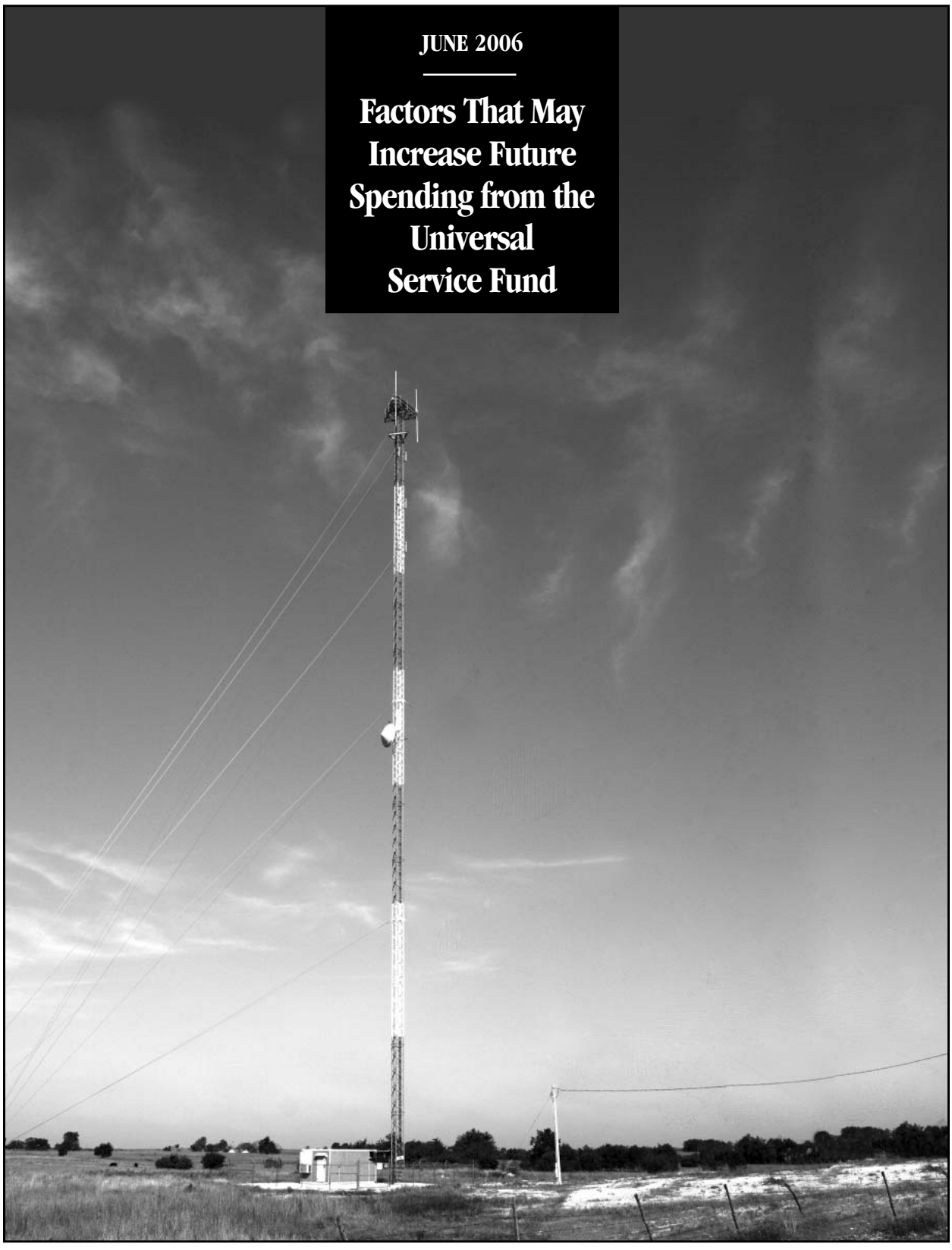
CONGRESS OF THE UNITED STATES
CONGRESSIONAL BUDGET OFFICE

A
CBO
PAPER

JUNE 2006

Factors That May Increase Future Spending from the Universal Service Fund



Pub. No. 2695

A

CBO

PAPER

Factors That May Increase Future Spending from the Universal Service Fund

June 2006

The Congress of the United States ■ Congressional Budget Office

Notes

Unless otherwise indicated, the years referred to in this report are calendar years.

Numbers in the text and tables may not add up to totals because of rounding.

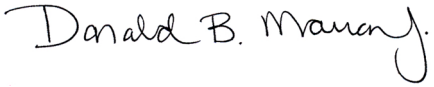
Preface

To encourage greater access to telephone and other telecommunications services, the Universal Service Fund (USF) provides financial support to some producers and consumers of those services. Spending for USF programs rose by 50 percent between fiscal years 2000 and 2005. Much of that increase went to support companies that offer telephone service in rural locations and other areas where the cost of providing such service is higher than the national average.

This Congressional Budget Office (CBO) paper—prepared at the request of the Senate Budget Committee—examines recent trends in spending by the USF's High-Cost Program, which subsidizes telecommunications providers in high-cost areas. The paper examines factors that may increase such spending in the future and discusses options to restrict the growth of outlays. In keeping with CBO's mandate to provide objective, impartial analysis, this report makes no recommendations.

Philip Webre of CBO's Microeconomic Studies Division wrote the paper under the supervision of Joseph Kile and David Moore. Douglas Hamilton, Melissa Petersen, Sarah Puro, and Dennis Zimmerman of CBO offered helpful suggestions, as did Billy Jack Gregg of the Consumer Advocate Division of the West Virginia Public Service Commission; John Nakahata of Harris, Wiltshire, and Grannis, LLP; Greg Rosston of Stanford University; and others. (The assistance of external reviewers implies no responsibility for the final product, which rests solely with CBO.)

Christian Howlett edited the manuscript; Loretta Lettner and John Skeen proofread it. Angela Z. McCollough prepared tables and drafts of the paper. Maureen Costantino designed the cover and prepared the paper for publication. Lenny Skutnik produced the printed copies, and Simone Thomas prepared the electronic version for CBO's Web site (www.cbo.gov).



Donald B. Marron
Acting Director

June 2006

Contents

Tables

Figures

Summary

The Universal Service Fund (USF) subsidizes certain producers and consumers of telecommunications services. Under its High-Cost Program, a majority of the USF's spending goes to companies that provide voice telephone connections in areas where the cost of offering such service is higher than the nationwide average. That program aims to ensure that the prices charged to telephone customers in such high-cost areas—mainly rural and insular (island) locations—are comparable to prices charged to urban customers. Smaller USF programs subsidize telephone service for qualified low-income people (urban or rural) and Internet and other advanced telecommunications services for schools, public libraries, and rural nonprofit health care providers.

Annual outlays from and revenues to the Universal Service Fund have grown by more than 50 percent since fiscal year 2000, to around $7 billion. The main source of growth has been the High-Cost Program, whose spending has doubled in the past six years. Spending for that program could more than double again in the next few years, the Congressional Budget Office (CBO) estimates, depending on the outcome of various legislative and regulatory changes that are under discussion. If such an increase occurred, the fees that are levied on telephone companies and customers to finance the USF would, by law, have to rise significantly as well.

This paper focuses on factors that may increase the budgetary pressures facing the High-Cost Program in the future. Those factors include legislative and regulatory decisions about how to fund telephone providers (particularly wireless companies) that are entering rural markets to compete with traditional telephone providers; how to use the USF to compensate rural telephone companies for revenues lost from changes in regulated telephone rates; and whether to include rural broadband (high-speed) Internet access among the services subsidized by the USF. This paper also discusses some potential policies to control future increases in spending by the High-Cost Program.

The Universal Service Fund's Structure and Financing

The Universal Service Fund supports four main programs that are designed to help achieve the federally mandated goal of universal service in the United States. The High-Cost Program makes payments to eligible local telephone companies that serve customers in remote or rural areas where the cost of providing service comparable to that available in urban areas is substantially greater than the national average. The Low-Income Program provides funding to local telephone companies that enables them to offer discounts to low-income consumers on the installation of standard residential telephone service or assistance with monthly service charges. The Schools and Libraries Program reimburses providers for giving discounts to schools and libraries for the purchase and installation of advanced telecommunications services, such as high-speed Internet access. The Rural Health Care Program serves the same function for nonprofit health care providers in rural areas.

The USF operates by collecting mandatory payments from all providers of interstate and international telecommunications services in order to subsidize local services and providers. Those payments are based on a percentage of the revenue that telecommunications companies derive from providing interstate and international services (subject to certain adjustments).[1] Companies may recover all or part of their payments to the USF by passing the cost on to their customers.

1. For more information, see Congressional Budget Office, *Financing Universal Telephone Service* (March 2005).

Summary Table 1.

Receipts and Outlays for Universal Service Fund Programs, 2000 to 2005

(By fiscal year, in billions of dollars)

	2000	2001	2002	2003	2004	2005
Receipts	4.5	5.2	5.4	5.7	6.4	7.0
Outlays						
High-Cost Program	1.9	2.6	2.8	3.3	3.4	3.8
Low-Income Program	0.5	0.6	0.7	0.7	0.8	0.8
Schools and Libraries Program	1.6	1.7	1.6	1.6	1.5	1.7
Rural Health Care Program	*	*	*	*	*	*
Total	**4.0**	**4.9**	**5.1**	**5.6**	**5.7**	**6.3**

Source: Congressional Budget Office based on data from the Federal Communications Commission.

Notes: * = less than $50 million.

The numbers shown here are for receipts and outlays of the Universal Service Administrative Company, which administers Universal Service Fund (USF) programs. Actual USF program commitments differ from these figures.

Under the USF, fees paid by some telecommunications service providers and their customers are directed to other providers so that certain groups of people can connect to telephone networks at lower prices than they would otherwise face. Because those transfers are required by law, payments into and out of the USF are counted as revenues and outlays in the federal budget. However, USF fees are adjusted regularly to match expected spending, so the fund is basically budget-neutral. (In practice, the USF runs a small surplus because of the lag between commitments to projects and payments for them.)

The benefits provided by the USF's programs impose a cost on the economy, regardless of how those programs are treated in the budget. Both consumers' purchasing decisions and providers' investment decisions are influenced by the way the USF collects its receipts and spends its resources. As is the case with any tax or fee, the effects of USF fees vary with their size and structure.

Current Spending and Future Pressures on the Universal Service Fund

The outlays and receipts flowing through the USF have grown substantially in recent years. Between fiscal years 2000 and 2005, annual outlays from the fund rose from $4.0 billion to $6.3 billion, while receipts grew from $4.5 billion to $7.0 billion (see Summary Table 1).[2] Outlays may not be the best measure of the yearly claims that universal service programs make on the telecommunications sector. The revenues that telecommunications companies (and ultimately their customers) are required to pay into the USF better represent those programs' anticipated claims on the economy, since they take into account commitments that have been made but not yet paid for.

In the past six years, growth in spending for the High-Cost Program has accounted for 83 percent of the rise in USF outlays, or roughly $1.9 billion of the total $2.3 billion increase. Growth in the Low-Income Program has accounted for another $300 million, whereas spending for the other support programs has not changed much.

Two main factors have caused the growth in spending for the High-Cost Program. Increases since 2003 represent additional resources being devoted to rural telecommunications, mainly to support cell phone companies that are new competitive entrants to rural markets. Earlier increases in spending were essentially accounting changes mandated by the Telecommunications Act of 1996. That law required telephone regulators to convert subsidies that had been included in the prices of long-distance and other services (called implicit subsidies) into payments from the USF (explicit subsidies).

2. Those figures are for outlays and receipts of the Universal Service Administrative Company (USAC), the not-for-profit agency that administers USF programs on behalf of the Federal Communications Commission. USF program commitments differ from those numbers. In addition, USAC's fiscal year is different from the federal fiscal year in that it begins on July 1 rather than October 1.

Possible Sources of Future Spending Growth

Disbursements for the High-Cost Program have doubled since 2000, from $1.9 billion to $3.8 billion. CBO estimates that such spending could continue to increase rapidly depending on legislative and regulatory decisions about three potential sources of budgetary pressure on the program:

- Further increases in the number of telephone carriers—predominantly wireless telephone companies—eligible to receive universal service subsidies for high-cost regions;
- Possible changes in the structure of the rates that telephone companies charge one another for connecting and transferring calls (known as intercarrier compensation); and
- Possible inclusion of broadband Internet connections in an expanded definition of universal service.

The first two factors could add between $1.4 billion and $4.0 billion to the annual outlays of the High-Cost Program by 2011, CBO estimates (see Summary Table 2). The lower end of that range represents an increase of about one-third from current spending; the higher end implies that spending would double. If, instead, outlays for the High-Cost Program continued to grow at the average annual rate of the 2000-2005 period, they would be roughly $2.2 billion higher by 2011—or in the middle of that range.

CBO's 10-year baseline budget projections for the Universal Service Fund account for some of the budgetary pressures described above, but not others.[3] The baseline assumes moderate growth in funding for wireless companies entering the market in high-cost areas, on the basis of trends from previous years and anticipated increases. However, because CBO's baseline is predicated on current law and policies, it does not account for new legislative or regulatory actions, such as a restructuring of intercarrier compensation rates and payment flows or new initiatives in rural broadband.

Continued Increases in the Number of Eligible Telephone Companies. Following the 1996 Telecommunications Act, the Federal Communications Commission (FCC) made more telephone companies eligible for support under the High-Cost Program, and a growing number of companies began to apply to be designated as eligible to receive USF funds. The result is that the amount of funding going to new "competitive eligible telecommunications carriers" has risen dramatically. Funding for those carriers—usually wireless companies—accounts for about 94 percent of the increase in spending by the High-Cost Program since 2003.

Both the number of carriers receiving payments under the High-Cost Program and the amount of funding given to competitive entrants have grown over the past several years. In 2000, just two competitive telecommunications carriers were eligible for high-cost support. By 2005, that number had risen to 263 (some carriers are counted more than once in that figure because of the way the data are tallied).

Similarly, funding for competitive entrants has grown from $130 million in 2003 to an estimated $640 million in 2005. Typically, about 95 percent of that funding in any given year goes to wireless companies. By contrast,

Summary Table 2.

Additional Spending for the High-Cost Program in 2011 from Various Sources

(Billions of dollars)

	Estimated Range of Additional Spending	
	Low End of Range	High End of Range
Further Growth in the Number of Wireless Companies Entering High-Cost Markets	0.6	1.2
Restructuring of Intercarrier Compensation Rates[a]	0.8	2.9
Total (Excluding broadband)[b]	**1.4**	**4.0**

Source: Congressional Budget Office.

Note: n.a. = not applicable.

a. The numbers shown here are CBO's extrapolations of estimates by the National Exchange Carrier Association.

b. Increased spending for broadband (high-speed) Internet access in rural areas is likely to be determined through legislative activity, which CBO has no basis for predicting.

3. Those projections were published in Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2007 to 2016* (January 2006), Tables 3-3 and 4-9.

funding for the first carrier in each market (the "incumbent" service provider) has been nearly constant in the past three years at between $3.1 billion and $3.2 billion, probably because of the cap currently imposed on one type of high-cost support for incumbents. Early projections for 2006 suggest a substantial rise in spending for new entrants and continued stability in spending for incumbents.

In the absence of policy changes, that pattern appears likely to continue. Less than one-third of the cellular telephone connections in rural areas currently receive USF subsidies. If the companies serving the unsubsidized connections apply for funding, subsidies for those competitive entrants may increase substantially. The main source of uncertainty about the extent and timing of that increase is how rapidly all of the potentially eligible carriers will apply for and be granted eligibility.

On the basis of data from the Bureau of Labor Statistics, CBO projects that rural cell phone subscribers will number about 22 million in 2011. Competitive entrants received subsidies on some 4.6 million rural cellular connections last year. The most likely scenarios are that the current level of subsidized connections could double or triple by 2011. If subsidy costs moved in tandem with subscription counts, USF spending to support competitive entrants would also double or triple, rising by between $600 million and $1.2 billion (see Summary Table 2).

Changes in the Structure of Intercarrier Compensation Rates. Regulators have often set some of the per-minute rates that telephone companies charge one another for the interconnection and transfer of long-distance and other calls above the cost of those activities in order to provide an implicit subsidy to local telephone companies and their customers. Such payments flow primarily from long-distance companies to local telephone companies.

The level of intercarrier compensation has declined in recent years. One reason is that consumers are increasingly substituting e-mail and wireless long distance (which often bypasses the landline system) for traditional long-distance calling. Another reason is that regulators have reduced some of the rates charged for intercarrier compensation.

At the same time, technological improvements in telecommunications equipment have decreased the costs that carriers incur in routing and connecting telephone calls. Because the prices that customers pay—which include intercarrier compensation payments—have not fallen as rapidly, those prices do not reflect the underlying economic costs of providing different types of service and thus distort consumers' choices. For example, consumers may choose to make long-distance calls on a cell phone despite its inferior coverage or voice quality because their plan offers such calls at no extra cost, whereas their landline service costs them 5 cents or 10 cents per minute. However, the difference in actual costs to the telephone network between completing a long-distance call from a landline and completing one from a wireless telephone is not as great as the difference in prices charged to customers. That disparity has prompted a number of proposals to restructure intercarrier compensation rates.

Most of the restructuring proposals that are being discussed would reduce revenues to the smaller companies that often serve high-cost and insular areas. One way to offset those companies' revenue losses would be to provide supplemental payments through the Universal Service Fund. In the past, when cuts in long-distance access rates reduced the income flowing to rural telephone companies, the USF increased its payments correspondingly. As in earlier instances, such a change in intercarrier compensation would convert regulated payments among carriers into regulated payments into and out of the Universal Service Fund and could alter the distribution of costs and subsidies among consumers.

Restructuring intercarrier compensation has substantial budgetary implications for USF spending. Depending on the proposal selected, changing the intercarrier compensation system could add between $800 million and $2.9 billion to annual outlays for the High-Cost Program by 2011 (see Summary Table 2). Much of that increase could occur under current law. The FCC has the legal authority to alter the interstate portion of intercarrier compensation. However, there is disagreement about whether it could adjust intercarrier compensation rates within a state without additional legislation.[4]

4. See National Association of State Utility Consumer Advocates, *Initial Comments of the National Association of State Utility Consumer Advocates Before the Federal Communications Commission in the Matter of Developing a Unified Intercarrier Compensation Regime*, CC Docket No. 01-92 (May 23, 2005), pp. 40-43, available at www.nasuca.org/Intercarrier%20Compensation%20Comments.pdf.

In a filing to the FCC, the National Exchange Carrier Association (NECA) compared various proposals for restructuring intercarrier compensation to determine how they would split the burden among the different revenue sources—intercarrier compensation itself, telephone subscribers, and the Universal Service Fund. NECA's analysis looked at the records of a sample of its member companies and determined how much of the $8.0 billion in income they received in 2003 came from subscribers' fees, intercarrier compensation, and universal service subsidies. (Those NECA members, which are incumbent telephone companies, received about three-quarters of the subsidies paid by the High-Cost Program that year.) The association then modeled the various proposed rate changes to see how much they would lower revenues relative to a baseline estimate of the calls and minutes handled by NECA members.

In the three proposals that NECA modeled, the majority of the revenues lost from restructuring intercarrier compensation would be made up through increases in spending by the Universal Service Fund. For example, under the first proposal, intercarrier compensation payments were estimated to fall from $2.3 billion to $1.4 billion. To compensate, the proposal would raise subscribers' rates to collect an additional $0.3 billion in revenue and would increase USF payments by $0.6 billion, a 25 percent rise. The increase in USF support would be much higher under the other two proposals that NECA examined: more than 60 percent. (The analysis was static and did not account for changes from the 2003 baseline in the number of calls and minutes of use.)

To estimate the total impact on USF spending from restructuring intercarrier compensation, CBO adjusted NECA's estimates to account for carriers that were not in the sample. That extrapolation suggests that the three proposals analyzed by NECA would increase spending for the High-Cost Program in 2011 by $0.8 billion to $2.9 billion. (The latter figure includes $0.8 billion in additional USF spending from removing the cap on certain high-cost support payments to incumbent providers, which was part of one of the proposals.)

Inclusion of High-Speed Internet Access in Universal Service. The 1996 Telecommunications Act requires that the basket of services included in the definition of universal service—and thus eligible for USF support—be reviewed and updated periodically. The law assigns that task to the Federal-State Joint Board on Universal Service (composed of regulators from the FCC and the states), which makes recommendations to the FCC. Many analysts and interested parties have argued that broadband Internet access should be one of the residential services paid for by the High-Cost Program. (It is already subsidized by the much smaller Schools and Libraries and Rural Health Care Programs.)

Broadband is penetrating into rural areas at a rapid pace, albeit more slowly than in urban and suburban areas. Currently, some 920 rural telephone carriers offer broadband service under terms set forth by NECA. Only one-quarter of the carriers participating in the association do not yet offer broadband service. Furthermore, according to one recent survey, rural areas are only about two years behind urban areas in their broadband subscription rates.[5]

Some of that rural expansion is already being supported by the High-Cost Program. Telephone network investments subsidized by the program often allow for both conventional telephone service and broadband, because most modern telephone equipment is capable of providing voice and data services. In addition, the Department of Agriculture's Rural Utilities Service has begun making low-interest loans to companies that invest in broadband. (The Agriculture Department's credit program for conventional telephone service has long made low-interest loans to carriers that invest in telephone networks capable of providing broadband as well as voice telephone service. Many of those loans were made for equipment that subsequently formed part of the cost basis for USF support.)

Including broadband in the definition of universal service would represent a new commitment of economic resources, as well as an increase in the amount of funds transferred among different groups of consumers. Those new resources could come directly from the USF (as was the case in the Schools and Libraries Program) or indirectly, through the expansion of other initiatives, such as the Rural Utilities Service's program of loans and loan guarantees for rural broadband. Even the expansion of such indirect programs, however, could ultimately increase USF spending if those programs were used to

5. John Horrigan, "Rural Broadband Internet Use" (data memo, Pew Internet and American Life Project, Washington, D.C., February 2006), available at http://207.21.232.103/pdfs/PIP_Rural_Broadband.pdf.

expand the broadband-capable telephone networks of carriers that receive USF support.

Members of Congress have introduced various proposals to increase the availability of broadband in rural areas. One approach would be to spend a limited amount each year on supporting the deployment of broadband and distribute that funding among unserved areas through a competitive selection process, as is done in the Schools and Libraries Program. A bill before the Congress, S. 2686, would direct the FCC to collect and spend up to $500 million a year in that way to encourage the spread of broadband service.

Paying for Spending Increases

The possibility of future increases in USF spending raises the question of how such expenditures would be paid for. At present, the USF is financed through a percentage fee on the value of interstate telecommunications services, including long-distance revenues, a portion of cell phone revenues, and part of the basic subscriber charges that customers pay to local telephone companies. That fee is calculated quarterly and is generally set to keep the USF budget-neutral.

Telecommunications spending is rising in the economy as a whole, but the revenues that are subject to universal service fees have declined since 2000. Because USF spending has been growing while the telecommunications base from which its receipts are drawn has been shrinking, the percentage used in calculating the fee on eligible telecommunications revenues has risen. In 2000, the quarterly fee rate never exceeded 6 percent; in 2005, it never fell below 10 percent.

Further increases in spending by the USF would drive up the fee percentage even higher, unless either a different revenue mechanism was devised or the base of telecommunications services subject to the fees was broadened. Higher fee levels might cause consumers to shift more of their spending to telecommunications services that are not subject to USF fees—such as e-mail and instant messaging—thus reducing receipts for the fund.

Options for Curtailing the Growth of USF Spending

To illustrate how lawmakers or regulators might alleviate some sources of budgetary pressure on the Universal Service Fund, this paper examines several policy options, each geared toward one of the aforementioned sources of spending growth:

- Under the structure of the High-Cost Program, more wireless carriers are likely to be designated as eligible to receive support payments for providing service in high-cost areas. Spending for that program could be curbed by limiting high-cost support to one connection per household, by basing support on each carrier's own costs rather than on a cost standard set by the incumbent carrier, or both.

- In other instances, regulatory processes can put pressure on the USF, as is the case with intercarrier compensation. Reducing the subsidies that are implicit in current intercarrier compensation rates would create pressure for higher explicit USF support. However, that support could be structured in such a way as to reduce the flow of resources from the USF.

- The legislative process can also create budgetary pressures on the USF, as would be the case if pending legislation was enacted to accelerate the deployment of broadband into high-cost areas. The growth of USF spending could be slowed by not adding special programs, such as one for broadband, to the Universal Service Fund but rather by keeping any such programs part of discretionary spending.

Limit Support to One Connection per Household or Base Support on Carriers' Own Costs

Two of the most commonly discussed options for curbing growth in the funding for wireless entrants are restricting support to only one telecommunications connection per household or basing support on the actual costs incurred by the eligible carrier, regardless of whether it is the incumbent telephone company or a competitive entrant.

In response to prospective growth in spending for the High-Cost Program, the Federal-State Joint Board on Universal Service recommended in 2004 that the FCC limit support to one telecommunications connection for each household. Before the FCC could act, however, the Congress restricted the commission from carrying out the board's recommendation, thus allowing the USF to fund multiple connections to a single household.

In addition, under current policy, a company that is entering the market to provide service in a high-cost area receives an amount of subsidy per connection equal to

that received by the existing telephone company. Because the competitive entrants are almost all wireless companies—whose cost of providing service is likely to be lower than that of the incumbent landline provider—the subsidy paid to new entrants is likely to be higher than the amount needed to attract new providers who will offer services in rural areas at rates comparable to those charged in urban areas.

Proposals that would peg subsidies to a provider's own cost of offering service would thus probably lower payments to new entrants. The FCC could make that change without any legislative action being required. However, basing support on a company's own costs might lessen the incentive that current policy gives wireless entrants to expand their telephone networks and to produce services at the lowest possible cost.

Restructure Intercarrier Compensation and USF Payments to Reduce Cross-Subsidies

The more that intercarrier compensation rates are reduced by eliminating the subsidy element they contain, the more pressure there is to increase USF payments to telephone companies serving rural areas. As noted above, CBO estimates that under the proposals being considered, restructuring intercarrier compensation rates could increase annual costs for the USF by $800 million to $2.9 billion. Those proposals have been put forth by groups of large and small telephone companies and other concerned parties, such as regulators. So far, those groups have not reached a consensus on the best way to restructure rates.

Lowering intercarrier compensation rates would improve economic efficiency in that prices for long-distance service would more closely match the actual cost of providing that service. In general, resources are allocated better when people base their decisions about how much to consume on the cost of the service provided. But the increase in USF fees that would be imposed to pay for USF support would introduce distortions of its own on consumers' choices, offsetting much of the gain in economic efficiency.[6]

Restructuring intercarrier compensation rates would also alter which groups make payments to rural telephone companies. Under the current structure, only people or companies that originate or terminate calls on the networks of rural telephone companies make intercarrier compensation payments to those companies. If intercarrier compensation payments were converted to USF support, long-distance customers as a whole would pay for it.

In addition, converting intercarrier compensation payments into USF support could fix the transfer of funds to rural telephone companies at current levels, even though competition from other telecommunications providers and technologies is gradually reducing such payments. Thus, restructuring intercarrier compensation could protect rural telephone companies from the competition that is occurring in other telecommunications markets and thereby deny consumers the benefits of that competition.

If USF payments increased because of reductions in intercarrier compensation, however, the payments could be structured in such as way as to avoid committing any new resources to cross-subsidies or even to reduce cross-subsidy amounts. Currently, competitive entrants are eligible for the same per-line payments from the USF as the incumbent serving the same area. That equivalence means that wireless entrants receive payments from the USF that were originally designed to compensate incumbents for reducing their long-distance access rates during a period before most new entrants had entered the market. Careful design of USF payments to partly replace lost intercarrier compensation could result in a reduced flow of resources to competitive entrants, on net. That change would require at least partly decoupling the support given to incumbents from the support given to competitive entrants.

Limit Broadband Subsidies

The discussion now taking place about how best to promote rural broadband spans a wider range of policy options than the USF budget. Under current law, for a new telecommunications service to qualify for USF support, a substantial majority of residential consumers nationwide must subscribe to it—a condition not yet achieved by broadband. Consequently, new legislation would be necessary to expand USF subsidies for rural broadband beyond those currently provided to schools, libraries, and rural nonprofit health care providers. Such legislation has been proposed.

6. One option under consideration at the FCC and in the Congress is to convert USF fees from the current revenue-based charge into an access-based charge, such as one based on telephone numbers or connection capacity. That shift would reduce such price distortions. For more details, see Congressional Budget Office, *Financing Universal Telephone Service*.

One option for controlling USF spending would be to keep special programs such as broadband separate from the Universal Service Fund. USF programs are not subject to the annual scrutiny of the Congressional appropriation process, as discretionary spending programs are. As a result, the size of USF programs can grow or remain stable while discretionary programs' funding is altered as national priorities change.

Even if lawmakers do not explicitly authorize the expansion of rural broadband service, the USF will continue to provide financing for the development of broadband in rural areas. Such funding goes to pay for infrastructure investments by carriers that let them provide both conventional telephone service and advanced digital services, including broadband.

CHAPTER

1

Introduction

The Universal Service Fund (USF) was created in 1997 to follow the directive of the Communications Act of 1934, as amended by the Telecommunications Act of 1996. That law specifies that "quality [telecommunications] services should be available at just, reasonable and affordable rates." It also directs the Federal Communications Commission (FCC) to ensure that "consumers in all regions of the Nation, including low-income consumers and those in rural, insular, and high cost areas, should have access to telecommunications and information services . . . at rates that are reasonably comparable to rates charged for similar services in urban areas."[1] Those goals have been referred to under the general heading of "universal service."

The Telecommunications Act expanded the definition of universal service to include funding for Internet and other advanced telecommunications services for schools, public libraries, and rural nonprofit health care providers.[2] Although some universal service policies and programs had existed before, the 1996 law codified and expanded them.

Outlays from the Universal Service Fund have grown by more than 50 percent in the past six years and now total about $7 billion annually. The main source of that growth has been the USF's High-Cost Program, whose spending has doubled since 2000. Spending for that program could double again in the next few years, the Congressional Budget Office estimates, depending on the outcome of various legislative and regulatory changes now being discussed. If such an increase occurred, the fees that are levied on telephone companies and customers to finance the USF would, by law, have to rise significantly as well.

This paper focuses on factors that may increase spending for the High-Cost Program in coming years. The potential for further expansion results not only from the evolution of the telecommunications market but also from decisions made in the 1996 law and from legislative and regulatory actions taken since then.

The Structure and Operations of the Universal Service Fund

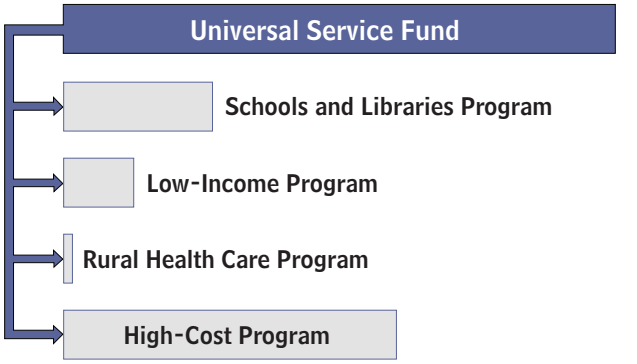
The USF has four main programs, which focus on supporting different groups or entities (see Figure 1-1). The largest, the High-Cost Program, is responsible for reducing the prices charged to consumers for telephone service in rural and insular areas where costs for such service would otherwise be much higher than in urban areas. The Low-Income Program aims to reduce the cost of telephone service for certain low-income households. The Schools and Libraries Program provides subsidies for schools and libraries across the country to purchase advanced telecommunications services. The Rural Health Care Program aims to ensure that qualified rural health care providers pay no more than their urban counterparts for similar advanced telecommunications services.

1. Communications Act of 1934, as amended, section 254(b). For an extended discussion of the implication of those goals, see David E.M. Sappington, "Harnessing Competitive Forces to Foster Economical Universal Service," attachment to the letter from Tina M. Pidgeon, Vice President, Federal Regulatory Affairs, GCI, to Marlene H. Dortch, Secretary, Federal Communications Commission, filed in CC Docket No. 96-45 (December 19, 2003), available at http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6515382829.

2. Telecommunications relay services (TRS) for people with impaired hearing are also considered part of universal service. Support for those services is funded through dedicated fees paid by telephone companies and their customers, and the TRS program is administered separately from the other universal service programs by the National Exchange Carriers Association. This report does not address the TRS program or its funding. In addition, some states have universal service programs, which are also outside the scope of this analysis.

Figure 1-1.

The Structure of the Universal Service Fund



Source: Congressional Budget Office.

Under current law, telecommunications companies are required to pay the USF a percentage of the revenues they derive from providing long-distance and other interstate and international services. In turn, the USF subsidizes most eligible telecommunications carriers on the basis of the costs they incur in making approved services available. The USF fees that long-distance and other providers of interstate services pay are usually passed on to their customers and in that way have the same effects on consumers as a tax on telecommunications services. As with any tax or fee, those effects vary with the size and structure of the fees.

Overall responsibility for providing and funding universal service lies with the Federal Communications Commission. In conjunction with state utility regulators, the FCC determines the level of spending necessary to meet the requirements of the Communications Act and ensures that telecommunications companies pay into the Universal Service Fund. The FCC has delegated the administration of the fund's support programs to an independent not-for-profit corporation, the Universal Service Administrative Company (USAC).[3] The chairman of the FCC appoints the board of directors of that company, and the board in turn hires the chief executive officer.

Rate-making policies under the jurisdictions of the states and the FCC also further the objective of universal service by establishing cross-subsidies (pricing some services to some customers above cost so that other services to other customers can be priced below cost). Those subsidies, which are implicit in the rate-making process, usually flow from business customers to residential customers, from urban customers to rural customers, and from high-usage customers to low-usage customers. Unlike the payments made by the Universal Service Fund, those implicit subsidies do not appear in the federal budget.

The Universal Service Fund and the Federal Budget

Because the payments that the USF effectively transfers between telecommunications providers and parties receiving support are required by law, monies coming into and out of the USF are counted as revenues and outlays in the federal budget. However, the fees that finance the USF are adjusted four times each year to match expected spending, so the fund is basically budget-neutral. (In practice, the USF runs a small surplus because of the lag between making commitments to projects, mainly in the Schools and Libraries Program, and paying for them.)

Although the USF's programs do not increase the federal budget deficit, they impose costs on the economy and create cross-subsidies. Some consumers pay more than the economic cost of telecommunications services in order to provide funding to other consumers and to the companies that provide their telecommunications services.

The annual outlays and receipts flowing through the USF have grown substantially in recent years. Outlays rose from $4.0 billion in fiscal year 2000 to $6.3 billion in 2005, while receipts grew from $4.5 billion to $7.0 billion (see Table 1-1).[4] Outlays may not be the best measure of the claims that universal service programs make on the telecommunications sector. The revenues from USF fees are a better measure because they take into account commitments that have been made but not yet paid for.

3. For more information, see Universal Service Administrative Company, *2005 Annual Report*, available at www.universalservice.org/_res/documents/about/pdf/annual-report-2005.pdf.

4. Those figures are for outlays and receipts of the Universal Service Administrative Company. USF program commitments are different from those numbers. In addition, USAC's fiscal year differs from the federal fiscal year in that it begins on July 1 rather than October 1.

Table 1-1.

Receipts and Outlays for Universal Service Fund Programs, 2000 to 2005

(By fiscal year, in billions of dollars)

	2000	2001	2002	2003	2004	2005
Receipts	4.5	5.2	5.4	5.7	6.4	7.0
Outlays						
High-Cost Program	1.9	2.6	2.8	3.3	3.4	3.8
Low-Income Program	0.5	0.6	0.7	0.7	0.8	0.8
Schools and Libraries Program	1.6	1.7	1.6	1.6	1.5	1.7
Rural Health Care Program	*	*	*	*	*	*
Total	**4.0**	**4.9**	**5.1**	**5.6**	**5.7**	**6.3**

Source: Congressional Budget Office based on data from the Federal Communications Commission.

Notes: * = less than $50 million.

The numbers shown here are for receipts and outlays of the Universal Service Administrative Company, which administers Universal Service Fund (USF) programs. Actual USF program commitments differ from these figures.

The High-Cost Program was responsible for 83 percent of the rise in USF outlays since 2000—$1.9 billion of the total $2.3 billion increase. The Low-Income Program accounted for another $300 million of that increase, whereas spending for the other support programs did not change significantly. (Some of the growth in low-income support is tied to the growth in the High-Cost Program.)

Two main factors have driven the rise in spending for the High-Cost Program. Increases since 2003 have occurred mainly because wireless telephone companies have become eligible to receive support and have chosen to enter markets formerly served by older wireline monopolies. Earlier increases resulted from the implementation of accounting changes mandated by the 1996 Telecommunications Act. That law required telephone regulators to convert subsidies that had been included in the prices of long-distance and other services (called implicit subsidies) into payments from the USF (explicit subsidies).[5]

Potential Sources of Future Spending Increases for the USF

A variety of forces are exerting pressure to raise expenditures by the Universal Service Fund—and particularly the High-Cost Program—in the future. Among the most significant ones are further increases in the number of telephone carriers eligible to receive universal service subsidies; possible changes in the structure of rates that telephone companies charge one another to interconnect and transfer long-distance and other calls; and possible inclusion of high-speed Internet connections in an expanded definition of universal service.

Continued Growth in the Number of Eligible Telephone Companies

In an effort to increase competition in local telephone markets following the 1996 Telecommunications Act, the FCC made more telephone companies eligible for support under the High-Cost Program. Consequently, a growing number of companies have applied to be designated as eligible to receive USF payments. The result is that the amount of funding going to new "competitive eligible telecommunications carriers" has risen dramatically. Funding for those carriers—usually wireless companies—accounts for more than 90 percent of the increase in spending by the High-Cost Program since 2003. In the absence of policy changes by the Congress or the FCC, such growth appears likely to continue.

Changes in the Structure of Intercarrier Compensation Rates

Regulators have often set some of the per-minute rates for intercarrier compensation—the charges that telephone companies pay each other for initiating and completing one another's calls—above the cost of those activities in

5. Part of the spending increase for the Low-Income Program can also be attributed to that change. As implicit subsidies were reduced, some of the burden was shifted onto consumers in the form of higher prices for telephone service. Consequently, the USF's assistance to low-income telephone subscribers rose.

order to provide an implicit subsidy to local telephone companies and their customers. Such payments primarily flow from long-distance companies to local telephone companies.

Over time, changes in technology and the telephone market have made the intercarrier compensation system less sustainable. Telephone companies and other parties with an interest in the system have been attempting to redesign it. Most of the proposals being discussed involve reducing intercarrier compensation rates and making up the revenue losses that some telephone companies might incur as a result through increased payments from the High-Cost Program.

A similar situation occurred when the subsidies implicit in long-distance access charges were reduced and made an explicit part of the USF budget, following the dictates of the Telecommunications Act. Those additional payments, which continue today, drove much of the increase in USF spending in the early years of this decade.

Inclusion of High-Speed Internet Access in Universal Service

The Telecommunications Act requires that the basket of services included in the definition of universal service—and thus eligible for USF support—be reviewed and updated periodically. Under the law, that process begins with the Federal-State Joint Board on Universal Service, which is composed of regulators from the FCC and the states. The Joint Board makes recommendations to the FCC, which can accept, reject, or modify them. Many analysts and interested parties have argued that broadband Internet access should be one of the services paid for by the High-Cost Program. Alternatively, some people have proposed creating a new program within the USF, similar to the Schools and Libraries Program, to promote residential broadband in rural areas.

Paying for Spending Increases

The possibility of future increases in USF spending raises the question of how such expenditures would be paid for. As noted above, the Universal Service Fund is currently financed through a percentage fee on the value of interstate telecommunication services, including long-distance revenues, a portion of cell phone revenues, and part of the basic subscriber charges that customers pay to local telephone companies.[6] That fee is calculated quarterly and is generally set to keep the USF deficit-neutral (although the lag between commitments and disbursements makes strict deficit-neutrality impossible).

Telecommunications spending is rising in the economy as a whole. But the portion of such spending that is subject to universal service fees has decreased in the past decade as the Internet, e-mail, and other advanced telecommunications have reduced the amount of long-distance revenues that telephone companies take in. Because USF spending has been growing while the telecommunications base from which its revenues are drawn has shrunk, the percentage used in calculating the fee on eligible telecommunications revenues has been rising. In 2000, that quarterly fee rate never exceeded 6 percent, whereas in 2005, it never fell below 10 percent.

Further increases in spending by the USF would drive up the fee percentage even higher, unless either a different revenue mechanism was devised or the base of telecommunications services subject to the fees was broadened. Higher fee levels might cause consumers to shift more of their spending to telecommunications services that are not subject to USF fees (such as e-mail), reducing receipts for the fund.

The next chapter describes the various support mechanisms that make up the High-Cost Program and the types of companies that are eligible for support. The remaining chapters focus on the three factors mentioned above that are driving the growth of high-cost support. Those chapters also discuss policy options for limiting future spending increases.

---

6. For more information, see Congressional Budget Office, *Financing Universal Telephone Service* (March 2005).

CHAPTER

2

The Structure and Operations of the USF's High-Cost Program

The largest and most rapidly growing component of the Universal Service Fund is the High-Cost Program. It is designed differently from the USF's other support programs, and much of its complexity flows from its unique design. Whereas the other programs provide funds directly on behalf of their targeted groups, high-cost support is provided indirectly through telephone companies.[1] The support is not matched directly to the costs of providing service to specific individuals but rather to the cost of providers' telephone networks. Proponents maintain that by supporting a network as a whole, the High-Cost Program can keep prices low for all of the network's customers.

The fact that the High-Cost Program is the oldest USF support mechanism combines with its indirect nature to add more complexity. Over the years, tensions have often arisen between regulators, who sought to ensure the delivery of supported services at the lowest cost to the USF, and telephone companies, which claimed that the level of support provided by the fund was inadequate for their needs.

In a competitive market (even one with direct subsidies to consumers), such tensions would usually be solved through normal market mechanisms: suppliers would compete with each other on the basis of price and quality, and consumers would choose among them. But the monopolies on local telephone service that continue to exist in most of the United States and the indirect nature of the High-Cost Program have kept an efficient market solution from emerging. Together, those two factors have ensured that the budgetary resources devoted to supporting telephone service in high-cost areas are greater than support delivered directly through the consumer would be—and that they are subject to continual upward pressure.

The Structure of High-Cost Support

Currently, the High-Cost Program funds telephone carriers through five separate mechanisms (see Figure 2-1). The first three provide support that is primarily directed at carriers' costs. The other two, which result from policy changes that followed the 1996 Telecommunications Act, are intended to compensate providers of universal service for lost revenues.

- High-cost loop support underwrites some of the costs that rural companies incur in connecting with their customers.
- High-cost model support pays nonrural companies' costs of connecting to customers (similar to high-cost loop support but for larger companies).[2]
- Local switching support helps fund small rural companies' telephone switches (electronic equipment that connects callers to each other).
- Interstate common line support compensates mainly rural carriers for the revenue they lost when long-distance access charges were reduced in 2002.

1. Spending for the Low-Income Program, for example, also flows to telephone companies, but it reflects a one-to-one matching with the companies' low-income subscribers.

2. According to the Universal Service Administrative Company, "for purposes of high cost support, a rural carrier is one that serves a relatively small number of lines or a relatively small area." Nonrural companies, by contrast, serve both rural and nonrural areas. For a more extended definition, see www.universalservice.org/hc/incumbent-carriers/step01/. Also see section 153(37) of the Communications Act of 1934, as amended.

- Interstate access support compensates mainly larger companies for the revenue they lost when long-distance access charges were reduced.

High-Cost Loop Support

High-cost loop support aims primarily to help rural telephone companies with the cost of the connections (called local-loop or last-mile connections) between the central offices where switching equipment is located and customers' premises.[3] Such aid is limited to areas where the cost of those connections exceeds 115 percent of the national average cost per line.

High-cost loop payments are based on costs of the incumbent telephone carrier in a particular market. At the requirement of the Federal Communications Commission, the National Exchange Carrier Association collects data from all incumbent local exchange carriers on their line counts, investments, and expenses. Using those data, the association estimates the costs of the local loop for each individual study area, as well as the national average. (Study areas are local exchange carriers' service areas in a single state. A single carrier usually has a single study area in any given state, but some have several.) On the basis of those statistics, the association submits a filing each fall to the FCC and the Universal Service Administrative Company on the loop costs of all incumbent telephone providers.[4]

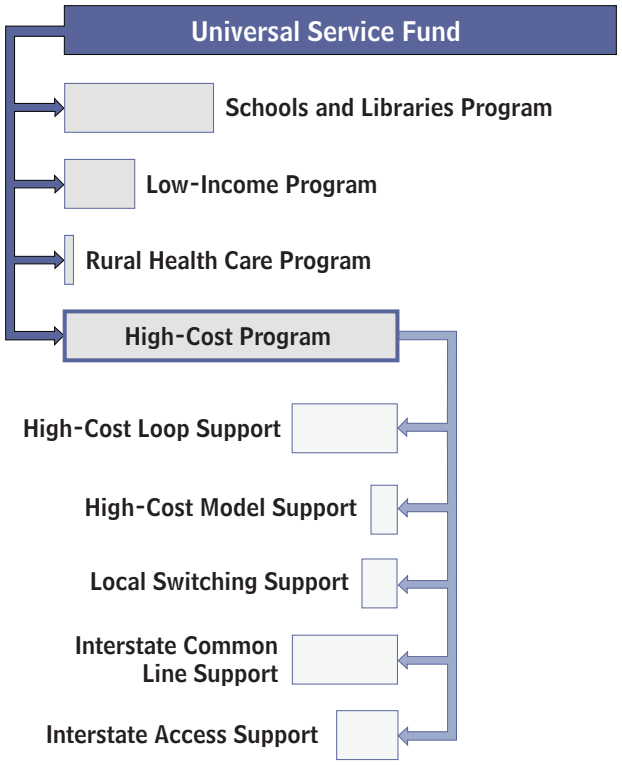
The formula used to calculate support depends on the number of loops within a service area. For example, for study areas with 200,000 or fewer working loops, an eligible carrier would receive payments equal to 65 percent of its costs between 115 percent and 150 percent of the national average and 75 percent of its costs over 150 percent of the national average. The formulas for larger carriers are less generous.

Since 2003, total high-cost loop funding for incumbents has been capped at the 2002 level, but each year the cap is adjusted by what is called the rural growth factor.[5] That factor is calculated by adding the annual percentage increase in the gross domestic product (GDP) chained price index to the percentage growth rate in the total number of working local loops of incumbent rural exchange carriers. Because the number of such loops has been declining faster than the GDP price index has been rising, the cap has reduced rather than increased support for incumbent telephone carriers—contrary to what had been anticipated. In implementing that reduction, the administrator of USAC is required by the FCC to lower funding to subsidized companies so as to favor the carriers with the highest costs.

For that reason, although the cap restrains overall spending for high-cost loop support, it does not provide an incentive for recipients with relatively high costs to control

Figure 2-1.

The Structure of the Universal Service Fund's High-Cost Program



Source: Congressional Budget Office.

3. For purposes of calculating the level of support, a portion of the costs of the switching equipment is included in addition to the costs of the wires that typically connect a company with its customers.

4. The FCC requires rural carriers to submit data annually, but a carrier may voluntarily update its data as frequently as each quarter. Nonrural carriers must file line-count data quarterly. The National Exchange Carrier Association's annual filings are available on the FCC's Web site at www.fcc.gov/wcb/iatd/neca.html.

5. The cap was established much earlier but was changed by the FCC when it modified the high-cost loop support mechanism in 2001.

their costs. Because the cap transfers funds from lower-cost eligible incumbent carriers to higher-cost eligible incumbent carriers, the carriers that serve higher-cost areas do not see their payments bound by the cap, and so their costs continue to rise.

In addition, the cap covers only basic high-cost loop funding for rural incumbents. The total funding available for competitive entrants in rural markets—mainly providers of wireless telephone service—is not constrained by the cap. Rural incumbents also have two small programs that provide additional assistance in exceptional circumstances (called safety-net additive support and safety-valve support).

High-Cost Model Support

High-cost model support (sometimes also known as forward-looking support) provides funds to nonrural carriers in states where average forward-looking costs—the costs of providing service with the best available landline technology—are substantially above the national average.[6] Specifically, that mechanism aids nonrural carriers in study areas of states where the forward-looking costs of providing supported services are more than two standard deviations above the national average cost per line.[7]

Unlike other high-cost mechanisms, high-cost model support is not based on historical costs; rather, payments are determined by a cost model. The model estimates the cost of the most cost-effective available technology that a firm entering the market might deploy. In that way, model support is meant to mimic the effects that competition would have on the cost structure and rates of nonrural carriers.

The model begins by producing a cost per line for each study area, from the bottom up (that is, based on the loop costs of each central office). It then calculates a statewide average cost for all nonrural study areas, which is compared with the national average to determine eligibility for support. The model is updated regularly with new information about line counts, but the information about equipment does not change. In states that qualify, support is targeted to central offices in high-cost nonrural study areas. All eligible telecommunications carriers that provide service in the same areas receive the same amount of support per line.

In 2005, nonrural carriers in 10 states—Alabama, Kentucky, Maine, Mississippi, Montana, Nebraska, South Dakota, Vermont, West Virginia, and Wyoming—were eligible to receive high-cost model support. Those states exceeded the two standard deviations of the national cost benchmark by having costs that were at least 136 percent of the national average.

As in the other mechanisms of the High-Cost Program, competitive entrants are eligible for high-cost model support to the extent that the incumbent in their service area is eligible. But unlike in those other mechanisms, because a competitor's line count is a variable in the model, the presence of competitive entrants changes the level of assistance for the incumbent and consequently changes the competitors' payments as well.

Local Switching Support

Local switching support provides assistance with local switching costs for companies that serve fewer than 50,000 lines. Such assistance is intended to give those predominantly rural companies the same economies of scale enjoyed by larger urban companies, which have lower average costs for telephone switching because they can distribute the costs over a greater number of customers. As in the other parts of the High-Cost Program, competitive entrants receive the same per-line payment that incumbent carriers do.

Interstate Common Line Support

This mechanism, which began in July 2002, is the newest component of the High-Cost Program. The FCC created interstate common line support to comply with requirements in the 1996 Telecommunications Act to make implicit subsidies explicit. As a consequence of that law, the FCC reduced the long-distance and other access charges that long-distance companies had paid to local telephone companies. To compensate for the reduction, the FCC also raised the maximum rate on one type of subscriber fee—the subscriber line charge—that customers pay to their local telephone company for access to interstate service.

6. Transitional USF programs, which helped companies that had received support under previous programs, have now ended.

7. A standard deviation measure is used to capture the wide variation of costs around each state's average cost. If the costs per line within a state are clustered around the average, the standard deviation will be small. If the costs per line vary widely, the standard deviation will be larger.

Interstate common line support is designed to supplement the revenues of rural carriers when the subscriber line charges that their customers pay do not cover certain of the carriers' costs, including an 11.25 percent rate of return for many rural carriers. Interstate common line support is not subject to a cap, and competitive entrants receive the same amount per line as incumbents. (An earlier mechanism—long-term support—was merged into interstate common line support in mid-2004.)

Interstate Access Support

Interstate access support began in 2000 as a way of making explicit formerly implicit subsidies that had been provided to some nonrural companies through intercarrier charges. At that time, the FCC lowered some access charges that nonrural local telephone companies were allowed to charge long-distance companies, eliminating an estimated $1 billion in intercarrier access charges received by those carriers annually. Funding for interstate access support was initially set at $650 million, but additional payments to competitive entrants drove it up to $691 million by 2005.

Funding is calculated using a series of formulas that measure the difference between the amount of revenue that will be collected under the current rules for subscriber line charges and the amount of revenue that would be adequate to cover certain of a carrier's costs.

Growth of the Different High-Cost Mechanisms

In calendar year 2000, the High-Cost Program paid out $2.2 billion to eligible telecommunications carriers. By 2005, those payments had risen to $3.8 billion (see Table 2-1).[8] By far the largest growth has occurred in interstate common line support, even after adjusting for that mechanism's merger with the now-discontinued long-term support mechanism. With that adjustment, interstate common line support grew by $700 million between 2000 and 2005. Interstate access support—which performs a similar function for nonrural carriers—was second with $410 million in growth over the 2000-2005 period.

As noted above, the FCC created both interstate common line support and interstate access support in response to the Telecommunications Act's mandate that implicit subsidies be made explicit. Together, those mechanisms account for $1.1 billion of the $1.6 billion growth in spending for the High-Cost Program since 2000 (including long-term support as part of interstate common line support.)

The other factor accounting for substantial growth in the High-Cost Program is the emergence of significant numbers of competitive entrants that are eligible for support payments. Compared with virtually no support in 2000, those carriers now receive more than $600 million per year. Some support for competitive entrants is included in the $1.1 billion in spending for interstate common line and access support. Even so, those figures suggest that almost all of the growth in the High-Cost Program over the past six years is attributable to the two factors previously mentioned: making implicit subsidies explicit and providing support to carriers that are entering high-cost markets to compete with incumbent telephone companies.

Types of Carriers and Eligibility for Funding

As described above, different parts of the High-Cost Program are designed to help different types of carriers or to provide funding for only some types of costs. Eligibility for various kinds of support may depend on the geographic area served by the carrier or on whether the carrier is a competitive entrant.

Rural and Nonrural Companies

The Universal Service Fund provides high-cost support both to rural companies (those that serve only rural areas) and to nonrural companies (which serve both rural and nonrural areas). In its most recent filing, USAC reported that of the roughly 1,900 study areas receiving funding from the High-Cost Program, more than 80 percent were served by rural carriers and the rest by nonrural carriers.[9]

8. The High-Cost Program usually reports disbursements, which are typically spent immediately and count as federal outlays. Other programs of the Universal Service Fund (most notably the Schools and Libraries Program) typically report commitments, which may take years to be converted into disbursements. Another factor that complicates comparisons between USF programs is that different programs report data in different program years.

9. See Universal Service Administrative Company, *Safety Net Additive Support, Second Quarter 2006*, Appendix HC-06, and *High Cost Model Support Projected by Study Area, Second Quarter 2006*, Appendix HC-17, available at www.universalservice.org/about/governance/fcc-filings/2006/quarter2/default.aspx.

Table 2-1.

Disbursements for the High-Cost Program, by Mechanism, 1998 to 2005

(By calendar year, in billions of dollars)

	1998	1999	2000	2001	2002	2003	2004	2005
High-Cost Loop Support[a]	0.8	0.8	0.9	0.9	1.0	1.1	1.1	1.2
High-Cost Model Support	n.a.	*	0.2	0.2	0.2	0.2	0.3	0.3
Local Switching Support	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Long-Term Support[b]	0.5	0.5	0.5	0.5	0.5	0.5	0.3	n.a.
Interstate Common Line Support[b]	n.a.	n.a.	n.a.	n.a.	0.2	0.4	0.7	1.2
Interstate Access Support	n.a.	n.a.	0.3	0.6	0.6	0.6	0.6	0.7
Total	**1.7**	**1.7**	**2.2**	**2.6**	**3.0**	**3.3**	**3.5**	**3.8**

Source: Congressional Budget Office based on data from the Universal Service Administrative Company.

Note: n.a. = not applicable; * = less than $50 million.

a. Includes disbursements for safety-net additive support.

b. Long-term support was merged into interstate common line support on July 1, 2004.

Many telecommunications companies—usually smaller, rural ones—are subject to traditional rate-of-return regulation. Under that type of regulation, the regulatory body examines a firm's reported costs, accepts or rejects their accuracy, and then allows the firm to charge rates that will yield a percentage return on the accepted costs. Analysts often argue that by guaranteeing a particular yield, rate-of-return regulation gives a company no incentive to hold down its costs.

Larger nonrural telecommunications companies, by contrast, are most often subject to price-cap regulation, in which the regulator and the regulated firm agree on a price to charge for service without direct reference to costs. Regulated companies can keep the difference between their costs and the prices charged, so they have an incentive to reduce costs. In some cases, companies face price caps that decline over time, and accordingly, they share cost reductions with their customers.

Incumbent Carriers and Competitive Entrants

Most of the study areas that receive funding from the High-Cost Program are still served by a single incumbent telephone company. Only about one-quarter of the roughly 1,900 study areas were considered competitive by USAC.[10] However, all funding provided by the High-Cost Program is "portable," meaning that competitive entrants receive the same per-line subsidy as does the incumbent with which they compete. Because support payments are based on the incumbent's cost, not their own, competitive carriers do not have the same data-filing requirements as incumbents.

10. Ibid.

CHAPTER

3

Policies for Supporting New Competitive Entrants

Virtually all of the growth in spending for the Universal Service Fund's High-Cost Program in the past three years reflects payments to an increasing number of competitive eligible telecommunications carriers. Most of those new entrants to rural markets use wireless technologies to provide either cellular telephone service or personal communications services (which are similar to cellular transmissions but use a higher frequency in the radio spectrum). Those telecommunications carriers became eligible to receive USF payments following regulatory changes by the Federal Communications Commission in 2000.

Over the next several years, more new entrants are likely to become eligible for and receive USF payments, and spending for the High-Cost Program is likely to increase accordingly. Unless current policies change, the growth in spending will subside only when the demand for wireless services is fully satisfied.

Concerned about upward pressure on USF spending from support for new wireless entrants, the Federal-State Joint Board on Universal Service advised the FCC in 2004 to limit such support to one connection per household (with the household deciding which connection, and thus which provider, would receive the subsidy).[1] However, the Congress inserted language in the FCC's appropriation law for 2005 to restrict the agency from spending appropriated funds to carry out the Joint Board's recommendation.[2] That language has also been incorporated in the appropriation act to fund the FCC in 2006.

The growth of spending for new entrants could be curtailed by lifting that legislative ban. In addition, the FCC could limit spending growth by basing support for new entrants on those companies' actual costs rather than on the costs of incumbent carriers and by applying the current cap on high-cost loop support for rural telephone providers more broadly.

The Structure of Funding for Incumbents and Their Competitors

Under the High-Cost Program, competitive entrants receive the same amount of support per line as the existing telephone company with which they are competing, although typically they do not have the same costs, serve the exact same area, or have the same obligations as the incumbent carrier.

For rural incumbents, USF payments are based on the actual costs incurred in providing telecommunications services. Those rural carriers mainly use wired telephone technology, which requires them to string and maintain telephone wires throughout their service area. By contrast, the majority of new entrants receiving payments are wireless carriers, according to the Universal Service Administrative Company. The costs that those carriers incur are lower, on average, than the costs experienced by incumbents because, in the aggregate, cellular towers and spectrum are likely to be less expensive than the wire-based infrastructure devoted to wired local loops.

1. The board, which consists of FCC and state regulators, is responsible for studying and making recommendations to the FCC about universal service. See Federal-State Joint Board on Universal Service, *Recommended Decision in the Matter of CC Docket No. 96-45 Before the Federal Communications Commission*, FCC 04J-1 (February 27, 2004), paragraph 3, available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04J-1A1.pdf.

2. Consolidated Appropriations Act, 2005 (Public Law 108-447), div. B, title VI, section 634; 118 Stat. 2922.

Although some advocates of the policy of encouraging competition in high-cost markets originally envisioned wireless service being a substitute for wireline service, connections provided by wireless entrants are typically complements to the current landline provided by the incumbent. Consumers who subscribe to cable-based or other landline-based telephone service usually cancel their service with the incumbent telephone company. But most people who subscribe to a wireless service maintain their landline connection. The fact that wireless entrants are providing additional telephone service rather than replacement service in many cases is part of the reason that total spending for support grows when wireless carriers enter a market covered by the USF.

Incumbent rural carriers are typically required to offer service to every household in their service area. In the past, wireless entrants have not had a similar requirement, and in fact, they may not have been able to meet such a requirement because their spectrum license may not cover an area identical to the service area of the incumbent. Some observers maintain that in the absence of such a requirement, wireless entrants have tended to serve only the most densely populated portions of a service area, where the revenue potential is greatest. Moreover, even in parts of a service area covered by a wireless provider, "dead zones" may exist because providers have not found it profitable to build additional cellular transmission and reception sites.

In February 2005, the FCC issued an order aimed at reducing the disparities in coverage between incumbent carriers and their wireless competitors.[3] That order required competitive entrants to correct the most severe problems with coverage of their designated service area over a five-year period. In the meantime, however, wireless entrants can resell the incumbent's service in areas not reached by their own networks.

A subset of competitive entrants is wireless subsidiaries owned by incumbent wireline carriers. In some instances, an incumbent and its wireless subsidiary serve the same area. When such subsidiary companies apply to become eligible for USF support, state regulators find it hard to deny their application because they are experienced and have credible business plans. But the entrance of such carriers does not directly increase competition. And in many cases, subsidiaries were already operating in a high-cost area before they received USF support, raising questions about whether universal service subsidies for such carriers are contributing to the expansion of telephone service.[4]

Recent Growth in the Number and Funding of Competitive Carriers

Both the number of carriers receiving payments under the High-Cost Program and the amount of funding given to competitive entrants have risen over the past several years. In 2000, just two competitive telecommunications carriers were eligible for high-cost support (see Table 3-1). By 2005, that number had risen to 263.[5] Typically, about 95 percent of funding for competitive entrants in any given year goes to wireless companies.

Competitive entrants have accounted for more than 90 percent of new funding in the High-Cost Program since 2003. Funding for incumbents has been nearly constant in the past three years at between $3.1 billion and $3.2 billion, probably because of a combination of the cap on high-cost loop support and a decline in rural incumbents' line counts. (As explained in the previous chapter, the cap on high-cost loop support for incumbents is adjusted by their number of rural subscribers.) Spending for competitive entrants has grown from $131 million in 2003 to an estimated $640 million in 2005. Early projections for 2006 suggest a substantial rise in funding for new entrants and continued stability in funding for incumbents.

The Potential for Future Growth

Currently, wireless entrants serve only a small percentage of the number of subscribers that incumbent carriers do. Thus, the potential for future growth is substantial. The Bureau of Labor Statistics has made surveys of cell phone ownership and estimates that about 15.4 million people in nonmetropolitan statistical areas purchased wireless

3. Federal Communications Commission, *Report and Order in the Matter of the Federal-State Joint Board on Universal Service,* CC Docket No. 96-45 (February 25, 2005).

4. Such subsidiaries present additional regulatory problems. By shifting any joint costs to the incumbent, companies can increase the level of USF support for their incumbent arm, which will then be matched for their wireless arm.

5. Some carriers have become eligible for support in several states and are counted multiple times in that figure.

Table 3-1.

Funding for Incumbent Carriers and Competitive Entrants Under the High-Cost Program, 1998 to 2005

(By calendar year, in billions of dollars)

	1998	1999	2000	2001	2002	2003	2004	2005
Incumbent Carriers	1.70	1.72	2.52	2.58	2.93	3.14	3.15	3.19
Competitive Entrants								
Wireless	n.a.	*	*	0.02	0.04	0.13	0.32	0.60
Wireline	n.a.	*	*	*	*	*	0.01	0.03
Subtotal	0	*	*	0.02	0.05	0.13	0.33	0.64
All Carriers	**1.70**	**1.72**	**2.52**	**2.60**	**2.98**	**3.27**	**3.49**	**3.82**
Memorandum:								
Number of Eligible Competitive Entrants	0	2	2	23	58	113	202	263

Source: Congressional Budget Office based on data from the Universal Service Administrative Company.

Note: n.a. = not applicable; * = less than $5 million.

telephone service in 2004.[6] If rural cell phone subscribership grew at the same rate that all wireless telephone subscriptions did in 2005 (14.8 percent), the number of rural subscribers at the end of last year would amount to about 17.7 million. Wireless subscriptions appear unlikely to keep growing that quickly in coming years.[7] But if cell phone subscribership grew by 25 percent overall during the next five years—slower than the recent trend—the number of rural cell phone subscribers would total 22 million by 2011.

Although all of those subscribers live outside metropolitan statistical areas, not all of the wireless carriers serving them are likely to be eligible for subsidies under the High-Cost Program. For example, the incumbent with which those wireless carriers compete may not be eligible, perhaps because its costs are too low. Consequently, the number of subscribers to service provided by wireless entrants that receive subsidies is likely to be smaller than 22 million in 2011.

The Universal Service Administrative Company does not publish data in such a way as to allow for a complete count of subsidized telephone subscriber lines. On the basis of USAC filings with the FCC, the Congressional Budget Office estimates that USAC subsidized competitive entrants with a total of 4.6 million subscribers in the fourth quarter of 2005.[8] CBO based that estimate on the number of telephone lines (or their wireless equivalents) operated by competitive entrants that received interstate common line support or high-cost model support. The estimate undercounts subscribers to a small extent because some competitive entrants that receive high-cost loop support or interstate access support do not receive interstate common line support or high-cost model support.

In the calculations that follow, CBO assumes that all of the telephone lines of competitive entrants being subsi-

6. Clyde Tucker, J. Michael Brick, and Brian Meekins, "Household Telephone Service and Usage Patterns in the U.S. in 2004: Implications for Telephone Samples" (unpublished draft by Westat and the Bureau of Labor Statistics, under review). The numbers cited above were based on separate runs of the same survey databases. Not all nonmetropolitan subscribers will be eligible for high-cost support, but these numbers provide an upper bound.

7. If they did, total cell phone subscribership would reach 275 million in 2011, or 87 percent of the total U.S. population of 315 million projected for that year. That subscription rate seems high given that the population includes substantial numbers of very young children and very old people, who are unlikely to have cell phones.

8. Calculated from Universal Service Administrative Company, *Interstate Common Line Support Projected by State by Study Area, Fourth Quarter 2005*, Appendix HC-09, and *High Cost Model Support Projected by Wire Center, Fourth Quarter 2005*, Appendix HC-15, available at www.universalservice.org/about/governance/fcc-filings/2006/quarter2/default.aspx.

Table 3-2.

Potential Increase in USF Spending from the Growth of Wireless Subscriptions to New Entrants

		Potential Increase from 2005 Level		
	2005 Level	Double	Triple	Quadruple
Subscribers to New Entrants (Millions)				
Rural	3.6	7.2	10.8	14.4
Nonrural	1	2	3	4
Total	**4.6**	**9.2**	**13.8**	**18.4**
USF Spending for New Entrants (Billions of dollars)	0.6	1.2	1.8	2.4
Spending Increase Relative to 2005 Level (Billions of dollars)	0	0.6	1.2	1.8

Source: Congressional Budget Office.

dized are wireless connections. As noted above, 95 percent of USF funding for competitive entrants goes to wireless companies. Consequently, the estimate that follows overstates the impact of wireless on future spending growth. Nevertheless, the prospect for such growth is the primary incentive drawing new wireless entrants into areas eligible for high-cost support.

To provide a sense of the possible scale of such growth, CBO estimated the costs that the High-Cost Program would incur (under current law and policies) if subscriptions with new wireless entrants doubled, tripled, or quadrupled the current number of supported wireless connections and if costs rose proportionally (see Table 3-2). Subscriptions with competitive entrants have almost tripled over the past several years, but that growth has occurred from a very small base. To quadruple, wireless entrants in the High-Cost Program would have to account for more than 80 percent of all nonmetropolitan cell phone subscribers. Although possible, that share seems implausibly high because some rural subscribers would be likely to have providers that were not receiving USF subsidies.

CBO projects that a result somewhere between a doubling and a tripling of the current number of supported wireless subscriptions is the most likely outcome by 2011. In that case (assuming that the current ratio of subscribers to costs continued), the increase in USF spending associated with new entrants would amount to between $600 million and $1.2 billion above the 2005 level.

Although recent history points to wireless providers as the main recipients of new spending from the High-Cost Program, alternative telephone providers—such as carriers who offer voice telephone service over the Internet—may also apply for USF funding in growing numbers. With the maturation of wireless broadband technology and the expansion of cable broadband into rural areas, more carriers are likely to consider it worthwhile to apply for USF payments, even though those payments subject them to increased regulation. The cost difference between new telecommunications technologies and mature wireline technologies may outweigh the costs of complying with the regulation typically imposed on eligible telecommunications carriers, which are greater than the costs faced by Internet service providers and cable companies.

Policy Options That Could Limit the Growth of USF Spending for New Entrants

The recent increase in the number and funding of wireless entrants has prompted various proposals to curb that growth. Otherwise, as USF spending rises, the fees charged to telephone companies (and passed on to consumers) will have to rise as well—possibly causing come people to reduce their telephone service. The policy changes discussed below are illustrative of the range of options that have been proposed.

Limiting USF Funding to a Single Connection

As noted above, the Congress has restricted the FCC from limiting USF support to a single line per household.

Proponents of USF support for multiple lines argue that the Communications Act set forth a vision of universal service in which service and prices in rural and insular areas would be roughly comparable to those in urban areas. According to those proponents, urban households are not limited to one telecommunications connection at affordable rates; thus, rural households should have the same option.

In recommending the restriction on connections, the Federal-State Joint Board on Universal Service argued that other goals of the Communications Act would be jeopardized by continuing to fund multiple lines per household. Most important, they posited that continued growth in the number of providers being funded threatened the sustainability of the USF.[9]

The Joint Board also maintained that the second and third connections being supported under the current system are being used for faxes, Internet access, and mobile service, none of which are explicitly eligible for support by the USF. In the opinion of the board, funding a single connection—be it wireless or wireline, provided by an incumbent or a new entrant—is not inconsistent with the mandate of current law. To the extent that households chose a wireless service as their primary connection, wireless carriers would receive USF funding and the USF would be supporting the expansion of wireless connections to rural areas.

Furthermore, the board stated that supporting a single connection per household would fulfill the statutory principle of sufficiency included in the Communications Act. "The Joint Board and the [FCC] have defined sufficiency as enough support to achieve relevant universal service goals without unnecessarily burdening all consumers for the benefit of support beneficiaries."[10] By increasing the funding for high-cost connections, the Joint Board added, the USF would be raising costs for all other consumers beyond the necessary level and possibly pricing some current telephone subscribers out of the market.

9. See Federal-State Joint Board on Universal Service, *Recommended Decision in the Matter of CC Docket No. 96-45 Before the Federal Communications Commission*, FCC 04J-1 (February 27, 2004), paragraphs 67 and 68, available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04J-1A1.pdf.

10. Ibid., paragraph 64.

Basing Funding on an Entrant's Own Costs

Many proposals to change the High-Cost Program start with the fact that funding for competitive entrants is based not on the costs they incur to provide service but on the costs that incumbents incur.[11] One way to slow the growth of that program would be to base payments to competitive entrants on their own incurred costs (including some normal rate of profit) whenever those costs were lower than the incumbent's. How much savings that change would produce is uncertain because competitive entrants are not required to file cost data that can be compared with the data filed by incumbents. However, the savings could be large, since the costs of wireless carriers are likely to be lower than those of landline carriers.

Advocates of basing USF support on each carrier's own costs argue that such a system would give wireless entrants enough incentive to provide consumers in rural areas with wireless service at rates and on terms roughly comparable to those that urban consumers receive. With support linked to each carrier's own costs, every company—incumbent or new entrant—would still have an incentive to invest in rural areas.

Supporters of the current system maintain that by paying each eligible carrier in a service area the same amount per line, the High-Cost Program gives every company the same opportunity to serve rural customers. With equal support, lower-cost providers have more incentive to invest in high-cost areas, which may offer beneficial competition in some locations.[12]

In other circumstances, however, equal payments may not be a cost-effective way to support universal service. That is the case when new entrants are applying for support in markets that they have already entered or that they intend to enter regardless of receiving a subsidy

11. See, for example, *Comments of Balhoff & Rowe, LLC, Before the Federal Communications Commission in the Matter of Federal-State Joint Board for Universal Service,* CC Docket No. 96-45 (September 30, 2005), available at http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6518164393.

12. For that viewpoint, see David E.M. Sappington, "Harnessing Competitive Forces to Foster Economical Universal Service," attachment to the letter from Tina M. Pidgeon, Vice President, Federal Regulatory Affairs, GCI, to Marlene H. Dortch, Secretary, Federal Communications Commission, filed in CC Docket No. 96-45 (December 19, 2003), available at http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6515382829.

(such as with wireless subsidiaries owned by incumbent rural wireline operators).

Expanding the Cap on High-Cost Loop Support

The current cap on high-cost loop support could be extended to cover all parts of the High-Cost Program (as is the case in the Schools and Libraries Program).[13] Alternatively, the cap could be expanded just to cover new entrants' high-cost loop support.

If spending for the entire High-Cost Program was capped, some allocation mechanism would have to be devised to determine how the capped funds would be distributed among eligible carriers. Under the current limit on high-cost loop support, funds are diverted from eligible incumbents with lower costs and directed to eligible incumbents with higher costs, though the overall level of support for incumbents is kept below the cap. As now administered, that cap offers no incentive for an incumbent carrier to restrain the growth of its costs and instead rewards higher-cost carriers that experience cost growth with even more support.

If a similar allocation mechanism was put in place for a cap on the entire High-Cost Program, incumbents and wireless entrants in lower-cost study areas could lose support. Because each wireless entrant in the highest-cost areas would continue to receive the same amount of support per line as the incumbent carrier, the diversion of support from carriers serving lower-cost areas to those serving higher-cost areas would be reinforced. Instead of redirecting funds from the lower-cost incumbent to the higher-cost incumbent, as happens now, the allocation mechanism for an expanded cap would divert funds from the lower-cost incumbent *and* its corresponding wireless competitors to the higher-cost incumbent *and* its corresponding wireless competitors.

Capping the high-cost loop support received by wireless entrants would affect perhaps 7 percent of current high-cost support and would save even less.[14] As with other measures that would limit or reduce the amount of support going to competitive entrants, the cap option would put at risk some of the benefits that might be gained from competition.

13. Support for schools and libraries is currently capped at $2.25 billion. Outlays have never reached the cap, however, because of the lag between commitments and disbursements in that program. Over the 2000-2005 period, annual outlays fluctuated between $1.5 billion and $1.7 billion.

14. USAC reports that competitive eligible telecommunications carriers will receive more than $280 million in high-cost loop support in 2006. Calculated from Universal Service Administrative Company, *High Cost Loop Support Projected by State by Study Area, Second Quarter 2006*, Appendix HC-05, available at www.universalservice.org/about/governance/fcc-filings/2006/quarter2/default.aspx.

CHAPTER

4

Policies for Restructuring Intercarrier Compensation

Intercarrier compensation (ICC) consists of payments that telephone companies make to one another for connecting, terminating, or otherwise handling each other's calls. The rates charged for those services, usually on a per-minute basis, are regulated by federal or state authorities. They vary by jurisdiction, type of carrier, and type of call, such as whether the call is within or between states (see Table 4-1).

In many instances, ICC rates have been—and continue to be—set above the economic cost of the service provided. Regulators set rates in that way to produce a net flow of payments (or cross-subsidies) to local telephone companies, largely from long-distance companies. Those payments allow local consumer telephone rates to be set below their cost. At the same time, however, consumers pay more for long-distance service than they would if rates accurately reflected the economic costs of each type of service.

Federal and state regulators are facing new pressures to alter the system of intercarrier compensation. ICC payments to local telephone companies have declined in recent years, and those firms are seeking new revenues. Long-distance companies, who have been paying the bulk of ICC charges, are squeezed more and more by competition and would like to see the revenue flow reduced even further. In addition, regulators and policy analysts increasingly see current ICC rates as distorting consumers' choices, especially given the decline in the underlying costs of completing telephone calls.[1]

Virtually all of the discussion about restructuring intercarrier compensation involves reducing payments to local telephone companies, most of whom receive support from the Universal Service Fund's High-Cost Program. Many of the proposals for restructuring would compensate eligible carriers who lost intercarrier payments with payments from the USF. (A similar process of making implicit subsidies explicit occurred in 2002 when interstate common line support and interstate access support were added to the USF to compensate local carriers for the revenue they lost when long-distance access charges, another type of intercarrier compensation, were reduced.)

The Current State of Intercarrier Compensation

Currently, ICC rates vary in an arbitrary way that reflects regulatory history more than an efficient allocation of costs. The rates paid to local phone companies for originating and terminating calls range from zero to 36 cents per minute. That span does not reflect the underlying range of costs of handling those calls. Instead, intercarrier charges are set to keep local rates to customers affordable—the stated policy goal of many state regulators.

Rural telephone companies rely on intercarrier compensation for a large part of their revenue. A survey of those carriers by the National Telecommunications Cooperative Association found that ICC payments accounted for 26 percent of their total revenue—the third-largest source of funding behind universal service payments and reve-

1. Whenever prices do not accurately reflect costs, consumers' decisions about how much to buy are less effective than they might be in steering resources to the most efficient use. The cross-subsidies traditionally provided through intercarrier compensation rates are even more distorting than subsidies in general. The reason is that ICC rates raise the price of long-distance service (whose use is more sensitive to changes in price) in order to lower the price of local telephone service (whose use is much less sensitive to price changes).

Table 4-1.

Intercarrier Compensation Rates

(Cents per minute)

	Highest Rate	Lowest Rate	Average Rate
Incumbent Local Exchange Carriers			
Interstate calls			
Large carriers	1.5	0.5	0.6
Small carriers	8.9	0.3	1.8
Intrastate calls			
Large carriers	9.9	0.4	2.5
Small carriers	34.9	0.7	5.1
Competitive Local Exchange Carriers			
Interstate calls	6.8	0.2	1.8
Intrastate calls	35.9	0.4	3.0
Reciprocal Compensation Between Local Carriers			
Non-ISP bound	0.3	0	0.2
ISP bound	0.1	0	0.1
Commercial Mobile Radio Service to Incumbent Local Exchange Carriers			
Between metropolitan trading areas	8.9	0.2	0.6
Within a metropolitan trading area	0.3	0	0.2

Source: Congressional Budget Office based on Intercarrier Compensation Forum, *Ex Parte Brief in Support of the Intercarrier Compensation and Universal Service Reform Plan*, CC Docket No. 01-92 (October 5, 2004), Appendix C.

Note: ISP = Internet service provider.

nue from customers (see Table 4-2).[2] Large telephone companies, by contrast, received only 10 percent of their revenue from ICC payments.[3] Those companies relied to a much greater extent on sales of their services than on regulated payments.

The number of calls subject to intercarrier compensation has been falling in recent years (see Table 4-3). Consequently, the flow of ICC payments to local telephone companies declined by 13 percent between 2000 and 2004. ICC rates have fallen too as subsidies to local service providers have become explicit parts of universal service support, although rates remain high enough in some cases to distort consumers' choices.[4]

Rural telephone companies want to insulate themselves against further declines in one of their three main sources of income. However, long-distance companies want to reduce, if not eliminate, the patchwork quilt of ICC rates that apply to calls within or between states. Proposals to restructure intercarrier compensation have taken many forms, and the points of view of the various parties are often far apart.

2. A survey by a different trade association reported that 29 percent of rural carriers' total operating revenue came from intercarrier compensation. Ten percent of those companies received at least half of their revenue from ICC payments. See National Exchange Carrier Association, *Comments of the National Exchange Carrier Association, Inc., Before the Federal Communications Commission in the Matter of Developing a Unified Intercarrier Compensation Regime,* CC Docket No. 01-92 (May 23, 2005), available at www.neca.org/media/052305NECAICFinalFiling.pdf.

3. National Telecommunications Cooperative Association, *Ex Parte Presentation to the FCC: Intercarrier Compensation and Incumbent Rural Exchange Carriers* (January 6, 2004).

4. For that argument, see, for example, National Association of State Utility Consumer Advocates, *Initial Comments of the National Association of State Utility Consumer Advocates Before the Federal Communications Commission in the Matter of Developing a Unified Intercarrier Compensation Regime,* CC Docket No. 01-92 (May 23, 2005), available at www.nasuca.org/Intercarrier%20Compensation%20Comments.pdf.

Table 4-2.

Sources of Revenue for Rural Incumbent Carriers

	Percentage of Total Revenue
Charges Paid by Subscribers	27
Intercarrier Compensation	26
Federal and State Universal Service Subsidies	30
Other	17

Source: Congressional Budget Office based on data from the National Telecommunications Cooperative Association.

Effects of Changing Intercarrier Compensation

The process of restructuring intercarrier compensation is largely regulatory. There is disagreement about how much the Federal Communications Commission can accomplish alone: some analysts argue that without specific authorization by the Congress, the FCC cannot alter intercarrier compensation rates within a state.[5] Beyond that stricture, however, most of the restructuring process is expected to occur without changes in current law.

All proposals for restructuring confront the common arithmetic that reducing ICC rates will further reduce rural carriers' revenue and that the only alternatives available for restoring that revenue are universal service subsidies and higher consumer prices. Significantly raising the prices charged to rural customers may run counter to the goals of the Communications Act. Thus, under most proposals, the Universal Service Fund would bear much or all of the brunt of lowering ICC rates.

Some analysts, however, have asked whether telephone carriers should also bear part of the burden of changes in ICC policy by reducing their revenue flows. More pointedly, moving the revenue stream from intercarrier compensation to the USF intact would shield rural carriers from competition. If intercarrier compensation remains in its current form, competition from other carriers that face different rates and from modes of communication other than telephone threatens to erode it further. But once incorporated into the USF, rural carriers' revenue stream would no longer be subject to such competition.

Specific Proposals and Their Costs to the Universal Service Fund

In an FCC filing, the National Exchange Carrier Association (NECA) compared various proposals for restructuring intercarrier compensation to determine how they would split the burden among the different revenue sources—intercarrier compensation itself, telephone subscribers, and the Universal Service Fund (see Table 4-4). Major proposals include the following:

- The Rural Alliance proposes reducing intrastate access rates to a national benchmark and increasing some local residential rates to a national benchmark. The difference between local carriers' revenues before and after the change in rates would be made up through additional USF payments.
- The National Association of Regulatory Utility Commissioners proposes to eliminate originating access charges and reduce terminating access charges, with no change in residential rates. Affected telephone companies would be compensated through higher USF subsidies.
- The Intercarrier Compensation Forum proposes eliminating most originating and terminating access rates

Table 4-3.

Incumbent Carriers' Long-Distance Traffic and Intercarrier Compensation, 2000 to 2004

(By calendar year)

	Millions of Toll Calls Reported by Incumbents	Intercarrier Compensation (Billions of dollars)
2000	106.0	12.3
2001	97.8	10.7
2002	90.0	9.6
2003	81.2	10.0
2004	N.A.	10.7

Source: Congressional Budget Office based on data from the Federal Communications Commission.

Note: N.A. = not available.

5. Ibid., pp. 40-43.

Table 4-4.

Cost to the Universal Service Fund of Alternative Plans to Restructure Intercarrier Compensation

(Millions of dollars)

		Proposals for Restructuring Intercarrier Compensation		
	Current Policy (2003)	Rural Alliance[a]	National Association of Regulatory Utility Commissioners	Intercarrier Compensation Forum
Revenue of NECA Members[b]				
Intercarrier compensation	2.3	1.4	0.6	0.4
Charges paid by subscribers	3.2	3.5	3.2	3.5
USF support	2.5	3.1	4.2	4.1
Total	**8.0**	**8.0**	**8.0**	**8.0**
Increase in USF Support Relative to 2003 Level				
To NECA members	0	0.6	1.7	1.6
To all eligible carriers	0	0.8	2.3	2.9 [c]

Source: Congressional Budget Office based on National Exchange Carrier Association, *Comments of the National Exchange Carrier Association, Inc., Before the Federal Communications Commission in the Matter of Developing a Unified Intercarrier Compensation Regime,* CC Docket No. 01-92 (May 23, 2005).

Note: NECA = National Exchange Carrier Association; USF = Universal Service Fund.

a. As the Rural Alliance had not proposed a specific plan, NECA modeled a composite of proposals by the Alliance for Rural Intercarrier Compensation and the Expanded Portland Group (a group of rural incumbent local exchange carriers).

b. Members of the National Exchange Carrier Association received about three-quarters of the subsidies paid by the High-Cost Program in 2003.

c. Includes $0.8 billion from eliminating the current cap on high-cost loop support.

and moving to a system in which each carrier would be responsible for recovering all of its network costs from its customers. The proposal would maintain residual per-minute charges for certain rural carriers, however. Revenues lost by carriers would be recovered through increases in all subscriber line charges and in USF support.

NECA's analysis looked at the records of its member companies and calculated how much of the $8.0 billion in income they received in 2003 came from subscriber fees, intercarrier compensation, and universal service subsidies. NECA then modeled the various proposed rate changes to determine the extent to which they would lower revenues relative to a baseline estimate of the calls and minutes handled by NECA members.

The analysis was limited to the effects on a sample of the association's members, which accounted for $2.5 billion of the $3.3 billion spent by the USF's High-Cost Program in 2003. Changes like those described above would also affect other carriers; as a result, the costs to the USF would probably be greater than NECA's estimates.

In the three proposals that NECA modeled, the majority of the revenues lost from changing intercarrier compensation would be made up through increases in spending by the Universal Service Fund. For example, under the Rural Alliance's proposal, intercarrier compensation payments were estimated to fall from $2.3 billion to $1.4 billion. To compensate, the proposal would raise subscribers' rates to collect an additional $0.3 billion in revenue and would increase USF payments by $0.6 billion, a 25 percent rise. The increase in USF support would be much higher under the other two proposals: more than 60 percent. (The analysis is static and does not account for changes from the 2003 baseline in the number of calls and minutes of use.)

The proposal by the Intercarrier Compensation Forum also calls for removing the current cap on high-cost loop support. NECA estimates that in 2006, that cap will make support for incumbent rural carriers $0.6 billion lower than it would be otherwise.[6] Under current law, if the cap was eliminated, competitive eligible telecommunications carriers would also receive an increase in USF support, since their funding is tied to incumbents' per-line payments. The Universal Service Administrative Company projects that competitive entrants will receive $0.3 billion in high-cost loop support (on an annual basis) for 2006. If their funding rose by the same proportion as incumbents' when the cap was lifted, they would receive an additional $0.2 billion. Consequently, removal of the cap would increase spending for high-cost loop support by a total of $0.8 billion, in addition to the other USF costs imposed by the Intercarrier Compensation Forum's proposal.

Some critics have argued that lifting the cap on high-cost loop support is not a necessary part of restructuring intercarrier compensation. Although removal of the cap could be incorporated into any plan to reduce ICC payments, it is not bound to any specific strategy for lowering intercarrier compensation rates.

As noted above, the NECA analysis accounted for only $2.5 billion of the $3.3 billion spent by the High-Cost Program in 2003. To extrapolate the cost of the three proposals to the entire program, CBO multiplied NECA's estimates by 1.32 (3.3 ÷ 2.5). Based on that calculation, the increases in USF spending would range from $0.8 billion under the Rural Alliance's proposal to $2.9 billion under the Intercarrier Compensation Forum's proposal (see Table 4-4). That latter figure includes $0.8 billion for removing the cap on high-cost loop support.

Other options to restructure intercarrier compensation are available. Most notably, the system of ICC payments could be scrapped entirely in favor of a "bill and keep" system. Under that approach, each carrier would simply bill its own clients and make no payments to other carriers for interconnection. To implement such a system, policymakers would have to decide how to split the amount that rural telephone companies currently receive in intercarrier compensation among rural customers, the USF, and reduced company profits. (NECA did not model this policy option precisely because it was not sure how to allocate that amount.) Forcing consumers to bear the entire cost would require increasing their payments to rural telephone companies by more than 70 percent, which could well violate the Communications Act's mandate of keeping rural telephone rates roughly comparable with urban rates. Consequently, a wholesale move to a bill-and-keep system would probably also lead to an increase in USF spending.

Economic Effects of Restructuring

Altering ICC rates would be likely to change which groups of consumers pay for service in rural areas. Assuming that the telephone companies that pay those rates pass them on to their customers in the form of higher prices, ICC payments now come mainly from consumers who place calls into and out of high-cost areas. Reducing ICC payments and increasing USF support would transfer the burden from consumers making calls in high-cost areas to all long-distance customers across the country.

If subscribers' line charges and other local rates were raised to compensate for a reduction in ICC charges, a second distributive consequence of restructuring could be to shift costs from high-use customers to low-use customers. At the same time, because the subscriber line charge is levied on local telephone access (demand for which is less sensitive to price changes), whereas intercarrier compensation fees are levied on long-distance calls (demand for which is more price sensitive), that shift in the cost burden should reduce the distortions imposed by current fees.

Increasing USF spending to compensate for reducing intercarrier compensation might not produce many benefits for the economy as a whole. The current system of subsidies implicit in the ICC rate structure raises long-distance costs and so distorts consumers' choices, possibly causing economically inefficient behavior. Moving to a system of explicit subsidies provided by the Universal Service Fund would distort consumers' choices to a lesser degree and thus improve economic efficiency. However, since the current financing mechanism for the USF also raises long-distance costs (albeit on a wider basis since it

6. Total support for rural incumbents is forecast to be almost $1.1 billion with the cap, whereas without the cap it would be nearly $1.7 billion. See National Exchange Carrier Association, *Overview and Analysis of 2005 USF Data Submission* (September 30, 2005), pp. 3 and 4, available at www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/Monitor/usf05af.zip

includes cell phone calls), the net economic gains might not be substantial.[7]

Limiting the Impact on USF Spending

If USF payments do grow because of reductions in intercarrier compensation, the payments could be structured in such as way as to avoid committing any new resources to cross-subsidies or even to reduce cross-subsidy amounts. Currently, competitive entrants are eligible for the same per-line payments from the USF as the incumbent serving the same area. That equivalence means that wireless entrants receive payments from the USF that were originally intended to compensate incumbents for reducing their long-distance access rates at a time before most new entrants had entered the market. Careful design of USF payments to partly replace lost intercarrier compensation could result in a reduced flow of resources to competitive entrants, on net. That change would require at least partly decoupling the support given to incumbents from the support given to competitive entrants.

7. See Jerry Ellig, "Intercarrier Compensation and Consumer Welfare," *University of Illinois Journal of Law, Technology, and Policy* (Fall 2004), pp. 97-124.

CHAPTER

5

Policies for Funding Broadband Internet Access

High-speed Internet access (known as broadband) is not one of the services for rural households supported under the Universal Service Fund's High-Cost Program.[1] However, the Congress is considering ways to accelerate the deployment of rural broadband, and it may turn to the USF as a means of achieving that goal. Various legislative proposals have been introduced that would increase funding for rural broadband.[2]

Although rural broadband is not an officially supported service, the High-Cost Program does promote it indirectly. Such aid occurs when the program subsidizes investments that rural carriers make to upgrade their telephone networks. The upgraded networks are generally capable of offering both conventional telephone service and new digital services, including broadband. Once made, some of those investments become part of the historical costs that rural carriers use in filing for funding from the High-Cost Program.

The Prevalence of Broadband Connections and Prospects for Growth

Under the 1934 Communications Act, one of the criteria that the Federal Communications Commission and the Federal-State Joint Board on Universal Service are supposed to use in determining whether a telecommunications service is eligible for USF support is whether a substantial majority of residential customers nationwide already subscribe to it.[3] Currently, only a minority of residential customers purchase high-speed access to the Internet, although the number of subscriptions has been growing rapidly. Between December 1999 and June 2005 (the most recent period for which the FCC has released data), subscriptions for high-speed Internet access increased at an average rate of 73 percent a year among households and small businesses.[4] (Until its most recent release, the FCC did not separate residential consumers from small businesses. As a result, its data before 2005 overstate the amount of residential broadband access.) From less than 2 million at the end of 1999, the number of broadband subscribers rose to more than 38.5 million by mid-2005 (see Figure 5-1)—or about 34 percent of the 113 million households in the United States.[5]

The potential for growth in the number of households with a broadband connection is usually thought to be limited by the number of households with computers. According to a survey by the Census Bureau, 69.9 million U.S. households, or 62 percent, had a computer in 2003 (the most recent year for which those data are available).[6] The survey also found that 61.8 million, or 55 percent, of households had Internet access, including both broadband and dial-up connections.

1. Broadband access for public schools, libraries, and rural nonprofit health care providers is subsidized by the relevant USF programs.

2. For a list of broadband-related legislation introduced in the current Congress, see Angela A. Gilroy and Lennard G. Kruger, *Broadband Internet Regulation and Access: Background and Issues*, CRS Issue Brief IB10045 (Congressional Research Service, June 6, 2006), pp. 11-15.

3. As laid out in section 254c of the 1934 law (as amended), the other criteria are whether the service is essential to health, education, or public safety; is already being deployed by carriers over their public networks; and is consistent with public interest, convenience, and necessity.

4. Federal Communications Commission, *High-Speed Services for Internet Access: Status as of June 30, 2005* (April 2006), Table 14, available at www.fcc.gov/wcb/iatd/comp.html. Earlier data were obtained from earlier years of the same publication.

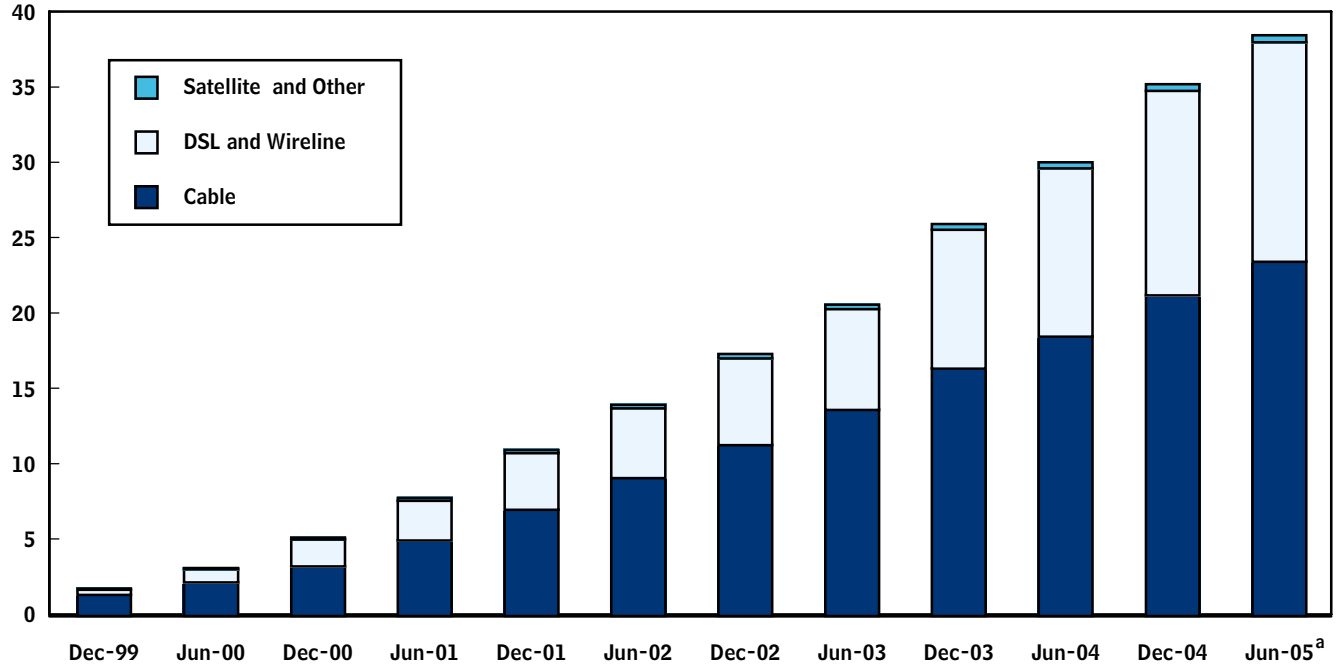
5. Jennifer Day, Alex Janus, and Jessica Davis, *Computer and Internet Use in the United States: 2003* (Bureau of the Census, October 2005). The estimated number of households is for 2003.

6. Ibid.

Figure 5-1.

Number of Residential and Small-Business Subscribers to Broadband Internet Access, 1999 to 2005

(Millions)



Source: Congressional Budget Office based on data from the Federal Communications Commission.

Note: DSL = digital subscriber line.

a. Data for 2005 are for residential subscribers only.

Those various statistics suggest significant room for growth in the amount of residential broadband. However, they also indicate that a majority of households do not currently buy broadband service and that such service does not yet meet the requirements for coverage under the Universal Service Fund.

Even without additional support, the number of broadband subscribers in rural areas is likely to rise. According to FCC data, high-speed telecommunications are becoming increasingly available throughout the nation, including areas with low population densities. Fewer than 5 percent of zip code areas have no broadband provider serving them (see Figure 5-2). Two-thirds of zip codes have three or more providers, and most of those are served by at least five providers. (A few years ago, by comparison, fewer than 20 percent of zip codes had five or more broadband providers.) In zip code areas with a population density of just 15 to 25 people per mile, 95 percent had at least one broadband provider offering service in June 2005, up from 39 percent in December 2000.[7] In the case of many large, sparsely populated zip codes, however, broadband service is available in only part of the area.

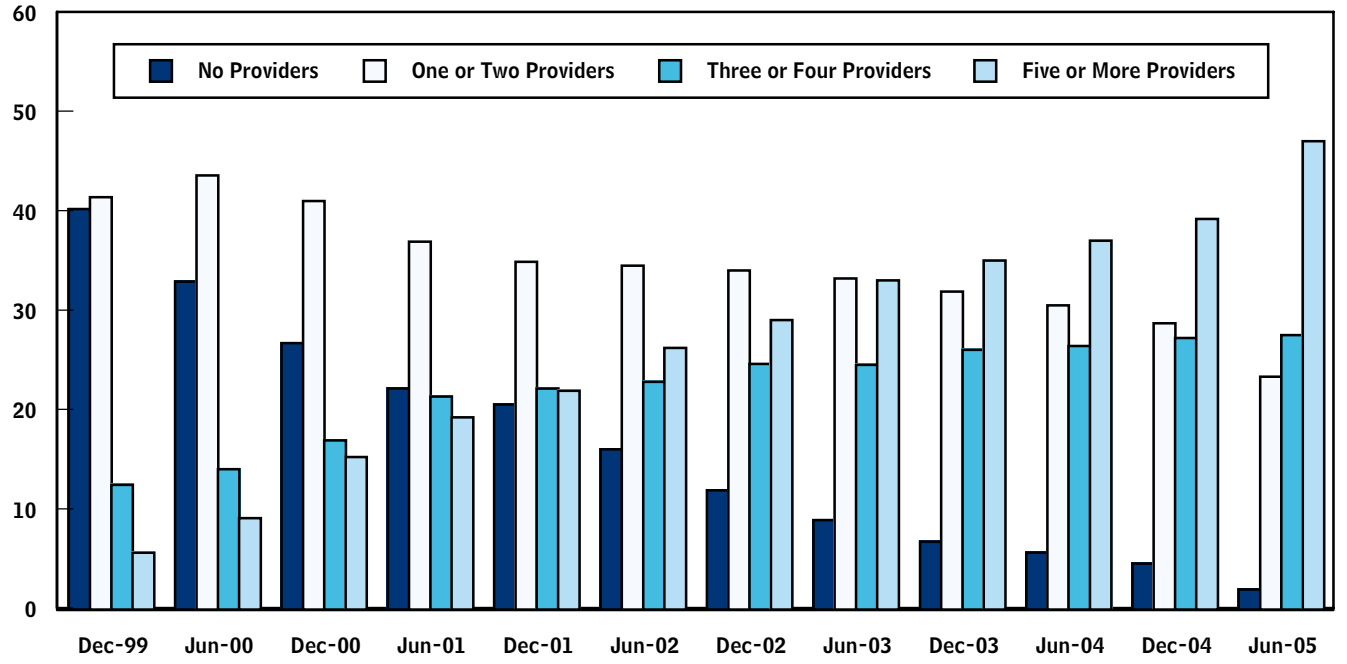
The National Exchange Carrier Association sets terms and conditions under which its member telephone companies, the vast majority of which operate in rural areas, can offer Internet access. Currently, about 920, or three-quarters, of the carriers operating under those terms offer residential digital subscriber line (DSL) service—the most common form of telephone-based broadband technology—for $30 per month. In addition to those rural providers, nonrural carriers, cable companies, and satellite companies offer broadband service to people in high-cost areas.

7. Federal Communications Commission, *High-Speed Services for Internet Access: Status as of June 30, 2005*, Table 17, available at www.fcc.gov/wcb/iatd/comp.html. Earlier data were obtained from earlier years of that publication.

Figure 5-2.

Number of Broadband Providers per Zip Code Area, 1999 to 2005

(Percentage of zip codes)



Source: Congressional Budget Office based on data from the Federal Communications Commission.

Although all of the indicators point to the growth of broadband in rural parts of the country, a gap remains between urban and rural subscription rates. In its most recent survey of Internet use, the Pew Internet and American Life Project found that 39 percent of urban and suburban households had high-speed Internet connections at home, compared with only 24 percent of rural households.[8] Nevertheless, rural broadband subscriptions are growing so rapidly that, today, subscription rates among rural households are at the level seen among nonrural households just two years ago.

Funding for Rural Broadband Under Current Policy

The federal government currently promotes rural broadband through two main avenues: the Universal Service Fund and subsidized credit programs run by the Department of Agriculture's Rural Utilities Service (RUS).

Rural Broadband in the High-Cost Program

The USF's Schools and Libraries Program and Rural Health Care Program subsidize broadband access, as well as other telecommunications services, among their target groups. The much larger High-Cost Program does not explicitly fund investment in broadband, but many of the investments that its does support allow carriers to deliver both conventional telephone and broadband service. Like carriers everywhere, rural companies are improving their older local loops and running more high-capacity and high-quality fiber-optic cable closer to their customers. Those upgrades are included in the historical costs that serve as the basis for high-cost loop support; thus, current policy implicitly provides funds for broadband in rural areas.

Whether such upgrades are motivated by the intention to provide broadband or better conventional telephone service is not immediately clear. However, the fact that wireline carriers as a whole have been losing subscribers and long-distance revenue over the past half decade suggests that at least part of the new investment in local loops has been made with the expectation of generating revenue from broadband subscriptions.

8. John Horrigan and Katherine Murray, "Rural Broadband Internet Use" (data memo, Pew Internet and American Life Project, Washington, D.C., February 2006), available at http://207.21.232.103/pdfs/PIP_Rural_Broadband.pdf.

Table 5-1.

Local Loop Investment by Carriers, 1999 and 2004

(By calendar year)

	Investment in Billions of Dollars		Percentage Change,
	1999	2004	1999-2004
Rural Carriers	20.1	27.7	38
Nonrural Carriers	120.8	138.7	15

Source: Congressional Budget Office based on data from the National Exchange Carrier Association.

According to data provided by NECA, rural carriers invested $20.1 billion in their lines in 1999 (excluding those specifically designated as broadband). By 2004, that investment had increased by 38 percent to $27.7 billion (see Table 5-1). Nonrural carriers expanded their line investment by only 15 percent during the same period.

Not all of the increase in investment, however, can be attributed to upgrading networks. Some resulted from increasing the number of local loops in rural areas by 3 percent during that period (even as the overall number of wireline loops nationwide declined). Most of those new loops were in exurban areas (distant suburbs), which are usually less expensive to serve than isolated rural homes. Consequently, the 3 percent rise in the number of lines is unlikely to explain the entire 38 percent increase in investment.

Recent surveys of investment patterns among rural carriers offer more-direct evidence of the dual purpose of such investments. In a survey of its rural members, the National Telecommunications Cooperative Association found that 81 percent of respondents were using their investment in fiber loop to extend the reach of DSL service.[9] Furthermore, much of that investment was devoted to speeding up potential connections rather than simply establishing basic broadband connections.

The cap on high-cost loop support for incumbent carriers limits USF support for broadband to only those carriers with very high costs. Investments made by carriers with lower costs are ineligible for funding.[10] Nevertheless, it appears that almost all rural carriers have increased their funding for broadband.

Broadband Programs of the Rural Utilities Service

The Rural Utilities Service in the Department of Agriculture runs several broadband programs in addition to its conventional telephone credit programs. Those initiatives contribute to getting broadband more universally adopted; they are also likely to indirectly raise costs for the Universal Service Fund.

The main RUS broadband program—the Rural Broadband Access Loan and Loan Guarantee Program—is designed to make credit available in eligible rural communities for construction, improvement, or acquisition of facilities and equipment to provide broadband services. The program, which includes both mandatory and discretionary spending, has approved $824 million in loans to 50 organizations. The interest rates on most of those loans are relatively low Treasury rates; a small number of loans are available at the even lower rate of 4 percent. In 2006, the program is expected to make available $1.1 billion in Treasury rate loans and $64 million in 4 percent loans (see Table 5-2). There are no private-lender guarantees this year. Because of the high repayment rate for telephone loans, the government's subsidy costs are low. Extending that credit is expected to cost $29 million in budget authority and $8 million in outlays in 2006.

The RUS program is intended to benefit places that have fewer than 20,000 inhabitants.[11] Many different types of organizations are eligible: corporations, cooperatives, Indian tribes, and public bodies. Carriers that serve more than 2 percent of the telephone subscriber lines installed in the United States are not eligible for RUS broadband loans.

9. National Telecommunications Cooperative Association, *NCTA 2005 Broadband/Internet Availability Survey Report* (September 2005), available at www.ntca.org/content_documents/2005NTCABroadbandSurveyReport.pdf.

10. Since 95 percent of the support for competitive entrants goes to cellular providers, the amount that competitive entrants spend on broadband is not yet substantial. Wireless broadband service is still very limited among cellular companies.

11. Despite that limitation, a recent audit by the Department of Agriculture Inspector General's office found that almost one-third of the RUS broadband loans that the office investigated went to suburban communities surrounding large cities. See Department of Agriculture, Office of Inspector General, *Broadband Grant and Loan Programs*, Audit Report 09601-4-Te (September 30, 2005), p. i.

Table 5-2.

Budget for the Rural Utilities Service's Broadband Loan Program

(Millions of dollars)

	Fiscal Year 2006
Four Percent Loans	64
Treasury Rate Loans	1,085
Loan Guarantees	0 [a]

Source: Congressional Budget Office based on data from the Office of Management and Budget.

a. No activity.

A wide array of broadband-related activities can be financed by such loans. Recipients can use them to buy new facilities or improve existing ones or to lease facilities for up to five years with an option to buy. Assets can be acquired, and some earlier RUS-financed loans can be refinanced. The loans cannot be used for financing installations or equipment at customers' premises, for mergers and consolidations, or for administrative operating expenses.

So far, the RUS program has not used all of its loan authority. Many applicants have not been approved, for a variety of reasons; the bulk of the loans that have been approved have gone to existing telephone companies.[12] The RUS is redesigning its application procedures to expedite the loan-making process.

Although the broadband program has been operating for only a few years, the Rural Utilities Service has been providing credit to rural telephone companies for decades. Like other financed investments, the plant and equipment funded by RUS loans and loan guarantees enters the rate base for the purposes of calculating a carrier's historical costs—and thus its payments from the Universal Service Fund's High-Cost Program. Similarly, an expansion of the RUS broadband program, to the extent that added funding went to carriers who were eligible for USF support, would tend to increase USF spending (subject to the cap on high-cost loop support for incumbents).

Such an increase would be limited to investments that a carrier could justify as helping to provide USF-supported services. At the same time, the carrier would have to justify the investments to the RUS as extending broadband access to the rural community in question. In the past, the Universal Service Administrative Company and the FCC have been fairly liberal about approving investments that carriers claim will further the cause of universal service.[13] The RUS has been much more stringent in approving applications for its broadband loans. But as noted above, the RUS has been signaling that it intends to streamline its loan process.

A second, much smaller RUS broadband program—Community Connect—is designed to offer grants to rural and economically challenged communities to provide broadband for their public institutions (and for businesses and residences, if possible).

Broadband Proposals and the USF Budget

Several policies have been proposed to accelerate the deployment of broadband in rural areas. Some proposals would explicitly include broadband as a service supported by the High-Cost Program. Although not all policies are directly tied to the Universal Service Fund, if they encourage investment by carriers that are eligible for USF funding, they may increase the USF's costs. Other policies propose no new federal spending but rather offer to make more spectrum available to encourage rural broadband through wireless technologies.

Members of Congress have introduced many proposals to increase the availability of broadband in rural areas. Most recently, S. 2686 proposes adding an account to the USF to provide financial assistance for the deployment of broadband service in unserved areas. That account would be capped at $500 million annually. S. 2686 does not limit the assistance to eligible telecommunications carriers but rather requires the FCC to set up a competitive selection process. The approach of providing a limited amount of funding and selecting areas to receive it through a competitive process is similar to that used in the Schools and Libraries Program.

12. Vikas Bajaj, "Money Is There to Aid Rural Internet, but Loans Are Hard to Get," *New York Times*, November 29, 2005.

13. John Nakahata, "Comments before the Digital Age Communications Act Universal Service Working Group: Discussion of a Working Group Draft Document" (Progress and Freedom Foundation, Washington, D.C., December 7, 2005).

Alternatively, if the Congress wanted to increase support for broadband service in rural areas, it might consider placing such support outside the Universal Service Fund and making the amounts spent subject to the same budgetary trade-offs that other discretionary programs experience.

Even if lawmakers did not explicitly authorize the expansion of rural broadband service, the USF would continue to provide financing for some investments that facilitate the development of rural broadband. For example, such funding goes to pay for infrastructure investments by carriers that let them provide both conventional telephone service and advanced services, including broadband.

CONGRESS OF THE UNITED STATES
CONGRESSIONAL BUDGET OFFICE
WASHINGTON, DC 20515

INSIDE MAIL