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**Reconciling Social Issues and Infrastructure Provision:
The U.S. Experience**

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ABSTRACT

A wide range of social objectives have been addressed by pricing infrastructure services without regard to cost. Such objectives include universal service, balanced regional development, public health and safety, and service to low income customers. Whether such pricing (via implicit taxes on some customers) actually promotes the achievement of such social objectives is another question because subsidies often benefit those who would have obtained services anyway. How does a reduced role of government affect the achievement of social objectives? The U.S. experience in energy, transportation, and telecommunications sectors provides some lessons for other countries. The review of U.S. experience suggests that bureaucracies and special interests tend to dominate political processes. Thus, policy-makers should concentrate on laws and regulations that promote efficiency. Social welfare agencies should have the responsibility for dealing with income distributional concerns and other social objectives -- targeting the beneficiaries of politically-mandated programs. Given changing demand patterns and technologies, alterations in product mixes, and new production interdependencies in traditional natural monopoly industries, it is hard to justify a "politics as usual" approach to infrastructure provision in the telecommunications, energy, and transportation sectors.

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Economists continually remind policy-makers that "There is no such thing as a free lunch!" *Tinstaafl* has become the battle cry of those practitioners of the Dismal Science--reminding citizen-voters and their government representatives that every choice involves foregone alternatives. Resources used for one beneficial activity are unavailable for another. Politicians certainly understand this fundamental economic truth.

Infrastructure services can be provided by public organizations or private entities. The problem examined here is the extent to which meeting non-market or social obligations can be reconciled with private provision. Where there is a natural monopoly, franchise bidding can be used to select the most efficient private supplier.¹ In addition, some form of regulation may be introduced to reconcile the different interests of consumers and the supplier with respect to developments that could not be anticipated in the initial contract. So long as entry is prevented, price structures can be designed to recover the costs associated with meeting social obligations. The sustainability of those structures gets called into question if entry is feasible.

1. Cross-Subsidies, Subsidies, and Sustainability

Many issues arise in the context of infrastructure industries. The duration of the franchise raises important questions--fifty years resembles private ownership from the standpoint of present values of corporate strategies; five years raises the issue of valuation of assets if the current owner-operator is replaced by another bidder. Also, quality of service, time patterns of prices, expansion plans, and new service introductions must be taken into account when comparing initial bids (or performance contracts). Furthermore, the scope for potential competition can change with new technologies or demand growth. Unanticipated developments lead to some form of oversight or regulation even under a franchise arrangement.

In considering privatization or partial deregulation, existing arrangements for achieving some social objectives may no longer be sustainable. Furthermore, the social benefits are difficult to calculate in monetary terms, though there are clear economic costs associated with achieving the objectives. Before describing these issues, it is helpful to

¹ Klein and Roger (1994) summarize the history of infrastructure privatization, but do not examine social objectives that might be costly to meet.

identify the social objectives that might have been met under previous institutional arrangements.

Essential service: Some services are viewed as necessary, and arrangements are made to provide them at prices which are below cost. The definition of "essential" can expand as innovations make new services available.

Universal service objectives: This objective has been prominent in U.S. telecommunications policy.² Which new services and features ought to be added to basic service is a point of some debate. If the unavailability of a service creates a substantial hardship or economic disadvantage for a household or a business, then availability will be addressed via the political process.

Emergency service: Access to telephone for fire or illness is one of rationales behind universal service.

Balanced Regional Development: Urban/rural cost differentials are sometimes ignored for the purpose of pricing services. The use of cost allocations associated with rate averaging can dilute the costs of serving high cost customers. This objective may be motivated by equal treatment (across unequal geographic areas) or by income distributional concerns).

Income Distributional Concerns: equity considerations (or distributive justice) have historically played a role in the pricing of infrastructure services (Miller, 1986). This objective may be difficult to separate from emergency service and other concerns.

Public Health Concerns: The provision of clean water and of sewage services can involve incurring costs that exceed revenues from some groups (either because of low willingness-to-pay due to low income or because of low density/high cost conditions).

Carrier of Last Resort Obligations: Some provider may be identified as the carrier of last resort, thus having to provide service to some demanders at high cost relative to the price.

Targeted Benefits to Government Customers: Schools, hospitals, government agencies (electricity for public lighting), and other groups might be deemed especially "worthy" and therefore allowed to purchase a service at unremunerative rates.

Commercially Valuable Service (with associated side-benefits) that involves substantial and risky capital investment: Some infrastructure services are viewed as promoting a nation's competitiveness or as stimulating the creation of high-wage jobs. These side-benefits (which are difficult to quantify) might not be achieved without the associated investment.

² Tyler, Letwin and Roe (1995) summarize an International Telecommunications Union report related to universal service.

In each of the above situations, revenues from some customer group, consumers of particular services, or geographic areas may not contribute revenues that cover the incremental costs of serving them. How will these objectives be met if government is to reduce its role in the provision of infrastructure services? If the new entity experiences substantial efficiency gains, some (if not all) of these objectives might still be achieved via mandates. Cost minimization might not have been pursued under government operation for political considerations (regional support, employee power, inability to raise funds for modernization or expansion). Privatization and incentive regulation could stimulate innovation and promote cost containment.³

The purpose of this paper is to provide an overview of the U.S. experience in the provision of infrastructure services that would not be provided under typical commercial arrangements. That is, some services are priced below cost in order to meet social objectives. Examples of markets and associated objectives are listed below.

(1) In telecommunications, local telephone rates are held down through access charges for use of the local loop by long distance telephone companies. Objective: Universal Service.

(2) In electricity and telecommunications, there are "lifeline" programs which subsidize service for low-income subscribers. Objectives: Universal Access and the Alleviation of Financial Hardship.

(3) In electricity and telephone, urban and rural residential customers of the same supplier generally pay the same price despite different costs of service (related to population density and distribution costs). Objectives: Rural Electrification, Universal Access, and Balanced Regional Economic Development.

(4) In electricity and telephone, national programs have provided low interest loans for rural suppliers. Objectives: Rural Electrification, Universal Access, and Balanced Regional Economic Development.

For now, suffice it to note that community service obligations raise difficult financial issues for the suppliers of such services. Although most of the examples and data come from telecommunications, some information from electricity and railways is presented to illustrate issues.

This paper accepts the definition of community service obligations supplied by the Steering Committee on National Performance Monitoring of Government Trading Enterprises (Cobbold, 1994):

³Duch (1991) concludes that ". . . political and economic change is greatly facilitated by pluralist structures and inhibited by corporatist and, to a somewhat lesser degree, statist institutions." (p. 273)

"A Community Service Obligation arises when a government specifically requires a public enterprise to carry out activities relating to outputs or inputs which it would not elect to do on a commercial basis, and which the government does not require other businesses in the public or private sectors to generally undertake, or which it would only do commercially at higher prices." (p. xi)

All the points regarding direct funding of CSOs as the preferred mechanism are widely accepted by policy analysts. Direct funding provides greater transparency in the provision of such services, makes more explicit the objectives of the program, and allows the funding to be re-evaluated over the budget cycle. Public scrutiny places pressure on supplying entities to achieve improved cost containment.

In practice, CSOs are often funded via cross-subsidization. One customer group (or collection of groups) faces a subsidized price to promote consumption (or access) by that group. Other customer classes, customers in particular geographic areas, or consumers of related services pay more for their services to ensure the financial viability of the service provider. The economic standard for subsidization is that one of the above groups pays more than the stand-alone costs of serving that group (or a coalition of groups). Alternatively, the "favored" customer group is paying less than the incremental cost of service.

This cross-subsidy standard is more stringent than one that is based on a group paying less than its "share" of the costs of providing service--where that share involves notions of fairness or assumptions about cost-allocation procedures. Thus, some CSOs may not involve cross-subsidization (as defined within economics); at the same time, a majority of the general population could believe that revenues from the favored group are less than might occur without a social contract that kept price down for that group.

New technologies can make it harder to maintain higher prices for particular customer groups or services, since entry or self-production can lead to customers reducing their purchases from the initial supplier. Then the initial (incumbent) supplier faces financial difficulties (due to low CSO prices). Thus politically-accepted rate structures become unsustainable in the presence of competitive pressures. The next section describes the emergence of those pressures in the U.S. and regulatory responses to threatened services.

2. Basic Conditions and Change in Infrastructure Industries⁴

The five sectors described here have raised public policy issues for over one-hundred years. Institutions have evolved to address these issues, and the sectors (or industries) have

⁴ This section draws upon material prepared for a study for the World Bank, Berg (1994).

evolved in response to regulatory rules. In addition, exogenous developments have altered the industries--causing changes in the regulatory institutions and rules. Capturing the complexity of the governmental-industry interactions is a daunting task. This study focuses on current practice, except where an understanding of past regulations sheds light on today's approaches to reconciling social issues and infrastructure provision.

Each industry, telecommunications, electricity, natural gas, railroad, and water, raises its own unique policy issues. However, there are significant commonalities among the industries as well--in terms of capital intensity, fluctuating demands, long term commitments by suppliers and demanders, the role of rights-of-way, and perceptions of the output as being a "necessity". This last feature of these five industries represents a justification for community service obligations. Historically, these characteristics have prompted government intervention (and provision) to different degrees. However, the extent and pattern of regulations in the U.S. differ across industries.

It is useful to contrast the sectors in terms of the fundamental economic factors determining their industrial organization. These "basic conditions" are listed in Figure 1. Network infrastructure industries have some commonalities--factors influencing supply and demand determine the efficient configuration of the industry (which also must take into account universal service obligations and external effects). The features noted earlier were associated historically with a single supplier as being the least cost arrangement for producing the quantity demanded. Systems of cross subsidies could be sustained due to the underlying production technology or entry restrictions. Thus, economic (and political) forces lead to government involvement in these five sectors in the past. Social concerns have been a major factor for government involvement in these industries. Because of technological changes, the natural monopoly justification for regulation or public provision of these services may hold only in segments of these industries today.

Figure 1 identifies the basic conditions of five network infrastructure industries. Regulation and public ownership have emerged in response to fundamental economic features of these industries, so an understanding of these features is essential to understanding the regulatory rules that affect industry structure, organizational conduct, and market performance. The key features can be divided into supply, demand, and other factors. The supply conditions basically relate to underlying production technologies and the availability of inputs. Efficiencies associated with management overseeing several stages of production have often resulted in vertical integration. On the demand side, the size of the relevant markets and their rates of growth have a significant impact on the number of firms (or organizations) that can deliver the services in a least cost manner. That is, supply and demand conditions may be such that competition is not efficient or feasible. In addition to concerns over the exercise of market power, policy-makers have identified external effects and social concerns related to these industries. Thus, policy-makers' perceptions regarding market imperfections and market failures lead to intervention. In addition, suppliers often seek protection from potential entrants, and policy-makers utilize price structures to benefit favored customer classes. Special interest beneficiaries of entry protection, exit prevention,

Figure 1
Basic Conditions of Five Network Infrastructure Industries

	Telecommunications	Electricity	Natural Gas	Railways	Water
Supply					
Technological Change	High	Low	Low	Low/Medium	None
Stages of Production	Distribution Network Switching Transport	Generation Transmission Distribution	Production Transport Distribution	Routes Nodal Switching Rolling Stock	Withdrawal Transmission Distribution Treatment
Demand					
Demand Growth	High	Low	Medium	Low	Low
Markets	Local Service Long Distance Enhanced Services	Residential Commercial Industrial	Residential Commercial Industrial	Passenger Freight	Residential Commercial Industrial Agricultural
Other Factors					
Externalities	Spectrum Networks	Environment	Environment	Highway Congestion	Environment Property Rights
Social Concerns	Universal Service "Basic Service" Definition Freedom of Speech/Privacy	Necessity	Residential Priority	Low Density Markets	Necessity Health/Safety

and pricing policies are threatened when there are changes in technologies or in public policy priorities.

Figure 1 is a highly stylized characterization of the conditions facing the five industries. The listing illustrates how basic conditions influence public policy. If an industry can be described as a natural monopoly, then regulation is one way to obtain lower prices. However, when changes in production technologies, demand conditions, and other factors occur, we observe changes in regulatory regimes--as old rules and procedures are recognized (with some lag) as no longer matching the conditions of the industries. In addition, even where change has not been profound, an improved understanding of the long term consequences of ignoring key aspects of cost, demand, or traditional incentive structures has led to a re-thinking of the ways that economic and social objectives might be promoted in particular industries.

Basic conditions facing an industry influence the number and size distribution of suppliers which are feasible in an industry. Figure 2 lists the traditional features comprising the structure, behavior, and performance of public utility industries. Causation runs from the basic conditions to industry structure (entry conditions, number of firms, and degree of vertical integration and product differentiation). Industry structure determines, in turn, the behaviors likely to be observed (prices, promotion, research and development, production process changes, and new service introductions). The market outcomes can then be described in terms of performance criteria (profitability, efficiency, innovation, and meeting other social objectives). Clearly there are feedbacks in this process--for example, high levels of R&D can lead to innovations which affect the production technologies and entry conditions.

Figure 2 shows how traditional regulation in the U.S. influenced the structure of industries and limited the range of behaviors observed. Regulatory rules defined markets, constrained entry, and facilitated vertical integration by firms in all five industries covered in our surveys. Thus, rate of return (ROR) on rate base regulation was designed to enable the firm to earn a fair return on its investment while protecting customers from monopoly prices. Complex cost allocation procedures resulted in the sharing of capacity costs across customer groups, over markets for different services, and between geographic areas. Postage stamp (uniform) pricing was sometimes utilized, despite cost differences in serving various locations or customer groups. Such cross subsidies often funded community service obligations.

Thus, regulation influenced the number of suppliers in various markets and the prices facing customer groups. However, the optimal configuration of firms in an industry depends on the underlying basic conditions--which change over time. For example, economies from vertical integration, also called economies of sequence, change. Vertical relationships remain in some industries today--while in others, vertical disintegration has occurred. Similarly, there can be changes in the savings associated with producing several products (instead of specializing in a single product). These economies of scope determine whether

Figure 2

Traditional Features of Network Infrastructure Industries

BASIC CONDITIONS

Economies of	Demand Patterns
Scale	Price
Scope	Income
Sequence	Demographics

TRADITIONAL STRUCTURE

Regulatory	No Entry
Defined	Public Utility
Markets	Vertical Integration

TRADITIONAL BEHAVIOR

Cost-of-Service Regulation	Price-Regulated
	Production Process

TRADITIONAL PERFORMANCE

	Technological Advances
Rate of Return on Rate Base	Fair Return on Investment
Cost Allocation Manuals	Prices Based on Cost Allocations

multiproduct firms are least-cost providers of services. The familiar term, economies of scale, refers to declining average costs as output increases. All three economies characterized the production technologies of infrastructure industries in the past. Changes in the technologies and demand patterns associated with these industries have altered the nature of U.S. regulation. Often, entry (including self production) eroded the financial support required for continued cross subsidies.

In choosing appropriate regulatory policies or examining the success or failure of current policies, it is helpful to underscore the role of political systems. While there are lessons to be learned from the experiences in different countries, their application to a country such as Australia requires a deep understanding of political constraints. Institutions developed elsewhere need to be viewed with care before adoption here.

Generalizations are difficult to make for the U.S. However, Figure 3 outlines the range of policies being considered and/or adopted to address emerging issues. Telecommunications is clearly the most dynamic industry, with incumbents and potential entrants trying to manipulate the regulatory process to obtain advantages. Energy has had its own set of traumas--stemming from the OPEC shocks and new attention to environmental concerns. Electric utilities with high costs are likely to experience financial difficulty in the face of deregulation. On the other hand, in the gas-pipeline industry, the costs associated with some uneconomic investments and contracts were passed on to customers during the transition process to deregulation. U.S. railways are still dealing with the additional pricing flexibility granted to achieve revenue adequacy. For some companies, inter-city traffic on high-speed trains represents a potential market (depending on the availability of public funds). Finally, water utilities have not been high-profile markets in terms of public debate--but water presents the problems for the future. For each of the five sectors, the new emphasis on incentives for efficiency is transforming traditional regulation.

The implications for community service obligations are discussed below for the telecommunications and electricity. Each sector illustrates how competitive pressures limit the sustainability of traditional funding arrangements for meeting social needs.

3. Telecommunications

Three Tables provide an overview of current financial support mechanisms in the United States (Jamison, 1994). Lifeline/Linkup programs directly subsidize low-income subscribers. In the former, the FCC matches state-provided discounts to subscribers. This program (begun in 1985) was designed to offset the federally mandated subscriber line charge (SLC) -- taking off some of the Congressional pressure that had arisen with the introduction of SLCs. Eligibility criteria differ across states. In 1987, Link-up America was introduced, in which funds from IXCs paid half the connection charges for new subscribers. Matching state funds were not required. These funds support the universal service objective and alleviate financial hardship (Mitchell and Ingo Vogelsang, 1991).

Figure 3
New Policies for Five Network Infrastructure Industries

	Telecommunications	Electricity	Natural Gas	Railways	Water
Structure					
Number	Transitional Restrictions	IPPs and EWGs	Local Franchise	Short Lines	Industry Restructuring
Entry	Multiple Suppliers Spectrum Auctions	Entry Encouraged	Open Access	Exit Allowed	Franchise
Differentiation	New Services	Interruptibility	Contracts/Spot	Service	Recycling
Integration	Technological Convergence	Transmission Access	Unbundling	Multimodal firms	Consolidation
Behavior					
Prices	Price Caps Social Contracts	Price Regulation Price Flexibility	Market-Based Rates	Market-Based Rates	Price Regulation
R&D	Modernization/Fiber New Services	Conservation Electric Auto	New Markets	High Speed Trains	Conservation Review Water Rights
Standards	Quality Open Network Architecture	Reliability Supplier of Last Resort	Safety	Safety	Quality (Health)
Performance	Shared Earnings Banded Returns Residual Regulation Network Compatibility Universal Service First Amendment	Shared Earnings Banded Returns Integrated Resource Planning Environmental Adders	Distribution ROR Recontracting Futures Markets	Passenger Subsidies Residual Regulation Improved Financials	Yardstick Regulation Selective Simplification Operating Ratios Jurisdictional Coordination

Figure 4 How the Explicit Subsidies Work

Subsidies that Are Credits to Customers' Bills

Subsidy	Amount	Who Pays	Who Gets	How Dollars Move
Lifeline/Linkup (1991)	\$100 million	IXCs	Low income customers	<ul style="list-style-type: none"> ■ IXC pays per presubscribed line ■ Customer receives credit on bill

Subsidies to Targeted LECs

Subsidy	Amount	Who Pays	Who Gets	How Dollars Move
Universal Service Fund (1991)	\$700 million	IXCs	LECs with high loop costs	<ul style="list-style-type: none"> ■ IXC pays per presubscribed line ■ LEC receives based on loop costs
Long Term Support (1989)	\$300 million	IXCs in large-LEC exchanges	Small LECs	<ul style="list-style-type: none"> ■ IXC pays to large LECs ■ Large LECs send dollars to small LECs based on loop costs
Dial Equipment Minutes Weighting (1989)	\$200 million	IXC low cost customers	Small LECs	<ul style="list-style-type: none"> ■ IXC pays to medium-size LECs ■ Medium-size LECs send to small LECs based on size and switch costs

General Subsidies to LECs

Subsidy	Amount	Who Pays	Who Gets	How Dollars Move
Carrier Common Line (1991)	\$6.7 billion ¹¹	IXCs	LECs	<ul style="list-style-type: none"> ■ IXC pays per minute of access ■ LEC receives per minute of access
Residual Interconnection Charge (less tandem) (1993)	\$3.1 billion	IXCs	LECs	<ul style="list-style-type: none"> ■ IXC pays per minute of access ■ LEC receives per minute of access

From Jamison (1994)

¹¹Includes Long Term Support subsidy.

Figure 5 Who Regulates the Support Mechanisms

Subsidies That Are Credits to Customers' Bills

Subsidy	Amount	Regulatory Authority		
		Federal	State PUCs	Joint Board
Lifeline/Linkup (1991)	\$100 million	Yes	Yes	Yes

Subsidies to Targeted LECs

Subsidy	Amount	Regulatory Authority		
		Federal	State PUCs	Joint Board
Universal Service Fund (1992)	\$700 million	Yes	No	Yes
Long Term Support (1989)	\$300 million	Yes	No	Yes
Dial Equipment Minutes Weighting (1989)	\$200 million	Yes	No	Yes

General Subsidies to LECs

Subsidy	Amount	Regulatory Authority		
		Federal	State PUCs	Joint Board
Carrier Common Line (1991)	\$6.7 billion ¹ (nationwide)	Yes	Yes	Yes
Residual Interconnection Charge (less tandem) (1993)	\$3.1 billion (nationwide)	Yes	Yes	No

From Jamison (1994)

¹Includes Long Term Support subsidy.

Figure 6 Estimates of Financial Supports

Subsidies That Are Credits to Customers' Bills

Subsidy	Amount	Source
Lifeline/Linkup (1991)	\$100 million	Federal Communications Commission

Subsidies to Targeted LECs

Subsidy	Amount	Source
Universal Service Fund (1992)	\$700 million	Federal/State Joint Board Monitoring Report
Long Term Support (1989)	\$300 million	Weinhaus, Makeeff, et. al., <i>Who Pays Whom?</i>
Dial Equipment Minutes Weighting (1989)	\$200 million	Weinhaus, Makeeff, et. al., <i>Who Pays Whom?</i>

General Subsidies to LECs

Subsidy	Amount	Source
Carrier Common Line (1991)	\$6.7 billion ¹ (nationwide)	Estimate based on FCC and USTA data on LEC access revenues and numbers of lines, and on Sprint analysis of access bills from LECs.
Residual Interconnection Charge (less tandem) (1993)	\$3.1 billion (nationwide)	Estimate based on FCC and USTA data on LEC access revenues and numbers of lines, Southwestern Bell ex parte filing with FCC, and Sprint analysis of access bills from LECs.

From Jamison (1994)

¹Includes Long Term Support subsidy.

Additional subsidies go to targeted LECs. The Universal Service Fund paid by IXC goes to LECs with high local loop costs. Long Term Support dollars also flow from IXCs in large-LEC exchanges to small LECs. The Dial Equipment Minutes Weighting scheme leads to further funds flowing to small LECs.

The Carrier Common Line charge represents the largest general payment to LECs--part of which could be viewed as a subsidy. IXCs pay per minute of access. A Residual Interconnection Charge (again, per minute of access) leads to additional funds for LECs. The support mechanisms are regulated by a variety of agencies. The estimates are relatively recent, but are certainly subject to revision.

Several of the mechanisms benefit small (rural) LECs. A recent OPASTCO Study (1994) identifies four factors which contribute to rural LEC's higher costs:

- (1) "smaller and more geographically dispersed populations;
- (2) a higher proportion of residential versus business subscribers;
- (3) higher unit costs for usage-sensitive equipment because rural LECs cannot take advantage of economies of scale; and
- (4) higher loop-related investments due to longer loops and the remoteness of the areas they serve." (p. 2-1)

While density will continue to be a problem, the scale economies argument may lack force in the future, as switching capabilities can be concentrated from highly dispersed geographic areas.

The conventional wisdom is that past regulatory policy has enabled the subsidization of rural telecommunications. On the grounds of social fairness, access to a local exchange and the national network was given high priority. The universal service goal supports such a transfer of resources. Furthermore, on straight efficiency grounds, there were justifications for cross-subsidization: in particular, the externality associated with network size.

The technology of telecommunications is the source of numerous pricing issues. The capital intensity of the industry is widely recognized. Furthermore, "Non-traffic sensitive (NTS) plant" has dominated the cost structure of local exchange companies. The costs associated with these facilities (terminal equipment, inside wire and the local loop) do not vary with the number of calls. Historically, the assignment of these costs to local, intrastate, and interstate jurisdictions has been a political process, although the cost allocation procedures have a veneer of rationality to them. The process, codified in separations and settlements procedures, had resulted in almost thirty-four percent of local exchange costs being covered by transfers from toll customers.

The cost allocation formula changed over the years, transferring some of the efficiency savings in long distance technology to local callers. In late 1984, the Joint Board

(representing state commissions) and the FCC agreed to cap the allocation to jointly-used NTS local loop plant at twenty-five percent--phasing in the reduction over eight years, beginning in 1986. Inside wiring was deregulated. A carrier common line charge (CCLC) now provides the vehicle for collecting revenues from toll usage. In addition, there is a line termination charge (covering the interstate portion of the cost of terminating a local loop in the central office), a charge for the provision of intercept service, and a local transport charge for covering the costs assigned to transporting the call from the local exchange switch to the IXC's "point of presence" (POP). Determining these costs can be almost as problematic as the previous NTS cost allocations, although there is greater effort to identify cost-causation than in the past.

Kahn (1987) reports that about eleven billion dollars per year was transferred from interstate and intrastate toll callers to local exchanges in the mid-1980's. Over time, these transfers helped the real price of local service to decline in real terms fifty-five percent between 1940 and 1980. The price declines and real income growth lead to a dramatic increase of household telephone penetration in the period (from thirty-seven percent to over ninety-two percent, Kahn, 1987, p. 195). State regulators fear that the reduction in the contribution from long distance will hurt states (and localities) with higher NTS costs of service.

We should note that the term "subsidy" is used too freely when characterizing the process of requiring long distance calls to contribute to covering a "fair share" of the NTS costs of providing access to the local exchange. Kahn (1987, p. 195)) and others are hesitant to view the transfers of funds from long distance carriers to local exchange companies as subsidies in the technical sense of the term.⁵ Prior to recent technological advances, most long distance callers were not paying more than the stand-alone costs of serving them. However, most analysts would agree that the higher long distance prices necessitated by such cost allocations have resulted in inefficiencies since toll prices greatly exceeded incremental costs.

As plain old telephone service (POTS) is replaced by pretty amazing new services (PANS), there is concern that the nation will be split into the information haves and have-nots. If this scenario comes to pass, the goal of extending enhanced services to citizens will have been frustrated by national (and state) regulatory policies. Of course, for this concern to have validity, we need a better understanding of the underlying issue: who the "poor" are and whether proposed policies target the problem in a cost-effective way. As Myrick (1984) states, "What is needed is the coordination of action and research so that the term 'information poor' becomes a useful construct and not just a confused slogan." (p. 342)

⁵If a set of consumers is priced at less than incremental cost, they are being subsidized by other consumers. Alternatively, if they pay more than stand-alone cost, then they are subsidizing others.

The "Rural Have-Not Scenario" may generate rural development initiatives which are in conflict with other national policies. To the extent that some sort of subsidy is retained (or expanded) to promote community service obligations, we need to be sure that the collection of the funds does not induce even greater inefficiencies. An efficiency gain could be realized, based on network externalities: the value of a network to individual subscribers is greater as there are more subscribers with which to interact. This point provides a reasonable justification for increasing the penetration of "basic service". In addition, the access of all citizens to emergency services generates direct savings to taxpayers. These monetary savings arise from lower hospital bills that would have been covered by taxpayers.

As noted earlier, whether toll calls subsidized the local exchange in the past is a complex issue. Nevertheless, the separations and settlements procedures did result in a transfer of funds to local exchanges and to relatively high cost geographic areas. That system has been partially replaced by access charges to long distance providers, but the threat of by-pass constrains what can be extracted from heavy users (primarily business telecommunications users).

Historically, the cost allocation regulation associated with separations and settlements procedures helped rural areas. In 1986, about 65 percent of the revenue of rural telephone companies stemmed from long distance access charges (which replaced previous settlements transfers). Whether long distance access charges will continue to provide such a high proportion of revenues is unclear. Nevertheless, there is no evidence that rural rates have risen more rapidly than average local residential rates for the nation as a whole (Fuhr, 1989).

Prices based on the averaging of long distance costs has also benefitted rural telephone subscribers. Historically, the cost of serving dense routes was lower than the cost of a call from one rural area to another rural area in a different state. According to Parker and his colleagues (1989) the FCC continues to support nationwide rate averaging. However, competitive pressures have certainly reduced rates for high volume users. Furthermore, the FCC permitted the BOCs to pull out of the nationwide average cost pools so long as they provided funds which went to small rural carriers. Thus, transfers among BOCs based on cost pooling have been eliminated since mid-1989 (Parker, et. al. 1989, p. 55). Rural carriers are concerned that transfers to them may be ended.

As has been noted, targeted subsidies have developed to encourage network expansion and to ease financial hardships associated with telecommunications industry adjustments. In 1983, California adopted a lifeline plan: customers with incomes below specified levels obtain a 50 percent discount on basic local service plus other benefits. Johnson (1988) observes that the California plan exceeds the size of all other state plans combined: benefitting approximately one million households. The program is supported by a 4 percent surcharge on specific intrastate telephone services.

Within a year, the FCC initiated a targeted subsidy program. By 1987 twenty states were participating in a FCC program which waived all of the \$2 federal subscriber line charge if the state contributed at least another \$2 to reducing the eligible subscriber's monthly bill. In April 1987, the FCC began the Link Up America program--using funds collected from charges on long distance carriers to contribute up to \$30 towards installation fees. States were also encouraged to develop deferred payment plans for installation charges so that the up-front charges would not unduly discourage high penetration rates.

The Universal Service Fund was established as a result of concerns about the impacts of divestiture on higher cost subscribers. It allocated about \$180 million to high cost areas in 1988. These payments primarily benefit rural areas. However, not all beneficiaries are low income or disadvantaged in any way.

Also, the REA provides direct subsidies to rural telephone companies in the form of low interest loans. In fiscal year 1986, REA borrowers had \$311.2 million of long term financing approved: \$183.3 million of 5% REA loans and \$127.9 million at about 7% Rural Telephone Bank loans. Fuhr calculates a capital subsidy of over \$7.50 a year per rural subscriber for 1986. Since some beneficiaries are suburban and resort subscribers, he argues that income-based subsidies would be more cost-effective. Fuhr endorses the FCC Life-line plan as a step in the right direction. Unless subsidies are targeted to benefit specific groups, millions of dollars end up being transferred from lower to higher income subscribers.

The existence of non-compensatory pricing by a carrier of last resort raises additional issues in a partially competitive marketplace. The obligation to serve has been a traditional regulatory requirement, with the quid pro quo being entry restrictions which prevented what was perceived as "uneconomic by-pass" (or cream-skimming). Given the emergence of alternative access providers and private network operators, continued back-up (or default) responsibility raises tough issues for regulated local operating companies. It is important that policy-makers develop pricing principles which are consistent with regulatory goals, lest customers with few options would be left with significant financial burdens.

Creating ways to charge for "option demand" or backup capabilities could involve some bundling of services. Alternatively, self-selecting multipart tariffs could be utilized to identify groups with different valuations for the service. Such options conflict with cost-based pricing on the surface. But they may reflect the true opportunity costs of serving different types of customers.

The U.S. is a nation of many constituencies. We have conflicting policies in many arenas either because we lack consensus on which objective is more important, or because the fundamental linkages between policies and objectives are not fully understood. The possibility of deploying new information technologies in rural America is a case in point.

4. Railroads and Electricity

Similar issues arise in transportation. The railroad industry is characterized by very high fixed costs. Many costs are "common" in that they can be used to provide an array of transport services; this results in the existence of both economies of scale and scope. Rail service falls into two major categories -- freight and passenger. Potential Third Party Effects exist in the withdrawal of service can affect the local community -- leading to exit regulation. Nevertheless, the Interstate Commerce Commission (ICC) authorized abandonment of 1,883 miles of track in 1991. The commission identifies whether line is a burden, i.e., it doesn't earn enough to cover costs of providing service. The ICC also considers availability of transportation alternatives.

Freight and passenger service differ in terms of government intervention. The provision of freight service in the U.S. is dominated by seven major railroads including Conrail, Union Pacific and CSX; for example, Conrail is responsible for about 15% of all U.S. daily rail shipments. The provision of passenger service is handled solely by the quasi-nationalized and government subsidized National Railroad Passenger Corporation (Amtrak). Amtrak is subsidized by the Federal government. Legislation passed in 1990 placed a limit of \$684 million on Federal subsidies to Amtrak in fiscal 1991 and of \$712 million in fiscal 1992. Amtrak is government owned. There have been no appropriations for subsidized rail service since 1982.

The Staggers Rail Act improved competitiveness and allowed railroads to stem the decline in their share of the intercity freight transportation market; cost reduction took the form of abandonments, sale of unprofitable lines and productivity improvements; shippers have enjoyed a 22% average reduction in rates and improved reliability; railroad return on investment average increased to 4.9% during the 80's; but, the industry as a whole has not achieved revenue adequacy -- its return on investment has not equaled or exceeded the current cost of capital. In terms of profitability, railroads still lag behind the trucking industry. A key factor is that railroads must build and maintain its own rights-of-way unlike the trucking and barge industries. The Department of Transportation says that heavy trucks pay only 66 to 84 percent of the costs associated with their use of the interstate highways; also, the Army Corps of Engineers pays the full costs of waterway maintenance -- a form of subsidization for barges. User fees are not widely adopted.

Because there are many parallels with telephony, this overview of electricity issues will be abbreviated. Urban-rural averaging, residential customer political power, and concern for imposing hardships on low income-customers all have led to rate designs which do not reflect costs. The emerging problems are being addressed primarily at the state and local levels, given the division of regulatory responsibilities in the U.S.

The Rural Electrification Administration (REA) was created by executive order in 1935, with enabling legislation passed the following year. Government-provided low interest loans were used to fund cooperatives to build power lines. Not only are revenues tax

exempt, but the loans are subsidized. Phillips (1993) reports that as of mid-1992, " the REA had approved a cumulative total of \$22.4 billion in loans (and had guaranteed an additional \$30.4 billion) to 896 cooperatives in forty-six states." (p. 651) Over the past two decades, eighty percent of new REA customers were non-farm--leading to disputes with municipal and private utilities. Loans for generation and transmission facilities began in 1961--though today there is substantial pressure to reduce (or eliminate) these programs.

In other instances, the federal government became an electricity supplier--initially through construction and operation of hydroelectric facilities and later through fossil plants. The Tennessee Valley Authority and the Bonneville Power Administration represent large public power providers. Often multipurpose projects involved electricity production, flood control, irrigation, recreation, and other services. Municipal utilities are also significant suppliers in some regions of the country. The opening up of transmission access will put severe pressure on high-cost suppliers. Outlays for community service obligations will have to be addressed in all the states.

Currently, many utilities have introduced lifeline programs, wherein customers check whether they wish to donate to low-income electricity consumers. If there is significant "stranded capacity" due to competition, either the consumers or investors will have to bear the residual obligation. Not since the OPEC disruptions have electric utilities in the U.S. faced severe dislocations. The transition to more competitive electricity markets will be raising significant political issues in the near future.

5. Concluding Observations⁶

Ely provided a wonderful statement on the nature and scope of economics in his 1908 revised edition of *Outlines of Economics*:

The peculiar and distinctive office of the economic scientist... is to emphasize the less tangible truths, the remoter consequences, the deeper and consequently less obvious forces of economic society. The impulses of the moment, the immediate demands of the hour, the present "fact" that stares us in the face (and sometimes blinds us), are not likely to lack vigorous champions; and to preserve the balance there is need of a craft of thinkers far enough removed from the battle to preserve the wider outlook, mindful of the lessons of the past, jealous for the rights of the future, insistent upon the less obvious truths. This is why economics so frequently appears to the practical man strained and academic. This impression arises from a difference of emphasis which in the main is as salutary as it is inevitable. The academic quality of the economist's work arises sometimes from ignorance, sometimes from pedantry, but more frequently from his courageous insistence upon the

⁶This section draws upon Berg-Tschirhart (1995).

importance of the less tangible truths and the distant consequences of present action (Ely, 1908, p. 8).

Ely's observation underscores the importance of the "less obvious truths".

One "truth" is that deregulation tends to stimulate cost reductions and encourages the exploration of demand elasticities. Enhanced economic incentives for innovative efficiency can outweigh short run inefficiencies from temporary market power. With deregulation, identifying which firm (or location) has economic advantages is a task involving trial and error. Unless chronic excess capacity and duplication of facilities is likely to result, a strong case can be made that this task be left to the marketplace, rather than to administrative procedures.

Another "truth" involves the applicability of the contestable markets model in a situation of easy entry and minimal commitments tying particular customers to particular vendors is applicable. No residual regulation is needed to protect consumer interests. The bankruptcy of particular vendors may cause dislocations, but at least the elimination of inefficiencies accompanies such adjustments:

Indeed, complaints about deregulation are more likely to originate with the factors of production--labor and capital--for deregulation can often mean erosion of a previously privileged position. ...But from the standpoint of consumer (or shipper) interests above, a prompt, almost immediate, transition would seem advisable (Meyer and Tye, 1985, p. 50).

The model is less applicable when there are limited entry possibilities, with some consumer groups having sunk costs or commitments tying them to specific vendors for some period to time. Inelastic demands associated with sunk investments at particular locations can be subjected to monopoly exploitation. Ramsey pricing rules based on relative short-run elasticities raise questions of fairness. Claims of injustice arise as price discrimination emerges. Meyer and Tye are concerned with price differentials inducing investments that do not prove to be economically efficient in the long run.⁷ They are skeptical of using Ramsey pricing when our knowledge of short and long-run demand elasticities is so limited, particularly when endogenous R&D investments will alter those elasticities.

Besides recognizing uncertainties related to economic parameters, the economist's emphasis on efficiency as the justification for regulation must be tempered by other factors.

⁷ It should never be forgotten that in a market economy, whenever prices for any activity rise disproportionately above the underlying cost fundamentals, business ingenuity (in the form of new or altered technologies, product and location substitutions, etc.) is quickly applied to finding ways to do with less (Meyer and Tye, 1985, p. 50.)

In particular, political constituencies and powerful special interests can dominate regulatory debates. Such considerations are sometimes clothed in concerns for equity, but inappropriate regulation can induce resource misallocations, reducing the gains to intervention. Policy choices are further complicated by how regulators respond to and stimulate technological advance. Monetary and nonmonetary objectives can both be achieved more easily during periods of productivity advance. The savings are passed on to customers via competitive pressures. Explicit tax and transfer mechanisms can provide funds for the provision of publicly endorsed social services. Most economists argue that those favoring command and control mechanisms for infrastructure provision have to be able to step back to see the big picture: price caps and deregulation can make economic sense when the justification for government controls are weakened by economic change.

In concluding this survey, it is useful to underscore lessons from the U.S. experience:

1. **A variety of approaches have been used to promote the achievement of community service obligations. Government ownership in electricity continues for twenty percent of the output. Geographic rate averaging has tended to benefit low density customers of both private and public systems. In telecommunications, pricing above cost for long distance has enabled transfers to LECs--keeping local rates down.**
2. **The effectiveness of public policy has been mixed. Policies get enshrined in stone, until cracks appear--related to inefficient pricing. In telecommunications, the general transfers to LECs via carrier common line charges and residual interconnection charges have encouraged bypass activities. There is evidence that targeted subsidies related to universal service funds and lifeline/linkup have been effective in promoting telephone penetration.**
3. **The direct costs of present approaches involve administrative outlays associated with regulation. Some customers pay relatively high prices--though self-production and competitive pressures (including bypass) have stimulated cost reductions and rate re-structuring. However, the process has been slow and somewhat disjointed.**
4. **The indirect costs of past policies may have been significant. Misallocations stemming from inefficient pricing have been estimated to be billions of dollars for telephone. There has been substantial corporate gaming as regulators and legislators become arbiters of market structure and corporate behavior.**
5. **The most effective public policies have been targeted at specific objectives. In particular, while targeted transfers represent less than ten percent of the support going to LECs, they are much more effective in benefitting low income customers and those living in high cost areas than generalized cost allocations.**

6. **Competition has eroded cross subsidies, as initial entry occurs in high margin services. Current stakeholders have tried to limit the threats presented by new suppliers. However, rate restructuring is occurring over time.**
7. **Innovation, by definition, is highly disruptive of existing economic relationships. However, as the fundamental engine of growth for the economy, industrial policies ought to be designed to promote entrepreneurial activity in infrastructure industries.**
8. **The emergence of competition and new technologies has forced policy-makers to modify regulations in the U.S.. Part of the response may be purely ideological--it's time to try something different! However, part of deregulation thrust stems from new understandings of the benefits and costs of command and control mechanisms.**
9. **In telecommunications, despite the political rhetoric surrounding the Information Superhighway, private investments and entrepreneurs will determine the level and mix of resources devoted to telecommunications infrastructure. At the local level, some municipalities will attempt to leverage their control of rights-of-way and electricity distribution into the provision of fiber to the curb. In energy, income distributional concerns are less prominent than in the past, although environmental concerns and energy conservation continue to influence policy development.**
10. **In the U.S., government constraints will continue to shape private decisions (via entry restrictions and access regulations). Policy-makers will still be driven by mistake avoidance, placing the burden of proof on new entrants and giving undue weight to the status quo. The economics and politics of interconnection charges are still be worked out in electricity and telecommunications, although progress is occurring in some states.**
11. **Finally, competition appears to be inconsistent with a system of generalized cross-subsidies embedded in a regulated incumbent's rate structure. Such subsidies are not sustainable. Nevertheless, the political process has tried to moderate the rate of restructuring necessitated by competitive entry.**

Another observation emerges from this listing of points regarding recent initiatives and mistake avoidance. Something comparable to the Physicians' Law ("Do no harm") applies in the political arena: "Given that mistakes will be made, decision-makers will try to make mistakes which are difficult to detect." Undetectable mistakes are those stemming from inaction! Consider two mutually exclusive hypotheses: (1) The current policy towards community service obligations (CSOs) is best; and (2) Privatization and targeted subsidies would be the most effective way to achieve CSOs. If (1) is true and the status quo continues, then a correct decision is made. If the alternative hypothesis is true, we say a "Type I Error" is committed if the first hypothesis is accepted. If hypothesis (2) is true, but the status quo is continued, then a "Type II Error" is committed. Note that the second type of mistake is much easier to detect--leading to a natural preference for the status quo by

policy-makers. The burden of proof for change will be placed on those promoting the alternative.

The asymmetries described above are not necessarily bad. Stakeholders (both suppliers and demanders) have made investments based on existing institutional arrangements. Dramatically shifting policies in response to every minor change in the economy is costly and disruptive. However, transitional policies can be developed to gain information about the costs of making a Type II Error. Studies of international experiences represent one way to identify how alternative policies might promote CSOs. We gain additional data points over time, across industries, and across countries. Improvements in our understanding of the strengths and limitations of markets (and governments) increases the likelihood that public policy decisions will be based on reality. Without such understanding (and the willingness to risk Type II errors), political institutions revert to the familiar. Those institutions may be inconsistent with economic reality.

When asked "What are more important, facts or ideas?", the philosopher Alfred North Whitehead responded: "Ideas about facts." This is the essence of good economic analysis--producing one of Ely's "less obvious truths." It is a fact that new technologies create opportunities for change in infrastructure industries. An interesting idea is that public and private decision-makers face penalties when mistakes are made. Public policymakers will focus on avoiding Type I errors. Many observers would conclude that policymakers ought to make more Type II errors. The trick is to identify truly promising alternative policies and accept the fact that mistakes are going to be made. As a result of change, some CSOs are likely to be compromised unless direct funding is possible.

Where does that leave community service obligations? Since these take resources and commercial service offerings will tend to be priced at cost, policy-makers will have to devise alternative (targeted) funding mechanisms. What are currently *implicit taxes* on specific customer groups or those living in particular locations must become *explicit taxes*. The combination of competition-induced efficiencies and better targeted programs enable potential win-win outcomes.

Although no simple road-map exists for privatization, corporatization, partial regulation or moving to full deregulation, economic principles can serve as guideposts along the way. For example, vertical integration and diversification greatly complicate regulatory oversight responsibilities. Given the complexity of the issues raised by multiproduct firms which are partially regulated, we cannot expect to find simple mathematical formulas for resolving tough social issues. The issues associated with universal access, regional development, and low income customers do not disappear when incumbents cease subsidizing particular services, favored customer groups, or customers in rural areas. Nevertheless, we must consider Ely's "less obvious truths:" technological opportunities and demands are changing--altering the gains to government ownership and to traditional command and control regulation. Given changing demand patterns and technologies, alterations in product mixes, and new production interdependencies in traditional natural

monopoly industries, it is hard to justify a "politics as usual" approach to infrastructure provision in the telecommunications, energy, and transportation sectors.

Addendum on Political Economy

The main purpose of this paper was to provide an overview of how the provision of infrastructure can be addressed in the context of social (non-monetary) objectives. Achieving social objectives still involves economic costs -- whether in terms of taxation or foregone opportunities. So the previous sections emphasized the kinds of economic trade-offs that need to be considered when addressing social issues. This Addendum explores the political economy of legislative or regulatory initiatives. Some of these points have been anticipated in previous sections, but they are considered as an Addendum in recognition that these ideas are probably more controversial than those presented earlier.

It has been argued that the study of economics makes one politically conservative (Stigler, 1959). Whether skepticism with regard to government intervention is healthy (or not) is partially a matter of taste. However, many who evaluate public programs find that government intervention is often counterproductive and leads to inefficiencies and transfers of wealth that benefit the powerful. Not only is redistribution via intervention (taxation via regulation) viewed as generally benefitting the unworthy, but it induces price distortions that create inefficiencies. While market imperfections and failures are often viewed in the popular press as requiring government corrective action, citizens are gaining an awareness of government imperfections and failures.

Markets have strengths and shortfalls, with substantial analysis directed towards circumstances where intervention can improve resource allocation. For example, monopoly analysis has identified the misallocations and wealth transfers associated with the exercise of market power. Similarly, international trade theory has formalized conditions under which protective tariffs for "infant industries" make sense. Nevertheless, technically-trained analysts who are well-grounded in historical experience tend to be skeptical of "statism" (excessive intervention).

Economists have documented how transaction costs, information asymmetries, and property rights issues constrain private decision-making. These circumstances also limit the effectiveness of government decision-making. As Gordon (1994, p. 109) states, ". . . many arguments for intervention overstate the problems of efficient private organization and understate the drawbacks of government." He is particularly skeptical of those who let sincerity and fervor substitute for careful cost-benefit analysis when considering policy options. As a conservative economist, he views managed markets as comprising a slippery slope on the way to comprehensive intervention. From this perspective, benign neglect can be the best way to address the crisis of the week. Often, unrealistic political expectations combine with the influence of special interests to exacerbate the situation (eg. U.S. energy policy in the 1970s). There is no doubt that intervention often protects established groups at the expense of innovative newcomers.

Based on these observations, Berg's three "laws" of political economy can be identified. None have the force (or scientific basis) of the Law of Gravity, but they warrant more attention from policy-makers.

First Law of Political Economy:

No new law is promoted on the basis that it benefits the powerful.

A corollary to this Law is that sponsors of new legislation will advocate it on the basis of promoting the public interest and general welfare, increasing fairness, and/or enhancing opportunity. That these laudable objectives are hard to quantify does not make them irrelevant. However, the lack of specific targets associated with the public interest makes it difficult to halt a new program that is actually ineffective. Without a clear test regarding success or failure of a program, it is likely to continue for an unreasonable period of time.

Second Law of Political Economy:

The powerful are seldom worse off after a new law has passed.

In a sense, this point is tautological. If a group is directly (or even indirectly) harmed by legislation, then it could not muster the votes to block passage--implying that the group lacked power. Yet, the point is still important. Since most legislation is supported by claims at promoting the "social good", the implementation of the new law is not likely to harm those who are politically powerful.⁸

The fundamental corollary to the Second Law is that laws ought to focus on enhancing efficiency. Otherwise, laws involve zero-sum games. That is, since the powerful are not harmed, a new law will tend to redistribute benefits among others: some are winners and others are losers. Such relatively random sets of transfers are unlikely to be categorized as "in the public interest" or as enhancing fairness. Improvements in efficiency expand the production possibility frontier -- making more output available for those who are not powerful - without harming those who are powerful.

Based on the above discussion, laws not aimed at promoting efficiency (expanding production and consumption possibilities for the economy) either benefit the powerful and hurt others or have no net positive impact. Valid justifications for intervention are often misapplied in practice. The design and implementation of sound policies recognizes the tendency of bureaucracies and special interests to dominate the process. The passage of legislation dissipates whatever forces were addressing some issue, thereby delaying the passage of a truly beneficial or effective law--one that creates net gains.

Third Law of Political Economy:

⁸ In some cases, groups can be galvanized into more political action, by joining an existing coalition -- to resist further legislation.

Policy-makers who concentrate on laws and regulations that promote efficiency also promote the potential achievement of other social objectives.

The Third Law is essentially one that supports specialization and an appropriate division of labor among government agencies (See Schmalensee, 1979, for a more comprehensive argument on this point). From this perspective, regulatory agencies should focus on expanding society's capabilities to address issues.⁹ Social welfare agencies then have the responsibility for dealing with the income distribution and other concerns. Objectives such as regional development fall between these points on the spectrum, since they involve tax and transfer activities but are supposed to focus on expanding the productive capabilities of a geographic region (though at the expense of some expansions that would have occurred elsewhere).

Programs that create wealth make it easier for us to address other concerns, including the distribution of wealth across individuals, social groups, industries, and geographic areas. If new capabilities are not created as a result of a law--such as one that changes incentives--then the law has essentially stimulated the "churning" of wealth¹⁰. The attendant protective measures taken by those who might be affected by such legislation is a drag on the economy. Resources are reallocated to unproductive rent-seeking activity as public and private special interests attempt to manipulate the political process. The cumulative effect of such activities can be very harmful to society.

⁹ Note that I emphasize *addressing* rather than *solving* issues. If there is a social concern related to infrastructure access and pricing, then no single law or policy will *solve* the problem. Given the interdependent nature of the modern economy, new mandates induce side effects. Other objectives are compromised, and new legislation is proposed in reaction to these developments. No real problems are ever solved--we just deal with them!

¹⁰Both producer protection and consumer protection can occur in this competition for legislative favors. A general theory of political rent-seeking activity has emphasized rent creation (Tollison, 1982) and rent extraction (McChesney, 1987), where both can involve misallocations.

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