxing services such as cellular as compared with local-access service because cellular consumers are more sensitive to price changes. Excess burden is a pure efficiency loss in the economy, reducing the consumers' economic benefits by more than the amount of tax revenue that the taxing authority gains.

We estimate, very conservatively, that the current set of telecommunications taxes leads to at least a 4 percent efficiency loss, or excess burden, in California. We show that the efficiency loss can be reduced without affecting tax collections by raising the tax rate on revenue from local exchange access (whose demand is relatively insensitive to price) and lowering the rates on other services, such as long-distance and wireless communication.

The existing tax structure may also result in efficiency losses that compound over time — dynamic efficiency losses. Discrimination among telecommunications firms or between telecommunications companies and other companies distorts the rates of return on investment across companies, thereby reducing the economic benefits realized from the growth of the telecommunications industry and its various components.

Consumption Distortions

Consumers' choices between competing telecommunications services are affected by differences in taxes on these services. Consumers today have many avenues to avoid the taxes on traditional service. For example, Internet telephony services escape all telecommunications taxes, and consumers consequently have an added incentive to switch to Internet-based telephony. As consumers switch from taxed to untaxed services, federal, state, and local governments will see their tax revenues decline.

Differences Across Locations

Telecommunication costs vary among cities and counties in California due to variations in the local utility user tax (UUT) and local franchise fees. The UUT rate ranges from zero to 11 percent across cities; the UUT tax base also varies.

Our comparison to neighboring and other large states shows that California has a greater number of state telecommunications taxes, which raises administrative and compliance costs for telecommunications companies doing business in the state. California, however, does not impose relatively higher tax rates on telecommunications. Telecommunications taxes, therefore, probably play a negligible role in business or household decisions to locate in California, but may influence the siting choices of some heavy users of telecommunications within the state.

Conclusions and Recommendations

Telecommunications represents a major path by which future economic growth will continue to travel. Although the telecommunications industry is currently a relatively small part of California's overall economy — about 2 percent (measured by income) — it has been growing rapidly and contributing significantly to economic growth as it raises the productivity of a wide range of other industries. Hence, its total impact on the economy is much greater than its size suggests.

As noted, California's tax system has not kept pace with the telecommunications industry. Technological developments and deregulation have resulted in new entities that do not fit the traditional definition of telecommunications providers under

state tax laws. This situation results in differing treatment of businesses competing to provide the same service. The current treatment of the industry violates basic principles of good taxation; in that it is inefficient, inequitable, and creates excessive administrative and compliance costs.

If developing the telecommunications infrastructure, and hence the economy as whole, is a goal of state economic policy, then tax policy should support this goal by encouraging (or at least not discouraging) investment in California's telecommunications industry.

California should extend the manufacturers' investment credit and sales tax exemption for new equipment purchases to telecommunications companies.

Although our chief objective has been to present information rather than to advocate particular reforms, we conclude by suggesting a few improvements our analysis points to. These may lay the groundwork for potential reform of California's telecommunications tax system. Some of these recommendations can be implemented unilaterally by the state. Others require California to cooperate with local governments or with other states.

California should extend the manufacturers' investment credit (MIC) and sales tax exemption for new equipment purchases to telecommunications companies. The primary purpose of the MIC and sales tax exemption on equipment purchases is to avoid the pyramiding of taxes that can occur when both the inputs used to produce goods and services and the goods and services themselves are subject to the sales tax. While not subject to the sales tax, telecommunications services are subject to other taxes that total more than the sales tax. Because the MIC is intended to encourage investment, there is no reason for excluding telecommunications, given their importance in the New Economy.

California should examine whether the income apportionment rules for its corporate franchise and income taxes are appropriate for telecommunications services. All states must cooperate to ensure that multi-state income is being apportioned to the proper states to avoid double taxation.

California should work with other states and the federal government to establish new nexus guidelines for the Information Age. Federal Public Law 86-272 limits a state's power to tax an out-of-state company's income from sales of tangible property within the state, when the property is shipped from out of state. This law should be broadened to cover intangibles, such as telecommunications and Internet services, and extended to other types of taxes.

California should, in cooperation with its local governments, simplify and consolidate the various taxes and charges imposed on end-user revenues by local jurisdictions and the Public Utilities Commission. California telecommunications customers currently pay

seven different statewide taxes, fees, or surcharges in addition to the federal excise tax and universal-service charges, and possibly a local utility user tax on their purchases of telecommunications services. Consolidation of statewide charges would significantly reduce the administrative burden of telecommunications companies in the state. Switching to a simple per-line charge to fund universal-service programs would result in fewer consumption distortions, less excess burden from taxation, and greater efficiency. If nonuniform rates are desired, long-distance service should be taxed less than local service to minimize the efficiency loss caused by taxation (which is the opposite of the current tax structure).

California should encourage local jurisdictions to unify the local utility user tax. The compliance burden on telecommunications companies could be significantly reduced if local jurisdictions were to adopt a uniform rate and base for the utility user tax.

California should establish uniform assessment of business property. Neither the assessed value of business property nor the allocation of the property tax revenue from a particular property should be dependent upon who assesses it. Market-value assessment would be the most equitable and efficient method.

California should urge local governments to examine their local franchise fees. Local franchise fees should be set to cover no more than the costs to local governments of managing public rights-of-way, not to fund general municipal budgets. All providers of telecommunication services should be equally subject to these minimal franchise fees so as to avoid competitive advantages that influence the future development of new technologies.

California and other states should urge the federal government to clarify issues regarding Internet and cable telephony. Currently, telephone calls placed over the Internet are not subject to federal, state, or local taxes, and thus enjoy a competitive advantage. As the quality of such calls improves, more consumers will switch, which may lead to decreased economic efficiency and reduced government revenues. Certain forms of cable telephony raise unresolved issues regarding the applicability of the franchise fee and whether the property is subject to state or local assessment.

California and other states should monitor and work with the federal government in its efforts to restrict state and local tax systems. Maintaining a competitively neutral tax system in California may require expanding the tax base to include previously untaxed services, such as Internet access. Currently, federal and state moratoriums prevent such reforms.

California should work with local governments to provide uniform relief for low-income individuals and households. The taxes currently imposed on telecommunications services are regressive: Taxes represent a larger percentage of a low-income household's income than a high-income household's. A few cities offer UUT exemptions for low-income individuals, and

some relief from statewide surcharges exists, but the relief is not uniform.

Social And Economic Consequences Of Existing Telecommunications Tax Policy

In this section, we examine the social and economic consequences of the existing tax policy. Given the importance of telecommunications to the modern social fabric, there are undoubtedly many social implications of tax policy that are outside the scope of this project. We focus on a few issues relating to the *equity* of the current tax policy regarding telecommunications. We also consider the economic consequences of the taxes, discussing administrative costs and the static and dynamic *efficiency* losses from the current tax structure.

Equity

Central to most notions of good taxation is that taxes should be equitable. Oddly, there is no simple definition of “equity” that sets a clear legal standard for taxation in the United States. Therefore the term “equitable” may mean very different things to different interest groups. Below we discuss different concepts of equitable taxation, as they apply to equity among consumers and equity between telecommunications providers and end-users.

Equity Among Consumers

In this section we discuss three of the more common notions of equity among legal theorists and apply them to current telecommunications tax policy: the *benefit principle*, the *ability-to-pay principle*, and the *horizontal-equity principle*.¹

The benefit principle. According to the benefit principle, the burden of a particular tax should be distributed according to the benefits that taxpayers receive from the government activities financed by the tax. A tax in the present context that clearly violates the benefit principle is the federal excise tax (FET) levied on telecommunications. Because neither telecommunications providers nor their customers benefit disproportionately from the broad range of goods and services financed in the federal budget, the benefit principle implies that there is no rationale for the FET. However, the benefit principle is sometimes cited to justify taxing telecommunications services when the revenue is used to fund telecommunications-related programs, such as universal-service programs.

The presence of positive network externalities is often cited as justification for universal-service programs. Network externalities exist when the benefits of the telecommunications network to any individual subscriber increase as the number of subscribers increases. Therefore, all subscribers to the network benefit from the addition of a single subscriber. Some proponents of universal service argue that because telecommunications users are the primary beneficiaries of network expansion through universal service, then according to the benefit principle they should bear the burden of financing these programs.

This argument is deficient on several counts. While the theory behind the network externalities idea is formally correct,

it probably has little actual relevance in California today. First, in a highly developed country like the United States, with a high household telephone penetration level (95.1 percent nationwide, 97.0 percent in California), anyone picking up a telephone can reach hundreds of millions of other subscribers. The value of one more subscriber to any one user is virtually zero.² In the few cases in which adding a new subscriber would be of benefit to a particular existing subscriber (perhaps because the new subscriber is a relative or friend), the argument for private subsidization is stronger than that for public subsidization.³

In fact, non-negligible network externalities are likely to be found, if anywhere, among lower-income and rural communities of subscribers — communities whose members are ostensibly being added to the network by universal-service programs. A straightforward application of the benefit principle would place a relatively higher taxation burden on these communities, which is obviously not the actual practice.

It is not at all clear that those who consume more telecommunications services necessarily benefit more than those who consume fewer.

The other main problem with using the benefit principle to justify universal-service funding mechanisms is that it is not at all clear that those who consume more telecommunications services necessarily benefit more than those who consume fewer. Recall that the universal-service taxes are revenue taxes, not per-line charges. Why should the benefit received from using the network be directly proportional to the amount of money spent on telecommunications (that is, the number or duration of calls)? Those who espouse the network externality argument for universal service often mention the “option value” externality: even if an existing user never calls the new subscriber added to the network, the existing user still benefits because of the option to call the new subscriber. The option has value, even if it is not exercised. Again, while this argument is formally correct, the magnitude of the option value is probably minuscule in most cases. More germane to the present argument because the option value does not correspond to revenue (at all, if the option remains unexercised), the benefit clearly cannot be proportional to realized telecommunications revenue. Thus, using the benefit principle to justify revenue taxation for universal-service purposes is an informal argument that careful analysis does not support.

The emergency telephone service (911) fee could also be justified as a charge that benefits telecommunications users. The argument here would rest not on network externalities but on social externalities. If there is value to society from an individual being able to use a telephone in case of a police, fire, or medical emergency, then telephone network access creates social externalities beyond the purely private benefits to the

¹ See Rakowski (2000) for a good overview of the benefit and ability-to-pay principles (albeit in a different taxation context). He refers to the ability-to-pay principle as a particular case of the “fair sacrifice” doctrine.

² Belinfante (2002), Tables 1 and 2, pp. 6 and 8.

³ Crandall and Waverman (2000) argue against network externalities as a justification for universal-service programs at all.

caller. Again, however, the benefit principle rests not on merely identifying externalities or benefits, but on linking the burden of taxation to the accrual of the benefits. Once again, there is little reason to think that the social externalities created by universal 911 access are proportional (or even correlated at all) with the expenditure by an individual on telecommunications. The current system of financing universal and emergency services from revenue taxes, as opposed to flat charges, can be justified by the benefit principle only if the benefits can be linked directly to expenditure, which clearly cannot be done.

Another problem with using the benefit principle to justify the 911 fee is that its revenue is not used solely to fund 911 services. As Andal (1996) points out, the funds collected are deposited into an account in the state's general fund. Because it is a general fund account, it has periodically been raided to support non-telecommunications obligations.⁴

Finally, consider the utility user taxes (UUTs) that municipalities may place on telecommunications. Businesses and individuals benefit directly or indirectly from a range of public goods and services provided by state and local governments, such as a judicial system, police and fire protection, roads, and schools. But there is no evidence that telecommunications providers and their customers receive special benefits from these services or impose higher costs to justify higher tax burdens for providing these services than are faced by other businesses or consumers. The benefit principle provides no rationale for imposing higher income, property, or transactions taxes on this industry.

We close this section by noting that none of our arguments here should necessarily be construed as arguments against telecommunications taxation. We are merely pointing out that careful analysis leads us to conclude that any attempt to justify such taxation by appealing to the benefit principle is ill-reasoned at best and deceptive at worst. The true motivation underlying revenue taxation appears to be redistributive in nature (that is, the more affluent should subsidize the less affluent).

The ability-to-pay principle. The ability-to-pay principle holds that tax burdens should be distributed among taxpayers according to their ability to pay, typically as measured by income. The incidence of a tax is often measured in terms of the percentage of income paid in taxes. A tax is said to be *regressive* if the percentage of income paid in tax falls as income rises, *proportional* if the percentage of income paid in taxes stays the same as income rises, and *progressive* if the percentage of income paid in taxes rises as income rises. Strict adherence to the ability-to-pay principle requires proportional taxation, although policymakers often use the ability-to-pay principle loosely to justify progressive, redistributive taxation as well. Regressive taxes violate the ability-to-pay principle by any definition.

Evidence suggests that the consumer burden of telecommunications taxes is distributed regressively with respect to

income. In fact, the Congressional Budget Office reports that the burden of the FET is distributed even more regressively than federal taxes on alcoholic beverages and tobacco, two taxes widely believed to be highly regressive.⁵ To show that ad valorem (revenue-based) taxation of telecommunications is regressive, one need merely note that the share of income spent on telecommunications decreases as the income of the household increases. A constant revenue tax rate plus a decreasing share of income devoted to telecommunications services means that higher-income households bear proportionately less burden than do low-income households. Using 1998 figures from the Consumer Expenditure Survey, Cordes, et al. (2000) calculate that the share of telecommunications taxes paid by households with annual incomes less than \$40,000 exceeds these households' shares of total income. For example, although households earning \$5,000 to \$10,000 annually have only 1.8 percent of total income in the United States, they bear 6 percent of the telecommunication tax burden — a highly regressive outcome. These calculations apply to *any* revenue-based form of taxation, be it federal, state, or local.

The horizontal equity principle. A subcomponent of the ability-to-pay principle is the horizontal equity principle, which states that among taxpayers of equal ability to pay, the tax burden should also be equal. Clearly, horizontal equity is a necessary but not sufficient condition to satisfy the ability-to-pay principle described in the previous section. Ad valorem taxation violates the principle of horizontal equity (and therefore the ability-to-pay principle) if subscribers of similar incomes spend differing amounts on telecommunications, which is clearly the case. If the horizontal equity and ability-to-pay principles are to be taken seriously, then the current revenue taxation should be replaced with income-based taxation. In other words, by drawing the funding for universal service from the general income tax system, we would come closer to satisfying the ability-to-pay principle than does the current system of telecommunications-specific revenue taxation.

Equity Between Telecommunications Providers and Subscribers

Another equity consideration is the division of the tax burden between telecommunications providers and their subscribers. Given that there is no objective measure of equity between consumers and firms (especially so, given that consumers, as stockholders, are also the owners of the firms), "fairness" here is perhaps nothing more than what the median voter believes it is. Here, we confine ourselves to pointing out that the legal incidence of the tax (that is, the party upon whom the tax is legally levied) may be strikingly different than the economic incidence of the tax (who actually pays the tax).

In the simplest textbook arguments, the legal incidence of the tax bears no relation whatsoever to the economic incidence, which is determined solely by the responsiveness of supply and demand to price changes.⁶ The intuition is that even if the law

⁵ U.S. Congressional Budget Office (1987).

⁶ From the textbook model (which assumes homogeneous products and competitive supply) one derives that the share of the tax burden borne by consumers is $\epsilon_S / (\epsilon_S + |\epsilon_D|)$, where ϵ_S is the elasticity of supply and $|\epsilon_D|$ is the magnitude of the elasticity of demand. The elasticity of supply is the percentage change in quantity supplied due to a 1 percent increase in price; the elasticity of demand is the percentage change in quantity demanded due to a 1 percent increase in price (*see* also following note).

⁴ Andal (1996) points out that in fiscal 1991 and 1992, \$23 million was taken from the State Emergency Telephone Number Account. In fiscal 1993, \$15 million was diverted to the general fund, and in fiscal 1994, \$11 million was diverted. The California Assembly Utilities and Commerce Committee concluded that the approved upgrading of 911 facilities in 25 counties was delayed in 1993-94 because of the fund diversions.

requires the firms to pay the tax, they will shift at least part of the burden on to consumers through higher prices. The extent to which businesses are able to shift the tax burden forward to consumers in the form of higher prices depends in part on how sensitive consumers are to changes in price — a concept economists term the price elasticity of demand.⁷ The preponderance of evidence suggests that consumer demand for telecommunications services is relatively inelastic compared with supply elasticities.⁸ In this case, it is likely that consumers will bear a larger share of the tax burden on telecommunications services than do the providers.

Efficiency

The main contribution of economic theory to the field of taxation is an emphasis that some forms of taxation are more efficient than others. The key insight is that whenever taxes distort economic decisions made by producers and consumers, they impose efficiency costs on the economy. Simply put, some of the potential economic benefits that could accrue to producers or consumers are thrown away when there is inefficient taxation. Whenever a tax system is inefficient, a more efficient system could raise the same tax revenue with less economic harm done to consumers and firms. Another implication of inefficiency is that a more efficient tax system could raise more tax revenue and do no more harm to consumers and firms than the current system does. In this section, we discuss three areas of concern in California: the lack of administrative simplicity, static efficiency, and dynamic efficiency in the current telecommunications tax system.

Administrative Simplicity

In California, the evidence indicates that the current taxation system places higher administrative and compliance costs on telecommunication firms than on other types of firms. The more taxes, fees, surcharges, and excises that are levied on a good, the more administration (accounting, database, and billing costs) is required to comply with the law. Similarly, the more tax jurisdictions to which a firm is subject, the more administration is required. These administrative costs are pure losses to the economy because they are expenses incurred without creating anything of value for society and they take resources (such as labor, computer processing and storage, etc.) away from other productive uses. This notion is completely independent of the value of the programs funded by the taxes.

According to the Council on State Taxation (2002a), the number of taxes imposed on telecommunications businesses nationwide is more than three times the number imposed on non-telecommunications vendors (391 versus 118). Further-

more, telecommunications providers must deal with 929 more transaction tax bases and 6,956 more taxing jurisdictions than businesses in other sectors. The result is that in 2001 a full-service telecommunications provider, operating nationwide, had to file a mind-boggling 66,918 tax returns compared with 8,284 for sellers of most other goods and services.

Static Efficiency

Telecommunications taxes may distort consumers' and producers' decisions by driving a wedge between the price the consumer pays for the service and the revenue the firm keeps for providing the service. The wedge raises prices for consumers and lowers the net revenue for the firms. The distortions in consumers' and firms' consumption and production decisions result in efficiency losses. These losses are static, in the sense that their calculation takes current consumer tastes and producers' technology and productive capacity in the industry as given. Dynamic inefficiencies, discussed next, occur if the tax structure distorts the formation of consumer tastes, firms' investment decisions, or the progress toward competition in the industry.

In California, the evidence indicates that the current taxation system places higher administrative and compliance costs on telecommunications firms than on other types of firms.

If telecommunications taxes and charges raise the price of telecommunications services relative to other goods and services, consumers may respond by consuming fewer telecommunications services. When consumers or businesses alter their behavior in response to taxes, an excess burden is generated — a loss of economic well-being above and beyond the tax revenues collected.⁹ The magnitude of this excess burden increases in proportion to the magnitude of the consumer response, as measured by the price elasticity of demand. An important aspect of excess burden is that it increases geometrically with the tax rate. In particular, the excess burden from a revenue tax rises with the *square* of the tax rate. This implies, for example, that doubling a tax rate from 1 percent to 2 percent creates four times as much excess burden and forgone economic surplus. Estimates of the excess burden under the current tax system and under some alternatives are explored below.

Excess Burden From the Current State Telecommunications Tax System

Assessing the costs and benefits of the current telecommunications tax system in the state requires at least an estimate of the excess burden (EB) of the taxation. Standard formulas for approximating the excess burden of a tax require knowing the tax rate, the market revenue generated by the good, and the elasticity of demand. The simplest formula to estimate the loss in consumer benefits from a revenue tax of rate t on a set of N different services is as follows:

⁷ The price elasticity of demand is a measure of the response of the quantity demanded to a change in price. Specifically, it is the percentage change in quantity demanded resulting from a 1 percent increase in price. If consumers do not alter their consumption very much in response to a price change, they are said to have an inelastic demand.

⁸ The elasticity of telecommunications demand depends upon the service considered. Given that the bulk of telecommunications expenditure is on local and long-distance service, and that both of these have been consistently measured to have inelastic demand (highly so, in the case of local service), it does not abuse the facts to speak of "telecommunications," as a composite good, as having inelastic demand. See Taylor (1994) for a review of elasticity estimates for various telecommunications services. Supply elasticities are harder to come by, but in a competitive market in the long run, theory suggests they are nearly infinite (and therefore certainly larger than demand elasticities).

⁹ Excess burden is also termed "deadweight loss" by economists.

$$EB = \frac{1}{2} t^2 \sum_{i=1}^N \epsilon_i R_i$$

where:

t is the revenue tax rate,
 ϵ_i is the elasticity of demand for service i with respect to its own price,
 and R_i is the market revenue (not the tax revenue) of service i .¹⁰

In this section we use this formula to estimate the forgone consumer benefits caused by the current set of telecommunications taxes. The figures we calculate are *underestimates* of the true lost economic benefits, for two reasons. First, the formula above implicitly assumes that all tax revenue is returned to consumers (or equivalently, that the governmental goods and services funded by the tax revenue are valued as highly as receiving the tax revenue as income would be). Second, we do not include lost producer benefits in the calculation.¹¹ Estimates of excess burden that include lost producer benefits may be extraordinarily larger. For example, in a similar calculation of excess burden in a different context, Prieger (1998) found that lost-producer benefits from telecommunications revenue taxation may be 10 to 26 times as high as lost-consumer benefits. These numbers will fall as the competitiveness of the supply side of the telecommunications market increases.

Table 1 (see next page) contains the results of our calculations. The main types of intrastate telecommunications services included in the calculation are basic local exchange service, intraLATA and interLATA toll calling, special-access services, and mobile wireless calling. Due to lack of data we cannot include such services as Internet access and cable telephony. Given that excess burden is nonlinear in the tax rate, the incremental damage to efficiency from state and local taxes is higher than it otherwise would be without the FET. The first line of Table 1 shows that the FET destroys about \$2.5 million in potential economic benefits per year. The incremental losses from state taxes are in the next line; the state fees of 4.83 percent destroy another \$14.6 million in potential benefits. Adding the median rate (5 percent) for the local UUT brings the incremental losses from state and local taxes to \$43.3 million.¹² Finally, if the UUT is set at the maximum observed rate in California (11 percent), the incremental excess burden from state and local taxes rises to \$96.1 million annually, or about 4 percent of the state and local tax revenue assumed to be raised in the calculations.

As we mentioned above, these efficiency losses are underestimates, because they do not include lost producer benefits. Including this part of the excess burden may raise the figures substantially. Hausman (1999), in an excess burden calculation that includes the producer side, has estimated that state and

local telecommunications taxes on wireless services result in an excess burden that averages roughly 50 cents for each dollar of revenue raised (at a 14.5 percent tax rate), which is about 12 times the highest loss we calculate.¹³ Hausman's percentage efficiency loss is higher than our calculation in part because he considers only wireless service, which has high demand elasticity relative to most other telecommunications services. Even so, our figure of 4 percent efficiency loss overall appears to be extremely conservative.¹⁴ For example, using the range of 10 to 26 times as much producer losses as consumer losses mentioned before, the efficiency loss would range from 38 percent to 98 percent of the tax revenue raised. These figures are only meant to be suggestive because they are based on producer losses estimated in another context.

Cordes, et al. (2000) provide another estimate of the excess burden. They claim that "the additional layer of federal, state, and local taxes imposed on long-distance services and wireless telephony could impose an excess burden of as much as \$7 billion" on the nation. Prorating at California's population share of 12 percent in the nation leads to an excess burden for the state of about \$888 million. Their estimate includes interstate as well as intrastate services; even so, our excess-burden calculations again appear to be quite conservative.

Alternative 1: Rebalancing tax rates. The message of the preceding paragraphs is not necessarily that telecommunications taxes are undesirable because they create excess burden. Excess burden is merely part of the cost side of the cost-benefit analysis of any tax system. Even if the benefits are determined to justify the costs, the tax system could be restructured to reduce the inefficiency, while raising the same amount of tax revenue. This subsection and the next explore such alternatives.

To equalize marginal excess burdens, tax rates must be higher on services for which demand is inelastic and lower on services for which demand is elastic.

Casual inspection of the formula for excess burden in the previous section reveals that relatively inelastic goods (for which the ϵ in the equation is small) generate less excess burden than do relatively elastic goods (for which ϵ is larger). This implies that telecommunications services should not all be taxed at the same rate, because their demand elasticities are not equal. The most efficient tax system is one that raises needed revenue with the least excess burden possible. The rule for optimal commodity taxation (the Ramsey Rule) states that in order to minimize overall excess burden, the additional (marginal) excess burden of the last dollar of revenue raised from each commodity must be the same. To equalize marginal excess burdens, tax rates must be higher on services for which demand is inelastic, and lower on services for which demand is elastic.

¹⁰ The formula is an approximation because it ignores income effects, higher-order (curvature) terms in the demand function, and cross-price effects. It also assumes that marginal cost (MC) is constant, although MC need not be known. This formula is commonly used by practitioners. See Auerbach (1985) for a discussion of formulas to measure excess burden.

¹¹ Estimating lost producer benefits requires knowledge of price and marginal cost, neither of which (particularly the latter) is easily available to us.

¹² Five percent is the median UUT rate among localities with a UUT greater than zero.

¹³ Hausman (1999) uses a different formula for the consumer side of the calculation, based on log-linear demand and the compensated demand function.

¹⁴ Especially so, given that we are not breaking out high-elasticity services like second phone lines, Internet access, and DSL in the calculations. See Cordes, et al. (2000) for elasticity estimates for some of these other services.

Taxes Included in Calculation	Cumulative Revenue Tax Rate	Annual Excess Burden on Consumers (\$Millions)	
		Total	Incremental Over FET
Federal Excise Tax (FET)	3.00%	\$2.50	—
FET + State Fees	7.83%	\$17.06	\$14.55
FET + State Fees + Median UUT (5%)	12.83%	\$45.80	\$43.29
FET + State Fees + Maximum UUT (11%)	18.83%	\$98.65	\$96.14

Notes: The services included in the calculation are basic local exchange service, intraLATA and interLATA toll calling, special-access services, and mobile wireless. Calculations use the formula in the text. Revenues used in the calculations are from Cavazos and Eisner (2001). Elasticity data are from Hausman (1997b) (wireless) and Prieger (1998) (all others).

The empirical literature on telecommunications demand suggests that elasticities vary widely across different services. Basic local exchange service has nearly completely inelastic demand. Demand for long-distance toll calling and wireless services is more responsive to price, and has higher elasticity. Applying the rule for optimal service-specific tax rates, then, implies that basic local exchange access should be taxed at a higher rate than other services. The optimal rebalancing tax rates are presented in Table 2 for three scenarios. In all scenarios, we assume that \$777 million in tax revenue must be raised, which is about the revenue from the current state telecommunications tax of 4.83 percent.¹⁵

For illustrative purposes, Scenario A in Table 2 ignores the federal excise tax (FET). The service-specific tax rates that raise the required revenue and that minimize excess burden (according to the above formula) range from 10.5 percent on local exchange access to less than 1 percent for wireless and toll calling. Because local access has highly inelastic demand, it bears the greatest burden. Excess burden totals \$770,000 in Scenario A.

In Scenario B, the excess-burden calculation includes the losses from the FET. However, the FET rate is assumed to be out of the control of the state-level policymaker, so that only the state tax rates can be adjusted. In this case, if negative tax rates (that is, subsidies) are not allowed, then the optimal rates are zero for all services except local access. Excess burden totals \$3.7 million in Scenario B (including the effect from the FET). Compare this amount with the estimated (incremental) excess burden of \$14.6 million from the current state taxes in Table 1: Rebalancing the service-specific rates leads to only a quarter as much excess burden.

In Scenario C, the rebalancing rates are not constrained to be positive. If subsidies are allowed, then the optimal state rates for the non-access services are negative. These rates are negative to “undo” part of the 3 percent FET, because the optimal cumulative rates are less than that. In this scenario, the excess burden falls to about \$2 million, nearly halving the efficiency losses in Scenario B.

These calculations show that efficient taxation calls for the lion’s share of the revenue to be raised from local exchange access. Thus, a charge like the current SLC (a per-line charge

on local access) is an efficient one. Even better, perhaps, would be to broaden the tax base, as we explore in the next section.

Alternative 2: Expanding the tax base. Because the excess burden in the preceding formula increases with the square of the tax rate, one often hears calls to broaden the revenue base on which a tax is applied, to reduce the tax rate and the excess burden. It is true that if there are no preexisting taxes, then the broadest revenue base possible results in the least efficiency loss. However, when there are preexisting taxes, broadening the revenue base may not improve efficiency. Here we explore two scenarios: broadening the state telecommunications tax base to include all telecommunications revenue, and including all revenue from any source.

First, consider removing the restriction that the state tax be levied only on intrastate revenue. Then the tax base increases from the 1999 figure of \$16.1 billion to \$22.1 billion. Increasing the base allows the state tax rate to be reduced. However, because the federal taxes already levied on interstate revenues are not in the control of California policymakers, any extension of state taxes to interstate revenues will increase the (already high) tax rates on interstate telecommunications services. For simplicity, consider the case in which all services will be taxed at the same rate. The result is labeled Scenario D in Table 3 (p. 774). Although the state tax rate drops from 4.8 percent to 3.5 percent, the excess burden *increases*. The efficiency gains of \$5.2 million from the decreased tax rates for intrastate services are outweighed by the extra efficiency losses of \$17.8 million from interstate services. Unilateral broadening of the tax base by state actors, without readjustment of the federal telecommunications tax system, cannot improve consumer welfare.

Similarly, broadening the telecommunications tax revenue base to include all revenue to which the general sales tax applies cannot improve efficiency either, given that the sales tax rate in California is already set at an average of 7.5 percent (refer to “Overview of Current State and Local Telecommunications Taxes in California” in the full report; to obtain, contact the California Policy Research Center). To demonstrate, we create Scenario E, in which the revenue requirement of \$777 million is to be raised by a tax levied on all intrastate telecommunications services and on all goods and services currently subject to state sales tax. We

¹⁵ This figure is based on California intrastate revenue of \$16.09 billion in 1999 (Cavazos and Eisner, 2001).

Table 2
Decreasing Excess Burden (Efficiency Loss) Through Rebalancing Tax Rates

Scenario		Service	Demand Elasticity	Intrastate Revenue (\$M)	FET Rate	Rebalanced State Tax Rate	Rebalanced Cumulative Tax Rate	Excess Burden (\$M)
A	Rebalancing Tax Rates — No FET	Local Exchange Access*	0.02	6,764	0.0%	10.5%	10.5%	0.743
		IntraLATA Toll	0.4	1,282	0.0%	0.4%	0.4%	0.005
		InterLATA Intrastate Toll	0.72	3,858	0.0%	0.2%	0.2%	0.009
		Mobile Wireless	0.51	4,193	0.0%	0.3%	0.3%	0.013
		Total			16,097			
B	Rebalancing Tax Rates — FET, No Subsidies Allowed	Local Exchange Access*	0.02	6,764	3.0%	10.9%	13.9%	1.298
		All other services	—	9,333	3.0%	0.0%	3.0%	2.443
		Total			16,097			
C	Rebalancing Tax Rates — FET, No Restrictions	Local Exchange Access*	0.02	6,764	3.0%	13.7%	16.7%	1.884
		IntraLATA Toll	0.4	1,282	3.0%	-2.4%	0.6%	0.011
		InterLATA Intrastate Toll	0.72	3,858	3.0%	-2.6%	0.4%	0.019
		Mobile Wireless	0.51	4,193	3.0%	-2.5%	0.5%	0.028
		Total			16,097			

* Revenue for local exchange access includes CLEC revenue.

Notes: Elasticity is defined to be $1\% \Delta Q / 1\% \Delta P$. The revenue data are from Cavazos and Eisner (2001). Elasticity data are from Hausman (1997b) (wireless) and Prieger (1998) (all others). Excess-burden figure is calculated using the formula in the text, and includes the effect of the FET where applicable. Rebalanced cumulative tax rates are applied to an adjusted revenue figure for each service. The percent change in revenue resulting from the new tax rates is estimated as $\% \Delta P + \% \Delta Q$, which is approximated by $\Delta t^*(1-\epsilon)$, where t is the tax rate. The tax revenue requirement is \$777 million.

assume an omnibus elasticity of 1.0 for sales-taxable goods and services. The tax base increases to about 30 times the existing amount, which allows the state telecommunications tax rate to drop from 4.8 percent to a mere 0.17 percent.¹⁶ Again, however, the efficiency gains from the decreased tax rates for intrastate telecommunications services are outweighed by the extra efficiency losses from general goods and services: excess burden would increase enormously under Scenario E.

Inefficiency increases in Scenario E because demand for telecommunications services tends to be more inelastic than for other goods and services. Recall that telecommunications services are currently not subject to state sales tax, and that the cumulative tax rate on intrastate services is about 7.8 percent, close to the state sales tax rate. Thus in Scenario E, starting from a point of roughly equal tax rates for telecommunications services and other goods, we raise the tax rate on the relatively elastic good (non-telecommunications goods) and lower it on the inelastic good (telecommunications). That is the opposite direction of rebalancing toward optimal rates. Once again, broadening the tax base does not necessarily improve consumer welfare when there are other taxes already in existence.

We close this section noting some caveats regarding Scenario E. Recall that we have not included the producer side of the excess-burden calculation. If we did, and if price-cost

margins are higher in telecommunications than they are for other goods and services, then the efficiency gains from the telecommunications services in Scenario E would be relatively larger. Given that we do not have data on margins, we cannot pursue this avenue. Furthermore, if we had data on revenue from newer services such as DSL and cable modem service, which have higher elasticity of demand, the efficiency gains from the telecommunications services in Scenario E would also be relatively larger.

Finally, it is important to note that if we use the maximum intrastate rate of 15.83 percent (state tax + FET + UUT of 11 percent), then expanding the tax base as in Scenario E may reduce the excess burden from taxation. Whether it does depends on the tax revenue requirement assumed. The more tax revenue that must be raised to “pay off” localities in lieu of their UUT revenue, the higher the final uniform tax rate must be, and the lower the potential efficiency gains.¹⁷ Therefore, the potential gains from expanding the tax base to include all sales-taxable revenue depend on both the extent to which policymakers

¹⁷ In particular, if the revenue requirement is kept at \$777 million (the amount raised by current state telecom taxes), as it is in Scenario E, replacing the existing state and local telecommunications taxes of 15.83 percent with a uniform lower rate of 0.17 percent decreases excess burden by \$9.8 million. However, if the revenue requirement is increased to \$2.548 billion (the amount raised by the assumed 15.83 percent state and local tax rate on intrastate revenue), replacing the existing state and local telecommunications taxes of 15.83 percent with a uniform lower rate of 0.56 percent increases excess burden by \$126 million.

¹⁶ The current sales tax base was taken to be \$440 billion, based on an extrapolation of available data for 2001 (California State BOE, *Taxable Sales in California (Sales & Use Tax)*, 2001, 1st and 2nd quarter).

**Table 3
Changes in Excess Burden (Efficiency Loss) Through Expanding the Tax Base**

Scenario		Service	Demand Elasticity	Revenue (\$M)	Current State Tax Rate	Current Federal Tax Rate	Proposed State Telecom Tax Rate	Proposed Cumulative Tax Rate	Incremental Excess Burden (\$M)		
D	Add Interstate Telecommunications Service to State Telecom Tax Base	Intrastate Revenue	Local Exchange Access*	0.02	6,764	4.83%	3.00%	3.51%	6.51%	-0.13	
			IntraLATA Toll	0.40	1,282	4.83%	3.00%	3.51%	6.51%	-0.49	
			InterLATA Intrastate Toll	0.72	3,858	4.83%	3.00%	3.51%	6.51%	-2.63	
			Mobile Wireless	0.51	4,193	4.83%	3.00%	3.51%	6.51%	-2.03	
			<i>Subtotal</i>		16,097						-5.27
		Interstate Revenue	Interstate Toll	0.72	490	—	10.28%	3.51%	13.79%	1.06	
			Mobile Wireless	0.51	5,499	—	10.28%	3.51%	13.79%	16.72	
			<i>Subtotal</i>		5,989						17.77
		Total				22,086					12.50
		E	Add All Sales-Taxable Revenue to State Telecom Tax Base	Sales Taxable Revenue		440,000	7.50%	0.00%	0.17%	7.67%	56.95
Intrastate Revenue	Local Exchange Access*			0.02	6,764	4.83%	3.00%	0.17%	3.17%	-0.09	
	IntraLATA Toll			0.40	1,282	4.83%	3.00%	0.17%	3.17%	-0.34	
	InterLATA Intrastate Toll			0.72	3,858	4.83%	3.00%	0.17%	3.17%	-1.84	
	Mobile Wireless			0.51	4,193	4.83%	3.00%	0.17%	3.17%	-1.42	
	<i>Subtotal</i>				16,097						-3.69
Total						456,097					53.26

* Revenue for local exchange access includes CLEC revenue.
 Notes: "Current State Tax Rate" for sales-taxable revenue includes the 7.25 percent state sales tax and an assumed 0.25 percent local assessment. See notes to Table 11.

are willing and able to reform the current system, and on the tax revenue requirement. Were this option to be pursued, analysis of the gains from expanding the tax base should be further explored on a proposal-by-proposal basis.

Dynamic Efficiency and Horizontal Equity Among Providers

The preceding paragraphs dealt with questions of static efficiency, in which technology and consumers' preference are taken as given. Over time, however, technology and preferences change. Technology changes as firms invest and innovate, and tastes change as consumers learn about and become comfortable with new products and services. When technology and tastes change merely because taxes distort the prices that consumers face and the profits firms receive, then questions of dynamic efficiency arise. Here we focus on the potential problems for investment incentives that unequal taxation of telecommunications firms might cause.

The theory of efficient investment and taxation. The economic theory of how taxation affects investment and dynamic

efficiency is large, but a few principles stand out. First, dynamic productive efficiency requires that the rates of return be equalized across assets. Required for this is equalization of effective tax rates across assets (where effective tax rates are a function of pre- and post-tax rates of return).¹⁸ Second, productive efficiency is generally desirable, even when distortionary taxation (such as revenue taxation, which changes asset prices) must be used.¹⁹

¹⁸ Jack and Viard (1996).

¹⁹ Productive efficiency is required for absolute economic efficiency (what economists term the "first best"). Even when distortionary taxes (those that change assets' values and prices) are unavoidable, the "second best" — the most efficient outcome possible, given that distortionary taxation must be used — also requires productive efficiency under certain conditions (Diamond and Mirrlees, 1971). Even when those technical conditions are not satisfied, moving toward productive efficiency generally improves economic welfare (Auerbach 1982, 1989). Thus, productive efficiency is generally desirable under a wide range of circumstances.

Various forms of taxation (corporate income taxes, sales taxes, revenue taxes, property taxes, per-line fees, etc.) affect the rates of return on assets through at least two channels.²⁰ First, taxes can change the “user cost of capital,” which is the opportunity cost of investing in a particular capital good. The user cost of capital might change because a tax investment credit (such as the manufacturers’ investment credit (MIC) in California) changes the effective purchase price of capital, or because taxes lower net cash flows resulting from the investment (through corporate income taxes, for example). Second, the rate of return on an asset is lowered when the (net) price of the output service produced with the asset falls, due to taxation of revenue or sales.

Therefore, the tax system will cause an efficiency loss if it discriminates among telecommunications firms (based on the technology used to deliver telecommunications services), or between telecommunications companies and other companies, in ways that change their rates of return. By altering the rates of return on investment, taxes can distort the growth of the telecommunications industry. For example, everything else being equal, more resources will be devoted to the least-taxed technology than would be in the absence of taxation.

Horizontal equity among telecommunications firms. There is evidence that the existing tax structure does not affect all types of telecommunications providers equally. Traditional providers of telecommunications services, such as telephone companies, are subject to a much broader range of federal, state, and local communications taxes than are some of their new competitors, such as cable or satellite providers. Consumers of cable or satellite services do not pay the FET or the myriad federal and state taxes and charges to support universal service. Some local governments do, however, include cable services in their UUT base.

There are currently no data available to measure the extent to which consumers are substituting Internet for traditional telecommunications, but it is sure to increase with improvements in the quality and ease of use of Internet telephony.

The current funding mechanisms for state and federal universal service treat different providers of voice communication more equally. For example, if a cable company offers local exchange service, it must register with the California Public Utilities Commission as a competitive local exchange carrier and then becomes subject to universal-service taxes. The largest potential “leakage” with respect to voice communications is Internet telephony. As described in the introductory section (and in Appendix A of the full CPRC report, “The History of Telecommunications in California: From Monopoly to Deregulation, a March Toward Technological Convergence”), Internet telephony may be a substitute for the tradi-

tional telephone network, and calling may be accomplished by the end-users themselves without any company contributing to universal service involved. If the universal-service tax rates keep rising, this leakage of tax revenue can only be expected to increase as Internet telephony becomes more accessible and user-friendly.

If the tax system discriminates based on the technology used to deliver telecommunications services, then the dynamic efficiency losses discussed in the previous subsection (*The theory of efficient investment and taxation*) will result. Unfortunately, we do not have the data (or an accepted methodology from the literature) to estimate the magnitude of these potential losses over time. Suffice it to say that dynamic losses are often much larger than static-efficiency losses, given that the effects of distortions compound over time, and that the potential welfare is higher when technology and the product mix can change.

In Appendix D of the full report, “Comparison of Telecommunications Tax Obligations,” we summarize the distinctions that the current system of taxation makes between telecommunications firms. As in the rest of this report, we focus on providers of two-way voice communication. Table D-1 in the appendix provides a comparison of the local, state, and federal taxes imposed on different types of telecommunications businesses in California. All telecommunications businesses, regardless of technology, are treated similarly regarding the state sales tax and the corporate franchise (income) tax. Discrimination across technologies occurs in the imposition of the numerous federal, state, and local taxes, surcharges, and fees based on end-user revenues, and the property tax.

State regulatory surcharges, taxes, and fees are imposed on the intrastate end-user revenues of all traditional wireline local and long-distance service providers in the state, as well as wireless mobile service providers. Similarly, all interstate end-user revenues of these providers are subject to the FET and federal universal-service fees. Paging (and other one-way communications services) and payphone services are exempt from the state (but not the federal) taxes. The local UUT also applies to intrastate, interstate, and wireless services in most jurisdictions that impose the tax. (See the second section of the full report, “Overview of Current State and Local Telecommunications Taxes in California,” and Appendix C, “Utility User Tax Information”).

Internet-telephony services escape all of these taxes and consequently enjoy a competitive advantage. Consumers of telecommunication services, particularly interstate services, have an incentive to switch to Internet-based telephony to avoid the high combined tax rate on traditional services. In the second section, we found that this rate is as high as 25.5 percent in some California cities. Recall that such tax-induced distortions in consumption lead to efficiency losses. In particular, the availability of a close substitute to traditional telecommunications services increases the price elasticity²¹ of demand for traditional services and, hence, the excess burden due to taxation.

There are currently no data available to measure the extent to which consumers are substituting Internet for traditional telecommunications, but it is sure to increase with improve-

²⁰ This paragraph follows Auerbach (1983). See his article for an explicit equation for the rate of return of a taxed asset.

²¹ See footnote 7.

ments in the quality and ease of use of Internet telephony. Another consequence of concern to federal, state, and local governments is the decline in revenue from these various taxes and the potential impact on the programs they fund.

Another potential source of discriminatory tax treatment is the local franchise fee. Cable companies pay franchise fees for the privilege of providing specialized services, as well as for the right to use public rights of way to lay their cables. In contrast, LECs are exempted by the state from paying such fees. However, as was previously mentioned, this exemption has been recently challenged as telephone companies have expanded to offer cable and information services. This discriminatory treatment and uncertainty regarding the exemption may result in dynamic efficiency losses if local telephone companies delay — or are discouraged from adding — cable services for fear of losing their state franchise exemption.

An argument could be made for either annual state assessment at market value for all telecommunications companies, defined broadly to include all companies providing competitive services, or local assessment for all.

Telecommunications companies are also treated differently under California's property tax laws. Currently cable television companies are locally assessed, while most telecommunications companies (LECs, CLECs, wireless) are state-assessed. Although there is no evidence that the current assessed values of either type of company would change significantly if their assessment status were switched, the perception of either current or future differences may influence firm activity. For example, a cable television company contemplating offering telecommunications services might be discouraged from doing so because it fears higher property taxes as a consequence. All of the taxable property of the cable company would be centrally assessed, not just the portion affiliated with the offering of telecommunications services. If the entire company was subjected to state assessment, it would lose whatever Proposition 13 protection that it had, either real or perceived. This reluctance may be justified if the market value of the company's real assets is expected to increase faster than 2 percent a year.

By a similar argument, the cable company that is currently locally assessed may be able to maintain a property tax advantage over any potential new entrant due to the acquisition value basis of assessment. Thus, to foster competition and level the playing field regarding property tax obligations, an argument could be made for either annual state assessment at market value for all telecommunications companies, defined broadly to include all companies providing competitive services, or local assessment for all.

Either solution, however, could have a significant impact on local government revenues because, under current law, property tax revenues from state-assessed and locally-assessed property are allocated much differently. State-assessed unitary values are allocated by the BOE to a countywide tax rate area in each county where the assessed has property. These revenues

are then allocated by statutory formula to *all* local entities within the county. Revenues from county-assessed property, on the other hand, are distributed only to those local jurisdictions in which the particular property is situated. Therefore, a shift of all telecommunications companies to either state or local assessment would affect property tax receipts of local governments.

The issue of state versus local assessment has been recently addressed by the BOE as it applies to the electricity industry. In the board's most recent ruling, amended Rule 905, it was decided that all large electricity-generating facilities should be state-assessed. A law recently enacted in California requires that the revenues derived from the assessment of this property be allocated in the same manner as revenues derived from locally assessed properties.²² This solution levels the playing field between existing and new electricity-generating facilities and provides at least a modicum of incentive for local governments to site these facilities within their borders.

Horizontal equity between telecommunications and other businesses. Many of the state and local taxes imposed on telecommunications providers and their customers are unique taxes that do not apply to other businesses. Cline (2002) estimates that current taxes paid by telecommunications companies and their customers in California are three times higher than the taxes they would pay if they were taxed under the same state and local system that applies to general businesses.²³ California ranks third highest, among all states, in Cline's measure of tax inequity between telecommunications firms and other companies.

State assessment of telecommunications companies appears to single out the telecommunications industry for adverse tax treatment, compared to other businesses in the state. If telecommunications companies are subject to state assessment at market value, while other businesses are locally assessed (with Proposition 13 protection), then the rates of return of these two groups are distorted and productive efficiency is impaired.

The MIC, unavailable to telecommunications companies, also disadvantages telecommunications firms relative to companies in other lines of business.

The MIC, unavailable to telecommunications companies, also disadvantages telecommunications firms relative to companies in other lines of business. In addition to the arguments for extending the MIC to telecommunications companies that we discussed in the full report in "Overview of Current State and Local Telecommunications Taxes in California," we can now add productive efficiency to the list. Optimal investment tax credits equalize rates of return on assets.²⁴ Thus, unless

²² AB 81, signed June 20, 2002; chaptered at sections 100.9 and 721.5 of the California Revenue and Taxation Code. (For the full text of AB 81, see *Doc 2002-15358 (3 original pages)* or *2002 STT 128-4*.)

²³ These excess tax calculations exclude corporate income and franchise taxes, do not consider potential differences in business property assessments or property tax depreciation schedules, and assume that telecommunication services would continue to be exempt from the state and local sales tax.

²⁴ Jack and Viard (1996).

Table 4
Comparison of Telecommunications Transaction Taxes in California and Selected States

State	Number of Local Taxes	Number of State Taxes	Total Tax Rate	Number of Tax Bases	Number of Returns
Arizona	3	5	0.1313	18	205
California	2	7	0.1228	17	2,440
Florida	1	1	0.163	1	1
Nevada	6	3	0.0289	7	194
New Mexico	13	8	0.0853	23	120
New York	5	8	0.1726	10	5,623
Oregon	1	4	0.132	86	1,017
Texas	3	8	0.2856	4	3,107
Washington	8	5	0.1926	12	4,446
National Average	3	4	0.139	54	1,312

(risk-adjusted) rates of return for telecommunications companies are believed to be higher than for manufacturers in general, telecommunications companies should be extended the same investment credit. While ILECs might enjoy higher rates of return than some manufacturers, CLECs (at this time) almost certainly do not, and face higher risk as well.

Concluding Remarks on Efficiency

To conclude this section on efficiency, we again emphasize that the inefficiencies of the current tax system are only the cost side of a full cost-benefit analysis. Although taxes impose efficiency costs on the economy, they may be warranted by the programs they fund. Against the costs of the tax system, then, must be weighed the purported benefits ensuing from the distribution of the tax revenue.

California is tied with Colorado, Illinois, and Louisiana for the second-highest number of state taxes on telecommunications sales nationwide: seven.

For example, the excess burden generated by universal-service taxes and surcharges should be compared to the benefits of these programs. A recent FCC report shows that the CPUC has exceeded its goal of a 95 percent penetration rate in California. It is reported that 97 percent or more of all California households were subscribing to telephone service in 2001, almost 2 percentage points above the national average of 95.1 percent.²⁵ The benefits of this network expansion are, however, not easily measured, and there is little evidence that the size of the network would decrease much if the universal-service programs were not in effect. See Appendix E of the full report, "Universal Service in California," for more detailed information on the ubiquity of basic local exchange service in California.

²⁵ Belinfante (2002), tables 1 and 2, pp. 6 and 8.

Even if policymakers or society determines that the benefits of programs funded under the current tax system outweigh the costs, the message from our calculations above is that the same benefits could be realized more efficiently. Whatever the tax-revenue requirements are determined to be, rebalancing the tax rates, reducing administrative complexity, and leveling the playing field for different types of telecommunications firms can improve the efficiency of the tax system.

California Compared With Other States

In our earlier discussion on administrative simplicity, we noted that an overly complex tax system may be economically inefficient. How does California measure up to other states with regard to telecommunications taxation?²⁶ Some dimensions along which to judge the complexity of the state's tax system are the number of distinct taxes, the overall level of the taxes, the number of tax bases, and the number of taxing jurisdictions. The number of taxes is the number of legally distinct telecommunications taxes. For example, the Universal Lifeline Telephone Service charge and the California High-Cost Fund-A fee are two different state taxes (where we are using the term "taxes" to include all taxes, fees, and surcharges). The overall level of the taxes is the sum of the rates of all the various taxes. The base of a tax is the specific set of services to which the tax applies. For example, the base for the state universal-service taxes is all intrastate services, while the base for a utility user tax may be local and long-distance calling revenue, but not cellular revenue.²⁷ Finally, the number of taxing jurisdictions is the number of legal, governmental, or administrative entities that tax telecommunications.²⁸ Because each jurisdiction requires at least one tax return to be filed, the more jurisdictions there are, the more tax returns need to be filed.

The overall picture shows that California has a relatively high number of state taxes and jurisdictions, although it does not have a relatively high average tax rate. The following data are obtained

²⁶ This section draws on COST (2002a, 2002b).

²⁷ See Appendix C in full report for the many ways the utility user tax base is defined in the state.

²⁸ Taxing jurisdictions include the state, counties, cities, and special tax districts.

from the 2001 COST report and the Ernst & Young LLP report (Cline, 2002), to which we added clarifications. Table 4 (previous page) provides a summary of this information.

Number of Local Taxes. California has two local taxes that apply to revenues from the sale of telecommunications services: the utility user tax (UUT) and the local franchise fee. Although California does have a statewide local sales tax and local-option sales tax, these apply only to equipment, not services.²⁹ Nationwide, the average number of local taxes is three. Thirty-six states have more than California — the highest being New Mexico with 13. Among the neighboring states, only Oregon, with one, has fewer than California. Arizona has three, while Nevada has six. New York has five; Texas has three.

Number of State Taxes. California is tied with Colorado, Illinois, and Louisiana for the second-highest number of state taxes on telecommunications sales nationwide: seven.³⁰ Only New Mexico, New York, and Texas have more, each with eight. Arizona and Washington each have five, Oregon has four, and Nevada has three. The national average is four.

Total Number of Taxes. California is tied with Mississippi, Nevada, and Virginia for the sixth-highest number of total taxes on telecommunications sales nationwide: nine. New Mexico leads the nation with 21, while New York, Washington, and Illinois each have 13. Texas has 11, Nevada 9, Arizona 8, and Oregon 5.

Total Tax Rate. California's total state and local tax rate on telecommunications sales (which COST calculates to be an average of 12.28 percent) is just below the median rate among all states, and is below the 13.9 percent national average.³¹ However, as mentioned before, the state and local tax rate can range from 4.83 to 15.83 percent on intrastate services and from 7.28 to 18.28 percent on interstate services, depending on the UUT. Among neighboring states, Oregon (13.2 percent) and Arizona (13.13 percent) have slightly higher average tax rates than California. Nevada has a combined state-local rate of 2.89 percent. The highest rates nationwide are in Virginia, with 29.77 percent, and Texas, with 28.56 percent. Washington also makes the top 10, with 19.26 percent. New York's rate is 17.26 percent.

Excess Tax Rates. If telecommunications were taxed like any other service in the state, taxes on the industry would be only one-quarter their present amount. Most of this difference is due to the fact that services, in general, are not subject to the sales and use tax. In this sense, about 75 percent of all telecommunications taxes in the state are excess taxes that exceed taxes generally imposed on

other service-sector businesses and their customers. Only Montana, New Hampshire, and the District of Columbia, have higher excess tax percentages. Of neighboring states, only Oregon (with 74 percent excess taxes) ranks near California. Arizona and Nevada both have excess taxes below the national average of 39 percent.

Total Tax Bases That Must Be Maintained. California ranks 11th in terms of total tax bases that must be maintained by telecommunications companies with 17, 15 of which are local tax bases. This is the highest number of tax bases among the 10 largest states. The neighboring states of Oregon, with 86, and Arizona, with 18, both beat California. Missouri earns the number one spot with 781. Washington has 12, New York 10, Nevada 7, and Texas 4. The national average is 54, and the national median is six.

Number of Tax Returns and Taxing Jurisdictions. California ranks eighth in the nation in total number of tax returns that must be filed by telecommunications companies: 2,440. California ranks seventh in the number of taxing jurisdictions, with 824. The national average number of tax returns and taxing jurisdictions is 1,312 and 298, respectively.

Thus, as shown by its high rankings in many of these categories, California appears to be ripe for simplification of its telecommunications tax system. Even though the tax rates are not out of line with other states, the large number of taxes, tax bases, and particularly jurisdictions leads to administrative complexity, with its attendant costs, as previously mentioned.

Reforms

In this section we describe recent telecommunication tax-reform efforts by the federal government and other states as well as reforms proposed by various interest groups and stakeholders.

Recent Reforms

Recent reform efforts, mostly outside California, include the following (in chronological order).

In a 1994 suit, MCI claimed that it had been denied equal protection under the personal property tax law in Ohio.³² MCI's personal property was taxed at 88 percent of market value, while the property of its competitors was taxed at 31 percent of market value. In February 1994, the state supreme court ruled in favor of MCI, stating that it should be taxed similarly to other businesses. In addition, a comprehensive tax reform study was undertaken in 1994 that included a detailed analysis of Ohio's telecommunications taxes. Effective in 1995, personal property of long-distance companies is assessed at 25 percent of value. Property of local exchange carriers added to the tax rolls during 1995 and thereafter is also assessed at 25 percent. All existing property — property on the tax rolls before 1995 — will continue to be assessed at 88 percent of value. Property of competitive

²⁹ COST (2000a) reports that California has four local taxes that apply to telecommunications sales. They include the local sales tax and a local 911 emergency per-line fee imposed only within the city and county of San Francisco.

³⁰ COST (2002a) reports California with eight, but they include the state sales tax, which applies only to equipment, not services.

³¹ Using different methodology, Cline (2002) estimates that total state and local telecommunications taxes in California are 6.4 percent of industry revenue, which puts the state in the lowest decile.

³² *MCI Telecommunications Corp. v. Limbach, Tax Commr.*, 68 Ohio St. 3d 195; 1994 Ohio 489; 625 N.E.2d 597 (Ohio Supreme Court, 1994). (For the full text of the Ohio Supreme Court's decision, see 94 STN 42-22.)

local phone companies will be assessed in the same manner as that of the incumbent local providers.³³

In 1996, New York undertook a major review of telecommunications taxes in response to successful litigation brought by AT&T.³⁴ This state has since modernized its statutes.

Kentucky's Task Force on Utility Tax Policy commissioned Barents Group, a consulting firm, to provide background information and analyze the taxation issues related to the deregulation of utilities and the communications industry.³⁵

Maine created a task force to study telecommunications taxation in 1997. The task force was asked to review the state's sales and personal property taxes as they apply to telecommunications businesses, identify disparities among service providers, compare the tax treatment of telecommunications firms with that of other firms, and evaluate strategies to clarify laws and ease administration. Their report was published in 1999.

In 1999, Montana reduced property taxes for large telecommunications providers and introduced a new excise tax on all providers to cover the lost revenue. Before this change, the property of large telecommunications companies was centrally assessed and taxed at the rate of 12 percent. In contrast, the property of smaller telecommunications providers was not centrally assessed and was taxed at 6 percent. The 1999 legislation reduced the taxable valuation rate of centrally assessed telecommunications property from 12 to 6 percent. It also implemented a broad-based telecommunications excise tax, set at a rate of 3.75 percent of the sales price of telecommunications services, to offset the lost property tax revenue. Three-quarters of the excise tax revenues are currently used to reimburse local governments for lost property tax revenue, and 25 percent goes into the state's general fund.

South Carolina passed legislation in 1999 allowing cities to collect franchise fees from local providers through 2003. Companies that were not required to pay franchise fees, such as wireless providers, were assessed a 0.3 percent business tax.

In a coordinated effort that extended over a three-year period, the wireless telecommunications industry worked with a number of state and local government organizations (including the National Governors' Association, the National Conference of State Legislatures, the Federation of Tax Administrators, the Multistate Tax Commission, and the National League of Cities) to pursue federal legislation that provides a uniform method to determine the situs³⁶ of a cellular telephone call for tax purposes. The Mobile Telecommunications Sourcing Act

(P.L. 106-252) was signed into law on July 28, 2000.³⁷ The act addresses the sourcing problem by sourcing all wireless calls and mobile telecommunications services to the "place of primary use," which is essentially the user's address. To date, 16 states, including California, have enacted conforming legislation. Only the state or local taxing jurisdictions encompassing the place of primary use can tax the calls or service.

In one of the most sweeping reforms to date, Florida repealed 11 separate taxes and fees and replaced them with a single state and a single local communications services tax in 2000. During 2001, the state enacted follow-up legislation establishing a revenue-neutral tax rate for the replacement taxes. The new taxes became effective October 1, 2001.

In 2001, North Carolina eliminated the gross receipts tax imposed on local communications services, changed the sales tax rate to 6 percent on all taxable telecommunications services, and expanded the base of the sales tax on communications services.³⁸

Minnesota enacted legislation in 2001 providing for a sales tax exemption for machinery and equipment used to provide telecommunications services.³⁹

Also in 2001, Tennessee eliminated the discriminatory property tax treatment of local communications carriers and increased the sales tax on telecommunications services.⁴⁰

Legislation to repeal the 3 percent FET was introduced during 2001 in both the House and Senate, but no action has been taken.

Illinois enacted the Simplified Municipal Telecommunications Tax Act on February 8, 2002. This legislation replaced three municipal taxes with a new centrally administered "simplified municipal telecommunications tax" and also provided for a vendor compensations allowance.⁴¹

Reform Proposals

Below we describe and comment on some of the more common reforms that have been proposed by various policymakers, task forces, interest groups, and stakeholders.

Corporate Franchise Tax

In 1997, the California Franchise Tax Board (FTB) issued draft regulations to provide special apportionment rules for telecommunications and related businesses in an attempt to have the property factor include key assets of these companies and what the FTB perceived as a more appropriate sourcing rule for sales.⁴²

³³ McHugh (1996).

³⁴ See http://www.tax.state.ny.us/Statistics/Policy-Special/Telco/Background/Telco-Back_Content.htm.

³⁵ See Barents Group (1999).

³⁶ The location of property, for purposes of determining whether a given property tax applies.

³⁷ For the text of the act, see http://www.wow-com.com/pdf/uniform_072800.pdf.

³⁸ 2001 North Carolina HB 571, SB 1005. (For the full text of HB 571, see *Doc 2001-11930 (16 original pages)* or *2001 STT 88-14*.)

³⁹ 2001 Minnesota HF 1. (For the full text of HF 1, see *Doc 2001-22347 (433 original pages)* or *2001 STT 165-18*.)

⁴⁰ Tennessee SB 1484, HB 864, enacted as Pub. Ch. 195. (For the full text of HB 864, see *Doc 2001-13281 (22 original pages)* or *2001 STT 97-36*.)

⁴¹ 2001 Illinois SB 88, enacted as P.A. 92-0526. (For the full text of SB 88, see *Doc 2001-29019 (98 original pages)* or *2001 STT 226-11*.)

⁴² See "Overview of Current State and Local Telecommunications Taxes in California" in the full report for the details of this proposal.

There have been various proposals and suggestions to update P.L. 86-272 to provide guidance on when a multistate business is subject to any state tax and to apply the guidance to more than just businesses that sell tangible goods. For example, the federal Advisory Commission on Electronic Commerce proposed new nexus guidelines, and a few bills have been introduced in Congress over the years, such as S.664 (107th Congress).

COST and others⁴³ have suggested that more states should provide sales tax exemptions for equipment purchased by telecommunications companies. California has a limited sales tax exemption that only applies to certain new businesses and not to telecommunications companies. In lieu of a sales tax exemption, California has a manufacturers' investment credit (MIC) that applies against state franchise taxes. However, this credit also does not apply to telecommunications companies. Various groups have suggested that the MIC be expanded to also apply to telecommunications service providers (see discussion below on the sales tax exemption).

Sales and Use Tax

Extend sales and use tax exemptions and income tax credits (the MIC) for manufacturing equipment to equipment used to provide telecommunications services.⁴⁴

Over the years, there have been suggestions to broaden the sales tax base and lower the rate. Such a change eliminates the need to deal with problematic exemptions because every sale would be subject to taxation. Some have proposed, along with the broader base, that a sales tax exemption be granted to purchases by businesses to eliminate cascading of the tax.⁴⁵ Should such a proposal be considered in California, it would be useful to analyze whether the broader base (including telecommunication services) could produce revenues to replace the multitude of current taxes and fees that apply to telecommunications.

Property Tax

Assess all business property, including that of telecommunication companies, at market value. This would eliminate the potential differences in treatment of state versus local assesses, and the attendant possible dynamic inefficiencies discussed earlier. Assessment of all business property at market value would also remove the artificial advantage that older locally assessed property enjoys over newer locally assessed property.

Keep depreciation rate schedules up to date to best reflect rapid technological change.

Franchise Fees

Various groups have suggested eliminating the multitude of fees and taxes imposed on telecommunications services and

replacing them with either a single tax, or a single state tax and single local tax.⁴⁶ As explained by the National Governors' Association:

States need to examine the patchwork of local taxes and fees imposed on telecommunications firms. Most states grant the authority to impose these taxes and fees by statute, and, therefore, states can make any necessary changes. One step states can take is to consolidate the number of fees and taxes imposed, possibly collapsing them into one local fee to cover all expenses incurred by local governments to manage rights-of-way. This could be done as local revenue is maintained while simplifying fee administration.⁴⁷

Utility User Tax

As with franchise fees, various groups have suggested eliminating the multitude of fees and taxes imposed on telecommunications services and replacing them with just one or two taxes.

Provide a uniform base across all jurisdictions that levy the telephone user's tax.

Universal Service

Expand the definition of universal service to include "advanced," "enhanced," and "information" services such as Internet access.⁴⁸ Widespread deployment of broadband services, particularly in areas with high concentrations of minority and low-income households, has become a principal policy objective of the FCC.⁴⁹ Expansion of the broadband network, and increased access to it, is claimed to bring valuable new services to consumers, stimulate economic activity, improve national productivity, and advance economic opportunity for all Americans. Congress has explicitly charged the FCC to "encourage the deployment on a reasonable and timely basis" of broadband capabilities to "all Americans," and gave the FCC authority to "take immediate action to accelerate deployment of such capability by removing barriers to infrastructure investment," if necessary.⁵⁰ A RAND study recommended that an expanded universal-service basic package include a "plain text message" e-mail exchange program for all eligible households.⁵¹ Determining the value of expanding universal-service support is beyond the scope of this report. However, we

⁴⁶ See proposals of the majority of the ACEC (in the full report, "Overview of Current State and Local Telecommunications Taxes in California," above); the National Governors' Association ("Streamlining State Sales Tax Systems," a proposal to the ACEC, 1999, available at <http://www.ecommercecommission.org/document/NGAPolicy.doc>); and the proposal by 12 telecommunications companies ("Proposal for State and Local Taxation of the Telecommunications Industry," Nov. 15, 1999, available at <http://www.ecommercecommission.org/document/StateAndLocalTaxation124.doc>).

⁴⁷ Palladino and Mazer (2000).

⁴⁸ The Telecommunications Act of 1996 requires the FCC to periodically review the definition of "universal service" to reflect changes in technology and market demand.

⁴⁹ For an exploration of whether the racial, ethnic, and income composition of an area actually affects the probability of broadband availability, after controlling for demand and cost factors, see Prieger (2003).

⁵⁰ Sections 706(a) and (b) of the Telecommunications Act of 1996.

⁵¹ Anderson, et al. (1995).

⁴³ See "Proposal For State and Local Taxation of the Telecommunications Industry," submitted to the Advisory Commission on Electronic Commerce on November 15, 1999, by 12 telecommunications companies, available online at <http://www.ecommercecommission.org/proposal.htm>; and Palladino and Mazer (2000), p. 20.

⁴⁴ COST (2002a) and Palladino and Mazer (2000).

⁴⁵ See McLure (1999).

note that many economists have argued strenuously against expanding universal-service subsidies (for example, Crandall and Waverman, 2000). Another argument often given for expanding the definition of “universal service” is concern over future revenues if voice traffic migrates to broadband Internet platforms.

Finance universal service from general fund revenues similar to other welfare and social programs. Given that universal service is essentially a welfare program, telecommunications providers and customers should not bear its burden. As discussed in the section on social and economic consequences of existing telecommunications tax policy, one cannot logically use the benefit principle to support telecommunications-specific taxation for universal service.

Finance universal service from flat-rate or per-line charges instead of ad valorem charges. A flat-rate charge, independent of the quantity or length of calls or other connections, would result in fewer consumption distortions and a lower efficiency cost.

Eliminate universal-service subsidies altogether. The most common arguments include the following: (1) Competition and new technologies have lowered the cost of telecommunications services, so that most people have affordable access to basic telecommunications services. (2) Justifications based on network externalities overstate the benefit to society of bringing marginal subscribers onto the network. (3) The government should not select the services that receive subsidies and thereby influence the path or speed of innovation. Universal-service subsidies discourage the deployment of new technologies since they have to compete with existing subsidized technologies.

As discussed in the section on equity and efficiency, we are not unsympathetic to some of these arguments. The last point touches on dynamic inefficiency, which we discussed in that same section.

Eliminate high-cost subsidies. Wireless and satellite technology have lowered the cost of providing service to rural and previously high-cost areas. As many economists have argued elsewhere (for example, Prieger 1998), subsidizing an area makes little sense compared with subsidizing targeted individuals.

Federal Telecommunications Taxes

There have been several attempts to repeal the outdated and burdensome 3 percent FET on telecommunications.

Administration

Various proposals have been offered to simplify administration and compliance with the multitude of telecommunications taxes. These suggestions include having only one transaction tax per state (or perhaps one local transaction tax as well), one tax return per state, one audit level, uniform definitions, and 120 days’ lead time for implementing changes to the base or rate.⁵²

⁵² See footnote 46.

Alternative Taxation

Replace a tax system that favors one form of telecommunications service over another with a “bit tax,” in which the amount of data transmitted is taxed regardless of the originating or receiving technology.⁵³ A bit tax is generally opposed due to the technological difficulty of assessing it, the notion that it taxes (and therefore impedes) the flow of information, and its being perceived as a revenue-generating tool.

Conclusions and Recommendations

The main purpose of this report is twofold. First, we have described the existing telecommunications tax system in the state and presented the history, rationale, and structure of all existing taxes, fees, and surcharges paid by service providers and consumers. Second, we have examined the equity and economic efficiency of the current system and some alternatives. In this section we summarize our findings regarding the five key points mentioned at the outset of this report that have guided our research. By exploring the costs of the current system and a few alternatives, we hope to provide policymakers with a clearer view of the implications of past and future decisions about telecommunications taxation in the state. Although our chief objective is to present information rather than to advocate particular reforms, we conclude by suggesting a few apparent improvements our analysis points to.

Key Issues

Is the burden of the existing tax treatment of telecommunications services and providers distributed equitably?

Whether we evaluate the distribution of the burden of current telecommunications taxes based on the benefit principle, the ability-to-pay principle, or the horizontal-equity principle, our conclusion is the same. The current system, based predominantly on revenue taxation, is not equitable. According to the benefit principle, the burden of a tax should be distributed according to the benefits received from the government activities financed by the tax. Many of the taxes imposed on telecommunications are revenue-based taxes, the burden of which falls predominantly on consumers of telecommunications services in proportion to their expenditures. However, there is no evidence that these taxpayers benefit in greater proportion from the goods and services financed by the taxes and certainly not in proportion to expenditures.

The ability-to-pay principle holds that tax burdens should be distributed according to taxpayers’ ability to pay. Because the share of household income spent on telecommunications services generally decreases as household income increases, the burden of taxes imposed on the revenues from the sale of services, including all of the federal, state and local taxes, surcharges and fees discussed in this report, is distributed regressively with respect to income, violating the ability-to-pay principle.

The horizontal-equity principle calls for “equal treatment of equals,” which means that taxpayers of equal ability to pay should bear equal tax burdens. For the many taxes on telecommunications services to satisfy this principle of equity would require that all

⁵³ The idea for a bit tax apparently originated with Cordell (1996). A bit tax was suggested in a 1999 United Nations report, *Human Development Report 1999*, as a funding mechanism to reduce technology gaps throughout the world.

taxpayers of similar incomes spend the same amount on telecommunications. This is clearly not the case.

Does the existing tax system impose different tax burdens on the providers (or consumers) of similar services?

Essentially, this question is asking if the current tax system discriminates on the basis of technology. In this era of convergence there are many alternatives to the traditional wireline-based “telephone call.” Examples include wireless or mobile service, including cellular, PCS (personal communications services), and satellite, and various types of Internet telephony. Our research shows that the tax burden does vary across technologies.

Whether we evaluate the distribution of the burden of current telecommunications taxes based on the benefit principle, the ability-to-pay principle, or the horizontal-equity principle, our conclusion is the same. The current system, based predominantly on revenue taxation, is not equitable.

Traditional providers of telecommunications services, such as telephone companies, are subject to a much broader range of existing federal, state, and local taxes than are some of their new competitors, such as cable or satellite providers. Consumers of cable or satellite services do not pay the federal excise tax (FET). Nor do they pay the numerous federal and state taxes and charges to support universal service. The largest potential “leakage” regarding voice communications is Internet telephony. Internet-telephony services escape all of the federal and state universal-service taxes, the FET, and the local UUT (utility user tax), and consequently enjoy a competitive advantage.

Another potential source of discriminatory tax treatment is the local franchise fee. Cable companies pay franchise fees for the privilege of providing specialized services as well as for the right to use public rights-of-way to lay their cables. In contrast, local exchange carriers (LECs) have been exempted by the state from paying such fees.

Telecommunications companies are also treated differently under California’s property tax laws. Currently, cable television companies are locally assessed while most telecommunications companies (LECs, CLECs, wireless) are state-assessed. Although there is no evidence that the current assessed values of either type company would change significantly if their assessment status were switched, the perception of either current or future differences may influence a firm’s investment in infrastructure.

There is little economic justification for these differences in treatment among technologies. The section on equity and efficiency points out that favoring one technology over another may be to the detriment of consumer and producer welfare over time. Any economic justification for differing tax treatment depends on the demand for the final service produced, not directly on the technology underlying the service.

Is the existing tax structure the most efficient means of raising the current level of tax revenue?

Telecommunications taxes and charges raise the price of telecommunications services relative to other goods and services, and consumers respond by consuming fewer telecommunications services. The result is what economists refer to as excess burden — a loss of economic well-being above and beyond the tax revenue collected. We estimate, very conservatively, that the current set of telecommunications taxes leads to a 4 percent efficiency loss, or excess burden, in California.

The most efficient tax system is one that raises needed revenue with the least excess burden possible. In order to minimize overall excess burden, tax rates must be higher on services for which demand is price-insensitive and lower on services for which the demand is price-sensitive. Following this rule, the excess burden of telecommunications taxes in California can be significantly reduced by raising the effective tax rate on revenues from local exchange access and lowering the rate that applies to other services such as long-distance and wireless services. Another implication of inefficiency is that a more efficient tax system could raise more tax revenue and do no more harm to consumers and firms than the current system does.

The existing tax structure also results in a dynamic efficiency loss due to discrimination among telecommunications firms (based on the technology used to deliver telecommunication services), or between telecommunications companies and other companies. This tax discrimination distorts the rates of return on investment across companies, thereby influencing the growth of the telecommunications industry and its various components.

Does the existing tax system distort the consumer’s choice between competing telecommunications services and technologies?

Economic theory suggests that differences in taxes on competing telecommunications services will affect consumers’ choices. When taxes raise the relative price consumers pay for certain goods or services, they respond by reducing their consumption of the relatively higher-priced good or service and substituting others. Technological change has introduced alternatives to traditional telecommunications services, thereby providing more choices for consumers and increasing their response to the relatively high taxes on traditional services. For example, Internet-telephony services escape all of the federal, state, and local taxes, surcharges, and fees levied on traditional telecommunications services; consequently, consumers of telecommunications services, particularly interstate and international services, have an incentive to switch to Internet-based telephony to avoid the high combined tax rate.

There are currently limited data available to measure the extent to which consumers are substituting Internet for traditional telecommunications. In July 2000, an independent analyst of the Web-based voice communication industry estimated that roughly 15 million people in the United States were using voice communication over the Internet, up from 5 million in 1999.⁵⁴ This number is sure to increase further with improvements in the technology of Internet telephony.

⁵⁴ Romero (2000).

Another consequence of concern to federal, state, and local governments is the decline in revenue, as consumers switch from taxed to untaxed services, and the potential impact on the programs these taxes finance.

Does the existing tax system distort the location decisions of telecommunication providers or consumers?

Location decisions by both businesses and households are typically based on a wide array of factors. The availability of telecommunications services and their cost are likely to factor into the decision, although it is impossible to determine the extent of their influence. However, it is logical to say that if all else were equal across locations, including the availability of telecommunications services, businesses and households would choose the location that offers those services at least cost. Therefore, the question of whether the tax system distorts location choices becomes a question of whether the cost of similar services varies across locations. Clearly, as we have seen in “Overview of Current State and Local Telecommunications Taxes in California” in the full report, the answer is yes.

Telecommunication costs vary from city to city and from county to county in California due to variations in the local UUT and local franchise fees. We found that the UUT rate alone ranges from zero to 11 percent across California cities, and that the base to which the tax applies also varies. Therefore, if all else were equal, businesses and households would choose to locate in no- or low-UUT cities. This choice would be especially true of businesses that rely heavily on telecommunications services and would lead to dynamic efficiency losses. Telecommunications businesses themselves may also experience lower costs in some California locations due to lower UUT rates and lower local franchise fees.

California’s method of allocating sales from services and intangible property to the state for taxation purposes may not be appropriate for telecommunications and information services.

Our comparison of telecommunications taxes in California with those in other large and neighboring states shows that California, although it has more state taxes (which may raise administrative and compliance costs for telecommunications companies located here or doing business in the state), does not impose a relatively higher tax burden on telecommunications. Telecommunications taxes, therefore, probably play a negligible role in business or household decisions to choose to locate in California.

Recommendations

In no specific order, we recommend the following. Some of these recommendations can be implemented unilaterally by the state. Others require California to cooperate with local governments or with other states.

California should extend the manufacturers’ investment credit (MIC) and sales tax exemption for new equipment purchases to telecommunications companies.

As noted before, telecommunications companies are not allowed to claim the manufacturers’ investment credit on their equipment purchases. The primary purpose of the MIC and sales tax exemption on equipment purchases is to avoid the pyramiding of taxes that can occur when both the inputs used to produce goods and services and the goods and services themselves are subject to the tax. The COST study (COST 2002a) indicates that 14 states provide a sales tax exemption for both manufacturers and telecommunications companies. California provides a sales tax exemption only for certain new corporations. Other corporations (if in an eligible SIC code) obtain a 6 percent credit to be applied against their franchise tax.

One rationale for excluding telecommunications companies from claiming the MIC and sales tax exemption might be that the services provided by telecommunications companies are not subject to any sales tax. However, the services these companies provide are subject to a variety of telecommunications-specific taxes, fees, and surcharges that add up to more than the state sales tax in some cases. More fundamentally, the MIC serves as a business investment incentive. If the state provides incentives to manufacturers to invest in capital, then there is no reason why telecommunications companies should not also be eligible. Given the importance of communications in the New Economy, extending the MIC to telecommunications companies might benefit the economy even more than offering it to manufacturing firms.⁵⁵

California should reexamine the income apportionment and sourcing rules as they apply to telecommunications and information services for taxation purposes.

Are the current rules for corporate franchise and income taxes appropriate for telecommunications services? All states must cooperate to ensure that multistate income is being apportioned to the proper states to avoid double taxation. California’s method of allocating sales from services and intangible property to the state for taxation purposes may not be appropriate for telecommunications and information services. The “all or nothing” approach of allocating sales from services and intangibles may not make sense in the “Information Age.” For example, consider a company that has all of its employees and equipment located in California but provides server space to customers that are mainly located in other states. Under current rules, the sales will all be allocated to California, because that is where the direct costs of performance occur; no sales will be allocated to other states.

This system may lead a company to locate its direct costs in a state with a low income tax rate. On the other hand, such a system may be desirable where it is difficult to identify the location of customers, such as with the transfer of digitized products. In such a case, identification of the costs of performance would be simpler.

Another issue concerning intangible assets is whether they should be included in the property factor. Some information-age businesses have intangibles with a very high value. For example, the wireless spectrum licenses of a telecommunications company may be its most valuable asset.

⁵⁵ See Nadiri and Nandi (2001).

Of course, it is often difficult to determine whether intangibles are located within California (or anywhere else). However, licenses cover specific geographic areas. For other intangibles that enable a service to be offered, the telecommunications company may be able to apportion based on where the customers of the service live (as determined by billing addresses, for example). Given the significance of these assets to generating telecommunications revenue, consideration should be given to whether, and how, all or some intangibles should be included in the apportionment process.

One approach for examining the apportionment and sourcing issue would be to reopen the Franchise Tax Board's 1997 project (see full report, paragraphs on 1997 draft apportionment regulations [pages 25-27]) to provide special apportionment rules for telecommunications, subscription television, Internet access, and electronic information services. Alternatively, California could work with other states to update the Uniform Division of Income for Tax Purposes Act so that sourcing rules and the property factor are uniform and the potential for double taxation is eliminated.

California should work with other states and the federal government to establish new nexus guidelines for the Information Age.

Federal P.L. 86-272 is out of date because it does not apply to services or sales of intangible property. This law should be broadened to cover intangibles, such as telecommunications and Internet services, and extended to other types of taxes. The states should determine if it is possible to work together to derive a rule, or whether Congress needs to mandate the standards. Updating P.L. 86-272 will be challenging because the view of what constitutes a "taxable presence" often differs for governments and businesses. Challenges also exist in writing a law that will not result in confusion and litigation. For example, S. 664 (107th Congress) uses the term "substantial physical presence," which is not a term that has been used by the courts to describe nexus. Therefore, issues would likely arise as to what "substantial" means.

California should, in cooperation with its local governments, simplify and consolidate the various taxes and charges imposed on end-user revenues by local jurisdictions and the Public Utilities Commission.

Extend the sales and use tax to telecommunications services. California does not apply sales and use taxes to telecommunications services. However, local jurisdictions and the PUC do impose various fees and taxes on such services. Extension of the sales and use tax to telecommunications services could be a simple and efficient way to replace the numerous additional taxes and fees. Although this proposal does nothing to improve the inequity of revenue taxation, it might lead to more equitable treatment of vendors by looking at the nature of the service provided rather than the nature of the company (for example, regulated or not regulated). Of course, various issues would need to be addressed, such as whether a telecommunications sales tax could raise enough revenue to replace existing taxes and fees, how the tax could effectively be returned to local governments and the PUC, and whether the tax could be effectively collected on services provided to California residents by remote vendors.

Cities typically collect 1 percent of sales in taxes unless they also have a local-option tax in effect. Most cities with a utility

user tax would therefore lose revenue if the sales tax replaced their UUT. However, a broader sales tax base, extended to other services as well as telecommunications services, may make up for the lost UUT revenue. A more detailed analysis would be needed to ascertain the full revenue impact of such a substitution.

Consolidate state and local taxes and charges. Another option for simplifying state and local taxes and charges would be to replace them with a single state utility tax or one state and one local municipal utility tax. This approach has been taken by other states, such as Florida and Illinois. While this method would significantly reduce the filing requirements of telecommunications companies doing business in California, there is a trade-off between simplicity and efficiency. As noted before, efficient taxation calls for different tax rates on different services.

Consider a flat-rate per-line charge. Consider financing universal-service programs from flat-rate per-line charges instead of ad valorem charges. A flat-rate charge, independent of the quantity or length of calls or other connections, would result in fewer consumption distortions and a lower efficiency cost.

Substitute income tax funding. Another option to consider is to eliminate the array of taxes and charges currently used to fund universal service and instead finance these programs from general fund revenues, as is done with other welfare and social programs. Given that universal service is essentially a welfare program, telecommunications providers and customers should not bear its burden. One cannot logically use the benefit principle to support telecommunications-specific taxation for universal service.

California should encourage local jurisdictions to unify the local utility user tax.

The compliance burden on telecommunications companies could be significantly reduced if local jurisdictions were to adopt a uniform rate and base for the utility user tax. In California, a significant complexity exists in the varying tax bases used by more than 150 cities and counties that impose a telephone user's tax. Efforts to provide a uniform base and definitions should be undertaken. Success in this area could also lead to a single filing and reporting system.

In addition, should Congress repeal the federal excise tax, the definitions used by local jurisdictions, in imposing a telephone user's tax, would no longer exist or need to be maintained. The state could assist local jurisdictions in maintaining uniform definitions should this occur.

California should establish uniform assessment of business property.

The assessed value of business property should not be dependent upon who assesses it. Market-value assessment, either by the BOE or a local assessor, would be the most equitable and efficient method. Also, the allocation of the property tax revenue from a particular property should not be a function of who assesses it.

California should urge local governments to examine their local franchise fees.

Local franchise fees should be set to cover no more than the costs to local governments of managing public rights-of-way, and not to fund general municipal budgets. Furthermore, with different sets of rules applying to different types of providers

and confusion over the meaning of terms (such as cable services), it may become increasingly challenging for local governments to manage public rights of way and obtain the necessary franchise fees to cover their costs of proper management.

Also, to the extent providers of telecommunications services (broadly defined) are not equally subject to franchise fees, competitive advantages and disadvantages exist that can impede the future development of new technologies and services with benefit to users. All providers of telecommunication services should be equally subject to franchise fees so as to avoid competitive advantages that influence the future development of new technologies. The free franchise provided to telecommunications companies and the existing franchise fees charged by local jurisdictions should be part of any debate on reform of telecommunication taxes and fees.

California and other states should urge the federal government to clarify issues regarding Internet telephony.

Currently, telephone calls placed over the Internet are not subject to federal, state, or local taxes and charges and thus enjoy a competitive advantage. Does the state want Internet telephony to be used as a tax-avoidance strategy? As the quality of Internet telephony improves, more consumers will switch, which may lead to decreased economic efficiency and reduced government revenues. The only efficient and equitable choices would appear to be to try to tax it or to move toward exempting all telecommunications services from taxation.

California and other states should urge the federal government to clarify issues regarding cable telephony.

Although the FCC has ruled on the legal and regulatory status of cable modem service, telephony implemented by cable service operators is a different technology. Is it subject to local franchise fees? If the telephone service is implemented using switched circuits, like the public telephone network, then the answer is “no”; divisions of cable companies providing switched circuit service fall under the same rules as any other competitive local exchange carrier, and are exempt from franchise fees. However, if the service is implemented using Internet Protocol (IP) over the cable company’s broadband network (as will increasingly be the case), then it is not clear whether the service is subject to local franchise fees, because the regulatory classification of IP telephony is generally unclear (whether implemented by cable companies or by other communications firms).⁵⁶ Is the property used to provide the service to be state or locally assessed? What if the same network delivers both telephone service and television programming? These are issues that need to be resolved, keeping in mind both equity and efficiency consequences.

California and other states should monitor and work with the federal government in its efforts to restrict state and local tax systems.

⁵⁶ There is currently no legal basis for the application of franchise fees to cable IP telephony in the state, because the FCC has not declared that such services are “cable services.” However, the FCC has also declined to classify cable IP telephony as an “information service,” which would remove any doubt that franchise fees could apply to the service. The indeterminacy of the applicability of franchise fees, state, or local property tax assessment, and whether universal-service fees apply to IP telephony (whether implemented by cable companies or other communications firms) will likely persist until the FCC classifies the service one way or the other.

Maintaining a competitively neutral tax system in California may require expanding the tax base to include previously untaxed services, such as Internet access. Currently, federal and state moratoriums prevent such reforms. California policymakers should monitor efforts at the federal level to impose further restrictions on the tax bases of state and local governments, due to the loss of control produced by such restrictions. Consideration should be given to working with other states to create uniform tax rules and definitions that may alternatively address some of the concerns that lead Congress to impose restrictions on state and local tax bases.

California should work with local governments to provide uniform relief for low-income individuals and households.

The taxes imposed on telecommunications services are regressive: Taxes represent a larger percentage of a low-income household’s income than a high-income household’s. A few cities offer UUT exemptions for low-income individuals. Some also provide relief from statewide surcharges, but the relief is not consistent and in some cases may not be sufficient. Telecommunications tax- and fee-reform discussions should consider whether more uniform relief should be provided for low-income individuals.

Outside the scope of the present study, a commission has been convened to examine state tax policy for a more service- and information-oriented economy. In September 2000, SB 1933 was enacted (Chapter 619). This legislation called for formation of a Commission on Tax Policy in the New Economy to “examine the impact of Internet and other forms of electronic technology on various types of taxes.” The commission issued a preliminary report in November 2002;⁵⁷ its final report is due this December.

Conclusion

Telecommunications represents a major path by which future economic growth will travel. If developing the telecommunications infrastructure is a goal of state economic policy, then tax policy should support this goal by encouraging, or at least not discouraging, investment in the state’s telecommunications industry. As policymakers at all levels of government confront the challenge of reforming our tax system to encourage new technology and broad access to various telecommunications services, including Internet access, while at the same time addressing the needs of tax equity and revenue sufficiency, they must first have a clear understanding of the current tax system and the incentives (or disincentives) it creates. Our study takes this important first step along the path to tax reform that will lay the groundwork for more in-depth analysis of the equity and efficiency consequences of potential reform measures.

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⁵⁷ The interim report is available online at http://commerce.ca.gov/tca/msdocs/detail/dsti/_Toc24352588. Additional information about the commission (including its meeting agendas and minutes) can be found online on the Technology & Innovation link at <http://www.CAneweconomy.ca.gov>.

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Glossary

Technical and economic terms and acronyms used in the report are defined here for reference.

Ad Valorem Tax

A tax levied in proportion to the value of a good or service; used synonymously with "revenue tax" in this report.

Administrative Simplicity

The state of a tax being simple and inexpensive to administer and collect.

Apportionment

The assignment of taxable income to taxing jurisdictions (typically states). California uses a four-factor apportionment formula consisting of the sum of a payroll factor, a property factor, and a double-weighted sales factor. Each factor is a ratio of a California amount to a total amount everywhere. Apportionment results in a specific percentage of a company's income that is taxed in the state.

BOE

California State Board of Equalization.

Cable Modem Service

A broadband Internet-access service offered by cable companies. A cable modem is a device that enables a PC to connect to a local cable TV line and receive data at about 1.5 megabits per second (Mbps).

Cable Telephony

Telephony services offered over a cable network. Cable telephony is typically offered over a combination of optical fiber and coaxial cable plant. Cable telephony can be implemented as a circuit-switched service using installed cable lines or resold traditional local phone lines, or as an Internet Protocol cable telephony service offered over the coaxial cable lines themselves. The latter is known as voice-over cable (VoCable), and is closely related to the Internet-telephony services. The call path for a circuit-switched service is similar to an LEC's offering, where the cable company's coaxial cable and fiber network replaces the local wireline loop.

CHCF

California High-Cost Fund. A program to keep subscribers' rates down in high-cost areas. CHCF-A subsidizes 17 small ILECs (see entry). CHCF-B subsidizes the largest ILECs.

CLEC

Competitive local exchange carrier. A company that provides exchange-access services in competition with an established telephone local exchange carrier.

Coaxial Cable

The kind of copper cable used by cable TV companies between the community antenna and user homes and businesses. It is called "coaxial" because it includes one physical channel that carries the signal surrounded (after a layer of insulation) by another concentric physical channel.

COST

Council On State Taxation. COST is a nonprofit association based in Washington, D.C., which has an independent membership of more than 540 major multistate corporations from all sectors of industry engaged in interstate and international business.

CPUC

California Public Utilities Commission.

Distortionary Taxation

Taxation that distorts the relative prices of inputs (such as capital, land, or labor) or outputs (such as various kinds of telecommunications services).

DSL

Digital subscriber line. DSL is a technology for bringing high-bandwidth information over ordinary copper telephone lines. XDSL refers to different variations of DSL, such as ADSL (asynchronous DSL), HDSL (high-speed DSL), SDSL (symmetric DSL) and RADSL (Rate-Adaptive DSL). DSL offers data at rates up to 6.1 Mbps, enabling continuous transmission of audio and motion video. More typically, individual connections provide from 1.544 Mbps to 512 kbps downstream and about 128 kbps upstream. A DSL line can carry both data and voice signals, and the data part of the line is continuously connected. A DSL line can also carry multiple voice channels, enabling several virtual lines, each with its own phone number.

Economic Efficiency

An economic outcome is efficient (in the sense used by economists) if no economic agent (e.g., a consumer or a firm) can be made better off without making another agent worse off. This definition of efficiency is also called "Pareto efficiency." Efficient outcomes maximize the total economic benefits ("total surplus," in economic jargon) to all agents in sum; if additional benefits were possible, then they could be distributed to make an agent better off without taking anything away from other agents. A final (albeit colloquial) way to describe efficiency is that efficient outcomes make the size of the "economic pie" as large as possible (regardless of how the pie is distributed).

Efficiency

See Economic Efficiency, Productive Efficiency, and Tax Efficiency.

FET

Federal excise tax. A tax levied by the federal government on all telecommunications services. The proceeds from the FET do not fund any particular telecommunications-related program; instead, they are part of the general federal tax system.

FTB

Franchise Tax Board. The FTB collects state personal income taxes and bank and corporation taxes for the State of California.

Headend

The facility at a local cable TV office that originates and communicates cable TV services and cable modem services to subscribers.

High-Speed Services

Those services with over 200-kbps capability in at least one direction. Often used synonymously with broadband services.

ILEC

Incumbent local exchange carrier. The telephone company that traditionally provided service as a regulated utility in a given area. Newer LECs in the same area are called CLECs.

Information Service

The offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications (as defined in 47 U.S.C. section 153(20)).

InterLATA Call

A long-distance call originated and completed within different LATAs. Also known as “long-haul long-distance.”

Internet Telephony

IP telephony that uses the Internet. See IP Telephony.

Interstate Services

Services for which the communication or transmission originates in any state, territory, possession of the United States, or the District of Columbia and terminates in another state, territory, possession, or the District of Columbia. In addition, under the FCC’s rules, if over 10 percent of the traffic carried over a private or WATS line is interstate, then the revenues and costs generated by the entire line are classified as interstate. For purposes of universal-service funding, international services originating or termination in the U.S. are also “interstate.” The FCC has determined that the following services are interstate services: “cellular telephone and paging services; mobile radio services; operator services; PCS; access to interexchange service; special access; wide area telephone service (WATS); toll-free services; 900 services; MTS; private line; telex; telegraph; video services; satellite services; and resale services” (Federal Communications Commission, *In the Matter of Federal-State Joint Board on Universal Service: Report And Order*, CC Docket No. 96-45, May 7, 1997, at 780). Payphone service providers (“payphone aggregators”) must also contribute unless they qualify for the *de minimis* exemption. Satellite and video service providers must contribute to universal service only to the extent that they are providing interstate telecommunications services. Thus, for example, entities providing, on a common carrier basis, video conferencing services, channel service or video distribution services to cable headends would contribute to universal service. Entities providing open video systems (OVS), cable leased access, or direct broadcast satellite (DBS) services would not be required to contribute on the basis of revenues derived from those services.

IntraLATA Call

A long-distance call originated and completed within a LATA. Also known as “short-haul long-distance” or “local toll.”

Intrastate Services

Local and long-distance calls that do not cross a state line. Any IntraLATA service is an intrastate service (with a few, rare exceptions).

IP

Internet Protocol, the TCP/IP standard protocol for information passed across the Internet.

IP Telephony

Internet Protocol telephony, a general term for the technologies that use the Internet Protocol’s packet-switched connections to exchange voice, fax, and other forms of information that have traditionally been carried over the dedicated circuit-switched connections of the PSTN. IP telephony may be carried over the Internet, cable-based networks, or private networks.

LATA

Local access and transport areas were created by the Modified Final Judgment and define the geographic area over which the LEC may provide toll calls. The area may be smaller

than that covered by a long-distance area code. Even though an LEC’s territory may cover many LATAs (PacBell’s in California includes 10 LATAs), the LEC may not provide calls that cross LATA boundaries; such interLATA traffic must be carried by IXCs. With rare exceptions, LATAs do not cross state lines.

LEC

Local exchange company. A telephone company offering basic exchange access service.

Local Loop

The “last mile” of the telephone network. The local loop is the wired connection from a telephone company’s central office to its customers’ telephones at homes and businesses. This connection is usually on a pair of copper wires called a twisted pair.

MIC

Manufacturers’ investment credit. A 6 percent franchise and income tax credit on purchases of equipment used in manufacturing and research and development activities available in California. Providers of telecommunications services are not eligible for the MIC on their equipment purchases.

Opportunity Cost

The value of the most highly valued forgone alternative. The opportunity cost of using an asset to produce good X, for example, is that the asset owner must give up the opportunity to use the asset to produce good Y. Sound economic decisions are made on the basis of opportunity costs.

PCS

Personal communications services, a wireless phone service. Like cellular telephone service, PCS is for mobile users and requires a number of antennas to blanket an area of coverage. As a user moves around, the phone signal is picked up by the nearest antenna and forwarded to a base station that connects to the wired telephony network. It generally requires more cell transmitters for coverage than cellular service, but has the advantage of fewer blind spots.

Productive Efficiency

An allocation of inputs such that the only way to increase the output of one good is to reduce the output of another good. In this sense, no inputs are wasted.

PSP

Payphone service provider.

PSPE

Payphone Service Providers Enforcement program. The PSPE was established by the CPUC to ensure that payphone consumer safeguards set forth in the tariffs for the service territories of Pacific Bell and Verizon are being followed. These consumer safeguards included signage requirements, rate caps for intraLATA, interLATA, and directory assistance calls within California. Compliance is enforced by inspections of the payphones and by advising the local telephone companies to disconnect noncompliant payphones. The program is funded by per-line charges paid by all PSPs.

PSTN

Public Switched Telephone Network.

SLC

Subscriber line charge, a monthly charge approved by the FCC for subscriber line cost recovery that appears on every phone bill for local service. The money is paid to the local phone companies. The charge does not vary with usage.

Sourcing

Sourcing for transaction tax purposes is assigning a taxable transaction (for example, a mobile telephone call) to a taxing jurisdiction (for example, a state or a city).

Switching

The controlling or routing of signals in circuits to execute logical or arithmetic operations or to transmit data between specific points in a network. Switching may be performed by electronic, optical, or electromechanical devices.

TA96

The Telecommunications Act of 1996. Public Law No. 104-104 (Feb. 8, 1996).

Tax Efficiency

The extent to which a tax distorts economic decision-making and resource allocation. *See* Economic Efficiency.

Tax Equity

Refers to a fundamental sense of fairness in the incidence of the tax system, or who bears the burden of the taxes.

Tax Situs

In this context, the location of property, for purposes of determining whether a given property tax applies. For example, a regulated telephone corporation's property with a tax situs in California is subject to California state property tax.

Telecommunications

The transmission, between or among points specified by the user, of information of the user's choosing, without change in

the form or content of the information as sent and received (47 U.S.C. section 153(43)). Thus, an entity provides telecommunications only when it both provides a transparent transmission path and it does not change the form or content of the information.

Telecommunications Service

The federal legal definition for telecommunications service is the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available to the public, regardless of facilities used (47 U.S.C. section 153(46)). Most states have their own legal definitions.⁵⁸

Telephony

The technology associated with the electronic transmission of voice, fax, or other information between distant parties using systems historically associated with the telephone. Technological convergence has made the distinction between telephony and telecommunications difficult and less important.

UDITPA

Uniform Division of Income for Tax Purposes Act, which provides uniform rules for apportioning income for state income tax purposes.

ULTS

Universal Lifeline Telephone Service. A universal-service program in California.

User Cost of Capital

The opportunity cost that an owner incurs as a consequence of owning and using an asset, or of putting it to one productive use over other potential uses.

UUT

Utility user tax. ☆

⁵⁸ See the Tax Cybrary's list of state definitions at http://www.vertexinc.com/cybrary/telecom/def_by_state.asp.