USHERING UNIVERSAL SERVICE REFORM: POLITICALLY FEASIBLE LEGISLATIVE PRINCIPLES

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I. INTRODUCTION

Universal service envisions that all consumers have access to communications services regardless of income or geographic location. Two "core" justifications include creating societal benefits and positive network externalities. In theory, society benefits from the greatest number of people using communications technologies because of the economic and societal advantages that accrue to individuals who have access to communications technologies. Network externalities occur when the value of a communications network as to its individual users increases proportionally with the number of users. However, the benefits justifying universal service ultimately come at a cost to consumers.

1 J.D. and Communications Law Studies Certificate Candidate, May 2009, The Catholic University of America, Columbus School of Law.
4 See id. at 6–7. The economic and societal benefits include, among other things, “enhanced educational opportunities, improved medical care, widespread availability of information, and increased economic competitiveness.” Dawson, supra note 1, at 119; see also Rob Frieden, Strategies for Repairing the Universal Service Fund 5, available at www.benton.org/benton_files/Frieden.doc (arguing that supporting universal service is sound public policy precisely because of the societal externalities it confers, namely commerce, political discourse, education, and delivery of government services such as job training).

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A desirable universal service mechanism balances the system's costs to society with the system's benefits to society. The cost to society manifests in the form of real costs to consumers and distortions in consumer's consumption decisions. Thus cost stems from the requirement that telecommunications providers contribute to the Universal Service Fund ("USF" or "the Fund"), based on a percentage of their interstate and international telecommunications revenue. This cost is ordinarily passed on to consumers as a line item on their monthly bills, and is often referred to as a tax. Generally taxes effect a consumer's consumption decision with regard to that good or service, resulting in a lower level of consumption with a tax than without. Therefore, the cost in terms of distortion in consumption arises from the operation of the tax.

Generating the funds to support universal service through taxing interstate and international end user revenue is a relatively new policy. The effort to
achieve universal access to communications networks prior to the Telecommunications Act of 1996 ("1996 Act") was achieved primarily through implicit subsidies—internal revenue shifting within a single telecommunications provider. The system worked well for monopoly providers, but as competition increased through the 1990's so too did the need for a more sustainable universal service mechanism. In the 1996 Act, Congress removed barriers to competition in the telecommunications market. It recognized the impact of a competitive market on universal service, and, thus, mandated that the support mechanism be explicit.

In response to the 1996 Act, the Federal Communications Commission ("FCC" or "Commission") was tasked with creating the new system. The Commission, with Congress's guidance and pro-competitive principles in mind, adopted four universal service support mechanisms and a contribution methodology to fund the universal service mechanisms. In the years following the creation of the Fund, total USF outlays steadily increased from $3.3 billion in fiscal year 1999 to over $6.6 billion in fiscal year 2006.

The growth of the Fund led to concern regarding its long term viability. The high-cost fund—one of the four explicit support mechanisms created by the Commission pursuant to the 1996 Act—is, to a large extent, responsible for this growth. Outlays from the high-cost fund have grown from approximately

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11 Report and Order, supra note 5, ¶ 10. Implicit subsidies were generally achieved through three different means: geographic rate averaging; charging artificially higher prices to business consumers; and charging higher prices for interstate services. Id. ¶ 12; see also infra Part III.B (discussing methods of implicit subsidization).

12 Qwest Commc'ns Int'l Inc., 398 F.3d 1222, 1226 (10th Cir. 2005) (explaining that Congress was concerned that competition would place an unsustainable burden of providing universal service on incumbent providers).


14 47 U.S.C. § 254(e) (establishing that universal service support be explicit); see also In re Access Charge Reform; Price Cap Performance Review for Local Exchange Carriers; Transport Rate Structure and Pricing; End User Common Line Charge, First Report and Order, 12 F.C.C.R. 15,982, ¶ 9 (May 16, 1997) [hereinafter Access Charge Reform Report] (justifying the Commission's decision to remove implicit subsidies in the form of access charges over time on "Congress's directives" that support be explicit).


16 Report and Order, supra note 5, ¶ 18. For a discussion of the four support mechanisms and contribution methodology, see infra Part IV.B.

17 CONG. BUDGET OFFICE, supra note 6, at 4 tbl.1-1.


19 See generally Federal-State Joint Board on Universal Service Seeks Comment on Long Term, Comprehensive High-Cost Universal Service Reform, Public Notice, 22 F.C.C.R. 9023, ¶ 1 (May 1, 2007) [hereinafter 2007 Public Notice] (expressing the Joint Board's concern over the "explosive growth" of high-cost universal service outlays).
$2.6 billion in 2001 to over $4 billion in 2006. Consequently, the percentage of interstate revenue that telecommunications providers are required to contribute to USF (a cost passed on to consumers) has grown from an average of 6.85% in 2001 to an average of 10.7% in 2007. While some policy changes have been undertaken to sustain the Fund, reform to achieve long-term sustainability has not materialized. Policymakers have recognized the current economic failures of universal service, but are unable to reconcile the need for reform with possible "principal-agent problems in which policymakers' personal long-term political objectives may foreclose pursuit of more socially beneficial policy options."

This Comment recommends general principles of reform for the high-cost fund and contribution methodology that mitigate the political constraints facing policymakers. Congress should adopt the recommended principles to aid the Commission in creating a high-cost mechanism and contribution methodology that better limit the costs of achieving universal service. Part II describes the costs of universal service and the political achievability of reforms. Part III discusses the historical treatment and evolution of universal service from monopoly market structure with implicit subsidies, to a competitive marketplace with explicit subsidies. Part IV describes the principles of universal service and the specific mechanisms adopted by the Commission. Part V examines the failure of the universal service mechanism to minimize the costs and distortions created by the provision of universal service, specifically with regard to


23 See e.g., Recommended Decision, supra note 20, ¶ 1; In re High-Cost Universal Service Support; Federal-State Joint Board on Universal Service, Notice of Proposed Rulemaking, 22 F.C.C.R. 9705 (May 11, 2007) (seeking comment on capping the high-cost support in response to its extreme growth).

the costs of the high-cost fund and contribution methodology. Part VI recommends two principles that will promote politically viable reform of high-cost fund support and contribution methodology. This Comment concludes with an application of these principles against current reform proposals.

II. THE COSTS AND BENEFITS OF UNIVERSAL SERVICE AND POLITICAL FEASIBILITY OF REFORM

Universal service policies must balance the cost of the system with the benefits derived from it. The determination of costs and benefits relies on economic, social, and institutional factors. The cost of providing universal service is the loss in consumer welfare due to the tax on interstate communications service. The benefits include network externalities and "enhanced educational opportunities, improved medical care, widespread availability of information, and increased economic competitiveness."

In balancing these costs and benefits, policymakers must fulfill "the joint requirements of political feasibility and economic viability." Policymakers seeking to reform universal service face strong constituencies, such as rural telephone companies, national telephone companies, and consumers. When these forces "favor[] preservation of the existing arrangements," it is more politically feasible to sustain current policies than to implement reform.

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25 PROGRESS & FREEDOM FOUND., supra note 2, at 2.
26 See Johannes M. Bauer & Steven S. Wildman, Looking Backwards and Looking Forwards in Contemplating the Next Rewrite of the Communications Act, 58 FED. COMM. L.J. 415, 418 (2006) (describing the "design of law and policy" as an optimized "problem subject to certain technological, economic, and institutional constraints" and providing an objective function that can express societal preferences for traditional policy analysis based on the aforementioned factors).
27 PROGRESS & FREEDOM FOUND., supra note 2, at 6.
28 Dawson, supra note 1, at 119.
29 CHERRY, supra note 24, at 1 ("Sustainable development of a nation's public utility infrastructure, such as electricity and telecommunications, requires regulatory policies that satisfy both political feasibility and the economic conditions for maintaining a financially viable utility industry.").
30 See id. at 4. This is particularly true when "transitioning from a monopoly to a competitive regulatory regime." Id. at 2 n.2; see also JEAN-JACQUES LAFFONT & JEAN TIROLE, COMPETITION IN TELECOMMUNICATIONS 218 (2000) (identifying three categories of interest groups affecting reform for utilities: consumers in rural areas seeking to maintain universal service; large businesses users seeking lower prices through competition; and incumbent operators seeking to maintain universal service).
31 Bauer & Wildman, supra note 26, at 418–19.
A. Balancing Costs and Benefits

As the Congressional Budget Office ("CBO") frames the cost-benefit balance, "[a] central question to be asked about any mechanism used to finance federal spending is whether there is a way to collect the funds at a lower cost to the economy." CBO further explains that the cost "hinges on the degree to which a financing mechanism affects choices made by both producers and consumers." The cost of universal service falls primarily on consumers.

The cost is manifest in real terms—a line item on a consumer's bill—as well as distortions in consumption decisions. Consumption distortions exist because altered prices affect consumer choice; "consumers will allocate their spending differently than they would have in the absence of a tax." The size of the distortion depends on two factors: (1) "the size of the tax;" and (2) "the degree to which consumers reduce their purchases as a result of being forced to pay the higher prices associated with the tax." The second factor refers to the elasticity of demand for a service or good. The services affected by the USF contribution requirements include long-distance telephone service, wireless telephone service, and interconnected VoIP services. Unlike basic telephone service, these services are subject to some elasticity on demand. Therefore,

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32 Cong. Budget Office, supra note 6, at xi. While universal service is technically funded by industry, CBO explains that "[b]ecause those transfers between providers [the contribution and distribution of USF support] are required by law, payments into and disbursements from the Universal Service Fund are counted as revenues and outlays in the federal budget." Id. at 1.

33 Id. at xi.


35 Distortions in consumption decisions are just one piece of total effect on economic efficiency. Riordan, supra note 1, at 434–36. Economic efficiency is achieved when the price of a service is equal to the cost of providing one additional unit of that service, known as the marginal cost of the service. When a universal service policy leads to prices that are above marginal cost (as are prices that include a tax), the universal service policy "sacrifice[s] economic efficiency." Id. at 434. Other factors affecting economic efficiency are producer surplus and deadweight loss (the efficiency loss from the tax). Id.; see also Lafont & Tirole, supra note 30, at 222–23 ("[C]onsumption efficiency requires prices to be equal to marginal cost.").

36 Cong. Budget Office, supra note 6, at 19.

37 Id.

38 Elasticity of demand is the effect of a change in price on demand for a particular good or service. Some goods or services, such as basic telephone service, experience little change in consumption for a given change in price. Id. at 19 n.2.


40 Cong. Budget Office, supra note 6, at 19. "[T]he elasticity of demand for long-distance calls is generally agreed to be around -0.7 whereas the elasticity of demand for basic telephone access is thought to be closer to -0.02 or -0.03." Id. at 19 n.2. If the elasticity is closer to zero, then the demand for that service is more inelastic. Therefore, the demand
for a given increase in the price of one unit of these services, the level of consumption of that service will decrease proportionally. It follows then, that as the size of the tax grows, not only are consumers incurring the real cost of maintaining the system, but they are also consuming less interstate telecommunications services than they would otherwise. In light of, or perhaps in spite of these costs, universal service is justified on the benefits it confers.

Access to communications technologies brings increased economic, social, and political opportunities to both rural and low-income citizens, in addition to providing access to emergency services such as E-911.41 Furthermore, all consumers benefit from increased productivity gains which are achieved through "decreases in prices of transmission and increases in the amount of information that can be cheaply and rapidly moved from place to place."42 Increasing productivity gains benefit all consumers "through access to better products and services and through lower prices."43 Increased access to communications technologies may also result in positive network externalities.

Network externalities "exist[] where purchasers find a good more valuable as additional purchasers buy the same good."44 The telecommunications network is "often characterized by 'network effects.'"45 In fact, the telecommunications network is relatively insensitive to changes in price. Even so, both VoIP and wireless telephony are presumably more sensitive to price than basic telephone service. See id. at 19 (stating that cellular service is "more sensitive to price fluctuations than is basic access").

41 PROGRESS & FREEDOM FOUND., supra note 2, at 6. Additional benefits of access to communications technologies, not explicitly stated as a goal or purpose of universal service, include: (1) "ensur[ing] that everyone has access to a telephone"; (2) "redistribut[ing] income from rich to poor and from urban to rural telephone subscribers"; and (3) captur[ing] the externalities from telecommunications in certain service sectors, such as education, health care, and libraries." ROBERT W. CRANDALL & LEONARD WAVERMAN, WHO PAYS FOR UNIVERSAL SERVICE? WHEN TELEPHONE SUBSIDIES BECOME TRANSPARENT 106 (2000); see also LAFFONT & TIROLE, supra note 30, at 219 (identifying two rationales for universal service: (1) "redistribution toward needy customers"; and (2) "regional planning attempting to encourage a more harmonious distribution of residents away from large congested metropolitan areas").

42 Reed E. Hundt & Gregory L. Rosston, Communications Policy for 2006 and Beyond, 58 FED. COMM. L.J. 1, 2 (2006). Hundt & Rosston cite productivity gains as the means for achieving a key goal of communications policy, namely, "promoting the welfare of our citizens." Id. They further argue that "[t]he best means to achieve these goals of communications policy is to maximize the operations of markets." Id. They hedge their preference for markets by citing two reasons that markets will not lead to optimal results. First, firms that win in competitive markets seek to decrease competition. Second, regulators provide universal communications "in ways that diminish the responsiveness of the market as well as the magnitude and speed of the introduction of new goods and services." Id.

43 Lemley & McGowan, supra note 4, at 483.

44 Gaia Bernstein, The Paradoxes of Technological Diffusion: Genetic Discrimination and Internet Privacy, 39 CONN. L. REV. 241, 283 (2006) (discussing network effects as they relate to a "critical mass point" for the Internet). For a discussion of network externalities
cations network is an "example of a 'pure' network, about which even skeptics . . . concede that the network effects story has some validity."46 Theoretically, as new users are added to the network, each existing user receives some marginal benefit.47 Justified by these benefits, universal service policy has sought to maximize the number of people with access to communications technologies.

Universal service policy, however, does not equate the private benefit or cost of achieving universal service with the cost and benefit to society.48 It seeks "to extend the scope of the network farther, to the point at which, in strictly economic terms, the marginal social cost of adding users may well exceed marginal social benefits."49 The net economic welfare generated by universal service may be as much as negative $1.16 billion.50 Furthermore, estimated total welfare gains that could be achieved by rate rebalancing—estimates of the effects of moving from universal service to a cost-based pricing regime—are $3 billion annually.51 Taking these figures at face value, the balance appears to heavily favor the cost of universal service. To shift this balance, policymakers should adopt reforms targeted at the areas of the universal service mechanism most responsible for creating the imbalance: the high-cost fund and contribution methodology.

B. Political Feasibility of Reform

To achieve reform in any arena, policymakers need to fulfill the "joint requirements of political feasibility and economic viability."52 For policy reforms to be politically feasible, policymakers must recognize that an "economic viability problem ranks high on the policy agenda."53 Once an economic viability problem is recognized, policymakers must develop a political strategy that accounts for perceived public opinion of reform, other politician approval for

46 Lemley & McGowan, supra note 4, at 546.
47 Id.
48 Id.
49 Id.
50 PROGRESS & FREEDOM FOUND., supra note 2, at 9. The reduction in economic welfare is comprised of a $240 million increase in the cost of interstate long-distance due to the universal service contribution, and a $920 million reduction in producer welfare. Id.
51 CRANDALL & WAPERMAN, supra note 41, at 109–19. The purpose of rate rebalancing in Crandall and Waverman's calculation is to approximate what rates would be without universal service. The $3 billion annual welfare gain is arrived at by applying the Commission's Hybrid Cost Proxy Model. Two other models, the Benchmark Cost Proxy Model and Common-Input model, yielded maximum welfare gains of $7 billion and $4.1 billion respectively. Id. at 119.
52 CHERRY, supra note 24, at 1.
53 Id. at 14.
reform, and political forces in support or opposition of reform. These "components are considered in light of policymakers' own political objectives, often posing principle-agent problems in which policymakers' personal long-term political objectives may foreclose pursuit of more socially beneficial policy options."

The principal-agent constraint on policymakers appears to be powerful with respect to telecommunications reform. For example, Representative Joe Barton (R-TX), current Ranking Member of the House Committee on Energy and Commerce, suggested "that it is 'debatable' whether the government should subsidize telephone service for those living in remote areas." Despite this remark, Rep. Barton conceded that "no such debate would take place in the legislative arena because 'political realities' demand that universal service subsidies continue for the foreseeable future." The "political realities" Rep. Barton spoke of seem to imply recognition of the political viability problem he faces in seeking reform.

Reforming universal service is not a task exclusively belonging to Congress; the FCC created the current USF mechanism and has periodically made reforms. Decision makers at the Commission are subject to the same political constraints as members of Congress, but with arguably less force. However, the Commission historically has been slow to act on universal service issues.

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54 Id. at 14–15.
55 Id. at 15. For instance, Cherry discusses the difficulties policymakers face in accounting for their own goals, in light of their constituents' negative responses to any actual or perceived losses. Id.
57 Id. at 2.
58 Representatives Lee Terry (R-NE) and Rick Boucher (D-VA) introduced the Universal Service Reform Act of 2007, H.R. 2054. While the bill had twenty-six co-sponsors as of December 2007, it is still subject to broader political viability. At a USF conference, Rep. Terry conceded that telecommunications is not a priority of Congress in 2007 and that "[t]his is the year of global warming, so there is little likelihood of the bill coming out of committee." Edie Herman, FCC May Vote Soon on Interim USF Cap Proposal, Says Tate, COMM. DAILY, Oct. 2, 2007.
59 See e.g., Report and Order, supra note 5, ¶ 2 (creating the four USF support mechanism and contribution methodology); In re High-Cost Universal Service Support, Federal-State Joint Board on Universal Service, Notice of Proposed Rulemaking, 22 F.C.C.R. 9705, ¶ 1 (May 11, 2007) (seeking comment on capping the high-cost support fund).
60 Because FCC commissioners are not directly elected by the public, the constraints imposed by public interest groups and industry may be weaker than those imposed on legislators, who are elected directly by these constituencies. See 47 U.S.C. § 154(a) (2000) (providing that the FCC "shall be composed of five commissioners, appointed by the President, by and with the advice and consent of the Senate.").
61 See e.g., infra Part IV.A (explaining that while in 2005 the Tenth Circuit held that the Commission must define "sufficient" as it appears in section 254, the Commission has yet to
Furthermore, FCC Chairman Kevin Martin has "indicated a preference' for Congress to... take the first step on revamping USF," perhaps in light of these constraints. 62

To a large extent, the constraint preventing policymakers from enacting significant universal service reform originates with rural local exchange carriers ("LECs"). Rural LECs receive as much as one-third of their revenue through USF under the current universal service mechanism. 63 For Congress, reforming universal service in a manner that expressly eliminates this revenue stream is neither economically viable nor politically feasible. 64 The relationship between rural LECs and legislators has been described as a "textbook example" of a program where the "special interest control of public policy tends to be strong when the benefits of a program are concentrated on a small number of beneficiaries while the costs are widely diffused." 65 Ultimately, the failure to reform is a result of a failure of broader societal or economic interests to win over the political interests of policymakers or incumbent economic interests of their constituencies.

To understand how universal service, in particular the high-cost fund, has become a multi-billion dollar subsidy program, and the nature of the balance of costs, benefits, and politics, it is helpful to start at the genesis of universal service.

III. UNIVERSAL SERVICE PRIOR TO THE 1996 ACT: IMPLICIT SUBSIDIZATION AND MARKET DISTORTIONS

As early as the passage of the Communications Act of 1934 ("1934 Act"), Congress sought to achieve universal access to communications services. 66 The

62 Herman, supra note 58.
63 THOMAS W. HAZLETT, "UNIVERSAL SERVICE" TELEPHONE SUBSIDIES: WHAT DOES $7 BILLION BUY? 56–57 (2006), available at http://www.senior.org/Documents/USF.Master.6.13.06.pdf. Furthermore, on average, rural LECs receive more than fifty percent of their sales revenue from government subsidies. Id. at 57.
64 See id. at 56–58. Hazlett explains that the concentration of beneficiaries is exemplified through the high-cost fund. On average, national high-cost fund support recipients receive $12 per person per year. In largely rural states the average subsidy is significantly larger. For example, Alaskan carriers receive as much as $177 per person per year in high-cost fund support. These constituencies are particularly strong in the Senate. Opposing this small organized constituency is a "broad, general interest congruent with those of consumers who pay taxes funding these transfers, [who are] not sufficiently well organized to defend its interests." Id. at 58.
65 Id. at 56 (arguing that this situation allows "those who gain to successfully organize and to influence government policy").
Universal Service Reform

1934 Act required the FCC to adopt regulations that “make available, so far as possible, to all people of the United States a rapid, efficient, Nation-wide ... wire and radio communication service with adequate facilities at reasonable charges.” The concept of universal service, however, pre-dated Congress’ implicit recognition in the 1934 Act.

A. American Telephone and Telegraph’s “Universal” Service

Prior to the 1934 Act, the term “universal service” may have had a different connotation than it has taken on in the present day. The term originated around 1907 as a strategic goal of American Telephone and Telegraph (“AT&T”). The goal of universal service was to connect all “localities and telephone users into a single nationally interconnected system.”

While this goal does not appear to be a benevolent social contract to provide service to all consumers, commenters continue to disagree on AT&T’s original intentions for universal service. Some argue that the idea was a justification for monopoly power, while others posit that AT&T had better intentions, namely, to provide affordable access to all consumers.

Whatever the motive may have been, AT&T ultimately achieved market dominance by connecting all “localities and telephone users into a single nationally interconnected system.” In 1907, the Bell Telephone Company—the original local exchange of which AT&T was the long distance subsidiary—“reorganized” into AT&T. At the time the companies merged, they controlled

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68 See Meyerson, supra note 66, at 266.
70 Krattenmaker, supra note 69, at 350 (explaining that Theodore Vail, President of AT&T, conceived the plan early in the twentieth century after observing the segmentation of the telecommunications market in the late 1800’s).
71 Id. at 350 (arguing that Vail did not intend for “universal service” to refer to subsidized prices).
72 See Progress & Freedom Found., supra note 2, at 5–6. It seems that AT&T’s own interpretation of Vail’s intention has changed depending on its needs. For instance, the interpretation that universal service as a company policy was meant to provide affordable access was attractive when antitrust pressures were applied to AT&T. See Crandall & Waverman, supra note 51, at 7–9.
73 Progress & Freedom Found., supra note 2, at 5–6.
74 Krattenmaker, supra note 69, at 350.
75 Lynch, supra note 69, at 11. During this period AT&T was under government scrutiny for their anti-competitive business practices. In 1912, AT&T agreed to stop buying competitors and allow independent local exchanges to connect to their long-distance net-
only half of the local exchanges; independent phone companies controlled the remaining half.\textsuperscript{76}

Subsequently, AT&T quickly vertically integrated its businesses, including Western Electric, an equipment manufacturer, while simultaneously denying interconnection of independent phone companies to AT&T's superior long distance exchange.\textsuperscript{77} As a result of integration, by the end of World War II, AT&T owned and operated all long distance lines and approximately eighty percent of local lines.\textsuperscript{78}

Due to AT&T's significant market power, the FCC's regulations directly impacted the company's business. In fulfilling the duty to provide service to everyone in the United States at reasonable rates,\textsuperscript{79} AT&T used a system of implicit or cross-subsidies.\textsuperscript{80}

**B. Methods of Implicit Subsidization**

The Commission described implicit subsidization as occurring when a single company receives revenue above cost for one service while simultaneously pricing other services "allegedly" below costs.\textsuperscript{81} In 1997, at the time the Commission adopted its first Report and Order, it noted the existence of three implicit subsidies: geographic rate averaging; inflated rates for businesses; and inflated rates for interstate long distance service.\textsuperscript{82}

First, implicit subsidization occurred through "geographic rate averaging."\textsuperscript{83} It is less expensive for a telecommunications service provider to build a network and offer service in urban areas than in rural areas.\textsuperscript{84} As a result, by charging rates significantly above costs in urban areas, service providers were

\textsuperscript{76} Id. at 11.
\textsuperscript{77} Id. at 12.
\textsuperscript{78} KRATTENMAKER, supra note 69, at 348. This degree of market control allowed AT&T to earn over $3 billion in revenue in 1950. MEYER ET AL., supra note 4, at 4 tbl.1-1.
\textsuperscript{79} See supra note 67 and accompanying text.
\textsuperscript{80} Report and Order, supra note 5, ¶ 10–12. The system of cross-subsidies operated as "part of the regulatory contract between the firm and the regulator." LAFFONT & TIROLE, supra note 30, at 217.
\textsuperscript{81} Report and Order, supra note 5, at 8784 n.15.
\textsuperscript{82} Id. ¶ 12. Krattenmaker suggests that four implicit subsidy mechanisms existed, the fourth being the cross-subsidization of highly used lines for lightly used lines. Under this system, the cost-per-call on a given line is inversely related to the number of calls. Therefore, the higher the number of calls, the lower the cost of each call to the service provider. Maintaining artificially higher rates in high-call lines allowed for similarly priced calls on lightly used lines. KRATTENMAKER, supra note 69, at 350.
\textsuperscript{83} Report and Order, supra note 5, ¶ 11. Geographic rate averaging was achieved by averaging rates across a state. Id.
\textsuperscript{84} Id.
able to offer “reasonable” rates in rural areas. The second method of implicit subsidization stems from this premise.

Under the second method, businesses were charged higher rates than residential consumers even though the cost of providing service to each was effectively equivalent. Residential rates were further subsidized by rates charged to businesses for “vertical services such as touch tone, conference calling and speed dialing.”

The third implicit subsidy was derived from interstate long distance charges. Inflated usage charges for interstate customers were used to subsidize the cost of local service. While some forms of these implicit subsidies still exist today, they are not the primary means by which the provision of universal service is achieved.

The implicit subsidy system for achieving universal service relied on a lack of competition; as shown, implicit subsidies rely on the ability to inflate prices along subsets of consumers within a single provider. While implicit subsidies were meant to promote telephone subscribership, “they [did] so at the expense of deterring or distorting competition.” Implicit subsidies also had the effect of “obscuring the cost of the universal service mission” to the extent that consumers were unable to modulate their consumption of services because they did not know the level of their individual contribution to the subsidy was.

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86 Report and Order, supra note 5, ¶ 11.
87 Id.
88 Id.
89 Id. The current USF contribution methodology still uses interstate and international service as the basis for a carrier’s contribution to the Fund. See 47 C.F.R. § 54.706 (2006).
90 For instance, telecommunications providers charge higher rates to business consumers than to residential consumers, even though the cost of providing service may be constant. Further, LECs still receive access charges, fees paid to LECs by long distance providers seeking access to the LECs customers. See Hazlett, supra note 63, at 16-17.
91 Because most of the cross-subsidies relied on providing both interstate and intrastate services, providers that served only interstate customers or only intrastate customers were limited in their ability to cross-subsidize. Report and Order, supra note 5, ¶¶ 10–12 (explaining that implicit subsidies occur when a single company receives revenue above cost, while simultaneously pricing other services “allegedly” below cost).
93 See Frieden, supra note 3, at 6–7 (explaining that obscuring the cost of universal service also caused other market distortions); see also Cong. Budget Office, supra note 6, at xi (explaining the effect on consumption decisions as consumers losing not only the value of the fee, but also the benefits from the goods they did not consume because of the fee). It should be noted that consumers who benefit from the subsidy make distorted consumption decisions as well; however, this distortion is implicit in the idea of providing service at comparable rates to all consumers regardless of geographic location. See 47 U.S.C. §
Because implicit subsidization relied on the ability to price discriminate across services and groups of consumers, it was best achieved in a monopoly environment. With competition in local markets, an incumbent LEC could no longer use rates in low-cost portions of their service area to subsidize the rates in high-cost areas. Competitors providing service only in the low-cost areas (urban areas) would price their service closer to their costs, undercutting the incumbent LEC, and forcing price competition in these areas.

Congress, recognizing the inability of an implicit subsidization to function in a competitive environment and as part of the pro-competitive framework of the 1996 Act, mandated that the universal service mechanism be explicit. While it may be argued that Congress managed the political constraints imposed by LECs and rural LECs by effectively protecting them as the likely (and ultimate) beneficiaries of the new universal service mechanism, the intrusion on service providers’ pricing structures and forcing local competition was significant reform. Congress ultimately left the Commission the task of determining the specifics of the mechanism, further mitigating the political constraints by not directly harming any constituency. To guide the Commission in establishing an explicit mechanism, Congress adopted a broad definition of universal service and principles that the mechanism should satisfy.

IV. THE 1996 ACT: UNIVERSAL SERVICE DEFINITION, PRINCIPLES, SUPPORT MECHANISMS, AND CONTRIBUTION METHODOLOGY

Following an unsuccessful attempt by the previous Congress to enact broad telecom reform, the 104th Congress enacted the Telecommunications Act of 1996. The 1996 Act was intended to promote competition in the once mo-

254(b)(1)–(3) (2000); see also supra Part II.A (discussing the distorting effects of a tax on consumption).

94 HAZLETT, supra note 63. This is especially true for implicit subsidization occurring within a single provider. Id. at 16–17.

95 Qwest Commc’ns Int’l v. FCC, 398 F.3d 1222, 1226 (10th Cir. 2005) (explaining that Congress was concerned that price competition would leave the “former monopoly carriers the unsustainable burden of providing service to rural areas in the face of a dwindling urban base”); see also HAZLETT, supra note 63, at 13 (explaining that traditional sources of profit for local LECs would disappear with competitive entry, thereby prohibiting incumbent LEC’s from “internally subsidizing users in high-cost areas”).


97 Congress, to an arguably lesser extent, also mitigated political constraints imposed by LECs and rural LECs by leaving in place a system of access charges. See HAZLETT, supra note 63, at 56–57. Rural LECs receive approximately ten percent of their revenue from interstate access charges and sixteen percent from intrastate access charges. Id. at 57 fig.9.

98 Report and Order, supra note 5, ¶ 2.

nopolized local telephone market, specifically to "provide for a pro-
competitive, de-regulatory national policy framework designed to accelerate
rapidly private sector deployment of advanced telecommunications and infor-
mation technologies and services to all Americans by opening all telecommu-
nications markets to competition."\(^{100}\) To achieve deployment in rural and high
cost areas, Congress adopted principles of universal service under which the
Commission was to adopt a specific mechanism.

A. Definition and Principles of Universal Service

Although Congress first codified universal service in the 1996 Act, the
phrase was not defined in the legislation.\(^{101}\) Within the goal of "establish[ing]
rules and procedures for the reform of universal service in a competitive mar-
ket,"\(^{102}\) Congress sought to guide the FCC "in implementing ‘policies for the
preservation and advancement of universal service.’"\(^{103}\) Specifically, the 1996
Act established that "[u]niversal service is an evolving level of telecommuni-
cations services that the Commission shall establish periodically . . . taking into
account advances in telecommunications and information technologies and
services."\(^{104}\)

The 1996 Act also created the Federal-State Joint Board to consult the
Commission on creating the mechanism and crafting reform.\(^{105}\) To determine
what services should be supported by the universal service fund, the Joint
Board and Commission must consider to what extent the services:

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\(^{100}\) See 47 U.S.C. § 254(c). Although this section is titled "Definition," the statute does
not provide an explicit definition. Instead, like much of section 254, Congress adopted general
guidelines of what constitutes universal service. Id.

\(^{101}\) See 47 U.S.C. § 254(c). Although this section is titled "Definition," the statute does
not provide an explicit definition. Instead, like much of section 254, Congress adopted general
guidelines of what constitutes universal service. Id.

\(^{102}\) See 47 U.S.C. § 254(c). Although this section is titled "Definition," the statute does
not provide an explicit definition. Instead, like much of section 254, Congress adopted general
guidelines of what constitutes universal service. Id.

\(^{103}\) See 47 U.S.C. § 254(c). Although this section is titled "Definition," the statute does
not provide an explicit definition. Instead, like much of section 254, Congress adopted general
guidelines of what constitutes universal service. Id.

\(^{104}\) See 47 U.S.C. § 254(c). Although this section is titled "Definition," the statute does
not provide an explicit definition. Instead, like much of section 254, Congress adopted general
guidelines of what constitutes universal service. Id.
[A]re essential to education, public health, or public safety; have, through the operation of market choices by customer, been subscribed to by a substantial majority of residential customers; are being deployed in public telecommunications networks by telecommunications carriers; and are consistent with the public interest, convenience, and necessity. 106

In adopting the current universal service mechanism, the Commission determined, pursuant to a recommendation by the Joint Board, that while all of the above factors must be considered in defining what services are supported, they all need not be met. 107 In a similar manner, Congress took an instructive approach with the adoption of the principles under which the Fund would operate.

The 1996 Act directs the Joint Board and Commission “to base policies for the preservation and advancement of universal service” on several principles. 108 These principles fall into the general categories of consumer expectations, the support mechanism (contribution methodology), and treatment of schools, libraries, and health care providers. 109

It is not entirely clear whether a universal service mechanism must meet all of the principles or the meaning of the terms of the principles. These issues were addressed in Qwest Corporation v. FCC (“Qwest I”). 110

The controversy in Qwest I arose out of a Commission order adopting a high-cost support mechanism for non-rural eligible telecommunications carriers (“ETCs”) based on forward-looking economic costs. 111 The Tenth Circuit determined that the Commission did not “define adequately key terms including ‘reasonably comparable’ and ‘sufficient.’” 112 With regard to whether a USF

107 Report and Order, supra note 5, ¶ 55.
109 Angela J. Campbell, Universal Service Provision: The “Ugly Duckling” of the 1996 Act, 29 CONN. L. REV. 187, 194–200 (1996). The adopted principles require that: (1) quality services be available at reasonable rates; (2) access to advanced services and information services “be provided throughout the United States;” (3) consumers in high-cost, rural, and insular areas “have access to telecommunications and information services; (4) service providers make equitable and nondiscriminatory contributions to the preservation and advancement of universal service; (5) support mechanism be sufficient, specific, and predictable; and (6) schools, libraries, and rural healthcare providers have access to advanced services. 47 U.S.C. § 254(b). Congress also allowed the Commission to adopt any additional principles that the Joint Board and Commission “determine are necessary and appropriate for the protection of the public interest, convenience, and necessity . . . .” Id. The Commission and Joint Board exercised this authority and adopted an additional principle, that universal service be guided by “competitive neutrality.” Report and Order, supra note 6, ¶ 49.
110 Qwest Corp. v. FCC, 258 F.3d 1191 (10th Cir. 2001).
112 Qwest, 258 F.3d at 1201. These terms are found within the six USF principles. See 47 U.S.C. § 254(b). The Commission had to demonstrate how the universal service mechanism
mechanism must meet all of the principles in section 254, the court found that "[t]he FCC may balance the principles against one another, but must work to achieve each one unless there is a direct conflict between it and either another listed principle or some other obligation or limitation on the FCC’s authority." Accordingly, the court reversed and remanded the Commission’s action.

Upon reconsideration by the Commission, the Order on Remand was challenged in Qwest Communications v. FCC ("Qwest II") for failing to “sufficiently” satisfy the principles of section 254, among other things. The Commission argued that the forward-looking support mechanism sufficiently achieved comparable rates for urban and rural consumers, and therefore satisfied section 254. In other words, the Commission argued sufficiency was the only principle of section 254 that a mechanism must meet. The Commission reasoned that because the “purpose of [the federal non-rural high-cost support] mechanism is to provide enough federal support to enable states to achieve the reasonable comparability of rural and urban rates,” it was the only principle that a USF support mechanism must sufficiently satisfy.

Ultimately, the Tenth Circuit found the Commission could not satisfy one principle of section 254(b) in place of all others and the Commission must, at a minimum, demonstrate that its decision “takes into account the full range of principles Congress dictated to guide the Commission in its actions.” The court ordered that the Commission “articulate a definition of ‘sufficient’ that appropriately considers the range of principles identified in the text of the statute.” To date, the Commission has failed to articulate the definition of “sufficient.”

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met these terms. It follows that without an adequate definition of the terms, it cannot be determined whether an action taken under section 254 meets the principles. The court also found that the Ninth Report and Order “did not sufficiently justify setting the funding benchmark at 135% of the national average;” did not provide “any inducements for the state mechanism;” and did not “explain how this funding mechanism will interact with other universal service programs.” Qwest, 258 F.3d at 1201.

Qwest, 258 F.3d at 1199–1200.

Id. at 1205.


Qwest Commc’ns Int’l Inc. v. FCC, 398 F.3d 1222, 1229 (10th Cir. 2005).

Id. at 1234.

Id. at 1233–34.

Id. at 1234.

Id.
B. The Four Support Mechanisms and Contribution Methodology

In its Report and Order, the Commission adopted four universal service support mechanisms and a contribution methodology. The four support mechanisms include support for areas with high-cost of deployment, support for low income consumers, support for schools and libraries, and support for rural healthcare providers.

1. High-Cost Support

The high-cost fund provides support to service providers in rural, insular, and high-cost areas. Support is distributed to entities that qualify as ETCs. Initially, all ETCs received support based on their embedded costs, regardless of whether they served a rural or non-rural area.

Upon adoption of its Report and Order, the Commission noted that determining support by forward-looking economic costs rather than by using embedded costs would force recipients of support to operate more efficiently. Nonetheless, practical barriers to implementation at the time prohibited the Commission from adopting a forward-looking cost mechanism.

Ultimately, the Commission adopted a forward-looking cost mechanism for non-rural supported providers in its Ninth Report and Order. To determine support based on forward-looking economic costs, the Commission uses historical cost data from an individual carrier as an input in an economic cost model; the output is the carrier’s forward-looking cost. The order adopting

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121 See Report and Order, supra note 5, ¶ 19 (creating the universal service fund pursuant to the 1996 Act).
122 47 U.S.C. § 214(e)(1)–(2) (2000). An ETC shall, for the entire service area for which they receive support:
(A) offer the services that are supported by Federal universal service support mechanisms under section 254(c) of this title, either using its own facilities or a combination of its own facilities and resale of another carrier’s services (including the services offered by another eligible telecommunications carrier); and
(B) advertise the availability of such services and the charges therefor [sic] using media of general distribution.
Id. § 214(e)(1)(A)–(B). State commissions have jurisdiction over granting ETC status, and may designate more than one per area. Id. § 214(e)(2); see also 47 C.F.R. § 54.202 (2006) (establishing additional requirements for ETCs).
123 Embedded costs “refers to a carrier’s historic loop or switching costs.” Report and Order, supra note 5, at 8900 n. 580.
124 Id. ¶ 6 (The Commission will “provide universal service support to carriers serving rural, insular, and high-cost areas through a mechanism based on forward-looking economic cost beginning on January 1, 1999, for areas served by non-rural LECs”). Id. at 8900 n.580.
125 Id. ¶ 228.
126 Id. ¶ 203.
127 Ninth Report and Order, supra note 111, ¶ 6.
this forward-looking cost mechanism for non-rural carriers was challenged and remanded in *Qwest I*, and again remanded in *Qwest II*, after modification by the Commission.\(^{129}\) Non-rural carriers currently receive support based on forward-looking economic costs; rural carriers still receive support based on their historical embedded costs.\(^{130}\) Competitive ETCs receive high-cost support through the "identical support" rule, in which competitive ETCs receive the same per-line support as incumbent ETCs, regardless of any disparity in costs.\(^{131}\)

2. **Low Income**

The Commission adopted the low income support mechanism pursuant to the 1996 Act, which requires the Commission to adopt rules and regulations that allow consumers in all areas of the country to access telecommunications and information services at reasonable rates.\(^{132}\) To receive support from the low income mechanism, consumers must participate in at least one of several federal support programs, such as Medicaid or Food Stamps, or earn income of 135% or more below the Federal Poverty Guidelines.\(^{133}\) This program distributed approximately $820 million in 2006.\(^{134}\)

\(^{129}\) *See* *Qwest Corp. v. FCC*, 258 F.3d 1191, 1205 (10th Cir. 2001); *Qwest Commc'ns Int'l Inc. v. FCC*, 398 F.3d 1222, 1239 (10th Cir. 2005). Rural carriers are, generally, those carriers that serve fewer than fifty thousand access lines. *See* 47 C.F.R. § 51.5 (2006).

\(^{130}\) Rural carriers are, generally, those carriers that serve fewer than 50,000 access lines. *See* 47 C.F.R. § 51.5. To determine the feasibility of creating a forward-looking economic cost mechanism for rural carriers, the Commission established a Rural Task Force. In 2001, the Rural Task Force recommended a five-year plan under which support based on embedded costs would continue. *In re* Federal-State Joint Board on Universal Service; Multi-Association Group (MAG) Plan for Regulation of Interstate Services of Non-Price Cap Incumbent Local Exchange Carriers and Interexchange Carriers, *Fourteenth Report and Order and Further Notice of Proposed Rulemaking in CC Docket No. 96-45, and Report and Order in CC Docket No. 00-256, 16 F.C.C.R. 11,244, ¶ 6* (May 10, 2001). The five-year period expired on June 30, 2006, and to date the Commission has not adopted a forward-looking mechanism for rural carriers.

\(^{131}\) 47 C.F.R. § 54.307(a)(1) (2006). Competitive ETCs receive support for new and captured subscriber lines in an incumbent rural ETCs service area “based on the support the incumbent LEC would receive for each such line.” *Id.*


\(^{134}\) *Universal Service Monitoring Report, supra* note 18, at 1-36 tbl.1.11.
3. Rural Health Care

In the 1996 Act, Congress mandated that telecommunications carriers shall “provide telecommunications services which are necessary for the provision of health care services in a State . . . to any public or nonprofit health care provider that serves persons who reside in rural areas.” Like high-cost support, the goal of this program is to achieve reasonably comparable rates for similar services in rural and urban areas. Unlike the high-cost fund, however, the Commission determined that in order for the mechanism to be “specific, predictable, and sufficient,” support for rural health care providers must be capped at $400 million annually.

In an effort to adapt the rural health care program to changing technology and needs of healthcare providers in rural areas, the Commission adopted a rural health care pilot program in September 2006. The pilot program will “provide funding to support the construction of state or regional broadband networks and services provided over those networks.” The goal of the pilot program is to bring the benefits of telehealth and telemedicine to “those areas of the country where the need for those benefits is most acute,” through the use of advanced broadband networks.

4. Schools and Libraries

The 1996 Act also provided support for the first time to schools and libraries. Congress specifically mandated that telecommunications “provide such services to elementary schools, secondary schools, and libraries for educational purposes.” Unlike the high-cost fund and rural healthcare support, however, Congress required that these institutions receive discounts such that their rates are lower than rates charged for similar services.

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136 Id. § 254(b)(3).
137 Report and Order, supra note 5, ¶ 608.
138 In re Rural Health Care Support Mechanism, Order, 21 F.C.C.R. 11,111, ¶ 1 (Sept. 26, 2006) (establishing a pilot program to “examine how the rural health care (RHC) funding mechanism can be used to enhance public and non-profit health care providers’ access to advanced telecommunications and information services”).
139 Id.
140 Telehealth is defined as “a broad set of applications using communications technologies to support long-distance clinical care, consumer and professional health-related education, public health, health administration, research, and electronic health records.” Id. at 11,111 n.2.
141 Id. ¶ 1.
142 Report and Order, supra note 5, ¶ 424.
144 Id. The high-cost and rural healthcare programs are not intended to provide dis-
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Eligible schools and libraries can receive anywhere from twenty to ninety percent discounts on telecommunications services, Internet access, and internal connections.\textsuperscript{145} Funding for the school and library support mechanism is capped at $2.25 billion annually.\textsuperscript{146}

5. Contribution Methodology

Contribution to USF falls primarily on consumers. While Congress mandated that interstate telecommunications providers contribute to the fund, this contribution is typically passed on to consumers in the form of a line item on their monthly bill.\textsuperscript{147} In theory, passing the cost onto consumers creates consumption distortions because the tax alters the price consumers pay; at higher prices, consumers consume less.\textsuperscript{148}

The Commission’s rules require that “[e]ntities that provide interstate telecommunications to the public . . . for a fee” contribute to USF.\textsuperscript{149} Each quarter the Commission establishes a contribution factor—the percentage of a provider’s projected interstate end-user revenue that must be contributed to USF.\textsuperscript{150} The contribution factor is based on “the ratio of total projected quarterly expenses of the universal service support mechanisms to the total projected collected end-user interstate and international telecommunications revenues, net of projected contributions.”\textsuperscript{151} The Commission receives the total projected USF outlays for the quarter from the Universal Service Administrative Company, which is responsible for administering the fund.\textsuperscript{152} That number is then divided by projected end-user interstate and international revenue, excluding any expected support from USF. The quotient is the contribution factor.

counted services to consumers or healthcare providers. Rather, the intention is to provide parity for such consumers between urban and rural geographies. See Report and Order, supra note 5, ¶ 424. The Commission explains that the legislative history of the 1996 Act evidenced Congress’s intent to provide affordable access, not just reasonably comparable rates, for schools and libraries. \textit{Id.}

145 HAZLETT, supra note 63, at 22.
146 Report and Order, supra note 5, ¶ 529.
147 FCC UNIVERSAL SERVICE FACT SHEET, supra note 34, at 1.
148 See supra Part II.A (explaining that consumption distortions are created when consumers pay inflated prices for goods or services and consume less than they would at lower prices).
149 47 C.F.R. § 54.706(a) (2006); see also Texas Office of Pub. Util. Counsel v. FCC, 183 F.3d 393, 424 (5th Cir. 1999) (holding that the Commission’s authority to impose carrier contribution to the Fund extended only to interstate services).
150 47 C.F.R. § 54.709(a)(2).
151 \textit{Id.}
152 See FCC, Universal Service Fund Contribution Factor & Quarterly Filings, supra note 21.
The contribution factor has increased from an annual average of 6.85% of interstate revenue in 2001 to 10.7% in 2007.\footnote{See id.}

V. THE CURRENT FAILURES OF THE UNIVERSAL SERVICE FUND: IDENTIFYING THE PROBLEMS WITH THE CURRENT HIGH-COST FUND MECHANISM AND CONTRIBUTION METHODOLOGY

Total USF outlays for 2006 amounted to over $6.6 billion.\footnote{Universal Service Monitoring Report, supra note 18, at 1-36 tbl.1.11.} High-cost support for 2006 amounted to approximately $4.1 billion, or 61.8% of the total support distributed under USF.\footnote{Id. Low income support amounted to 12.4%; schools and libraries support was 25.2%; and rural healthcare support amounted to 0.6% of total USF support distributed. Id.} Further, high-cost fund support has grown by approximately $1.5 billion since 2001.\footnote{Id. at 3-14 tbl.3.1.} The growth of high-cost USF support can be attributed to two factors: the means of distributing the support, and the growth in demand for support.

The rising level of high-cost support has strained the contribution methodology, ultimately leading to higher contributions per consumer and increased distortions in consumer choice. The average contribution factor for 2006 was almost four percent higher than that in 2001.\footnote{See FCC, Universal Service Fund Contribution Factor & Quarterly Filings, supra note 21.} The contribution factor reached 11.7% in the second quarter of 2007, "the highest level since its inception."\footnote{Recommended Decision, supra note 20, at 9000 n.11.}

Continuing to raise the contribution factor to fund universal service is a short-term, politically feasible solution that increases distortions in consumer choices.\footnote{Allowing an increased contribution factor to fund universal service is politically feasible because the contribution factor is dependant on demand for support. Therefore, to the extent that it is not transparent to consumers that the amount of the tax has increased, and that the increase is due to an increase in demand for support, policymakers can continue to fund the system in the short-term. Further, the status quo benefits rural service providers who are therefore unlikely to seek reform in the face of growing contribution factors. See HAZLETT, supra note 63, at 96–97 (explaining that when the current USF mechanism, rural telephone companies receive as much as one-third of their revenue from USF).} Long-term viability of universal service is dependant upon a contribution methodology that decreases the distorting effect on consumers by reducing the demand for support and minimizing the amount each consumer must pay.
A. The Methods for Determining High-Cost Support

The methods for determining support under the high-cost fund have directly affected the growth of the fund. The amount of support a provider receives is dependant upon embedded costs, forward-looking economic costs, or identical support.160 These methods are all, to some extent, derivative of costs, particularly support distributed to rural-carriers through embedded costs.

As previously stated, embedded costs are “a carrier’s historic loop or switching costs.”161 Because higher costs lead to more support, it is rational for rural carriers not to minimize costs. The Commission noted in its Report and Order that “[t]he use of embedded costs would discourage prudent investment planning because carriers could receive support for inefficient as well as efficient investments.”162 The Commission also concluded that “support based on embedded cost could jeopardize the provision of universal service.”163 Further, the Commission agreed with The Center for Public Integrity’s comment that “the use of embedded costs to calculate universal service support would lead to subsidization of inefficient carriers at the expense of efficient carriers and could create disincentives for carriers to operate efficiently.”164

Arguably, much of the inefficiency in support under embedded costs arises from inflated corporate overhead costs.165 Non-rural carriers, who receive support based on forward-looking economic costs, have annual corporate expenses averaging approximately $75 per line.166 Rural carriers, on the other hand, have annual corporate expenses averaging approximately $99 per line.167

This argument is validated in part by the dividends distributed to members of rural cooperative phone companies.168 The high-cost fund is meant to facilitate deployment in rural and high-cost areas by compensating providers for the

160 See supra Part IV.B.5.
161 Report and Order, supra note 5, at 8900 n.580.
162 Id. ¶ 228. Further, the Joint Board explained “that when embedded costs are above forward-looking costs, support of embedded costs would direct carriers to make inefficient investments that may not be financially viable when there is competitive entry.” Id.
163 Id.
164 Id.
165 HAZLETT, supra note 63, at 31.
166 Id. at 30.
167 Id. at 31. This figure may be questioned on the grounds that carriers serving more lines have achieved greater economies of scale, and the marginal cost in managerial expenses is significantly lower for carriers serving more lines. However, Hazlett explains that “[t]here does not seem to be a trend, meaning that larger carriers (serving more lines) do not have appreciably lower costs than smaller carriers.” Id. at 30. Hazlett claims this result is due to the effect of competitive markets, which eliminate inefficiencies. Id. Carriers serving more lines do not have lower overhead because they serve more lines, but because competition has forced them to be efficient, and cutting overhead costs, in part, helps achieve efficiency.
168 Id. at 36, 70.
increased expense of deploying in such areas, not to subsidize the consumers cost of service.169 Some rural co-operative telephone companies receiving high-cost support, however, have been able to provide dividends to their members above what their members are paying for service.170 Despite the failure of the high-cost fund support to rural carriers to encourage efficient operation, rural high-cost support is still determined by embedded costs. Further exacerbating the ineffectiveness of the high-cost mechanism to force cost savings is the manner in which competitors receive support—the identical support rule.

Under the identical support rule, competitive ETCs receive high-cost support at the same per line level as the incumbent.171 Wireless providers make up a majority of all competitive ETCs.172 It may be argued that the identical support rule was intended to stimulate competition. In practice, if a provider is able to offer service in a high-cost area at a lower cost than the incumbent, the opportunity for a high return on investment exists and competitors will enter the market. Competitive ETC support, if used as a measurement of competition, shows a drastic increase in competition. High cost support for competitive ETCs has grown from $15 million in 2001 to almost $1 billion in 2006.173 The rapid growth of competitive ETC support over the last half decade tracks the growth in wireless phone adoption.174

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169 See Report and Order, supra note 5, ¶ 199. Federal universal service support to rural, insular and high-cost areas will be provided “to a particular customer” calculated by the “cost of constructing and operating the network facilities and functions used to provide that service.” Id.

170 HAZLETT, supra note 63, at 36, 70. Hazlett cites as an example, XIT, a rural telephone cooperative in Texas. In 2003, XIT paid “its members a dividend averaging $375—substantially more than the $206 the typical member paid for local voice access.” Id. at 36. Hazlett further explains that XIT is “one of at least four Texas co-ops that have paid dividends equal to, or exceeding, their members’ local phone bills since 1999 . . . .” Id. at 36 n.79.


172 See In re High-Cost Universal Service Support; Federal-State Joint Board on Universal Service, Comments of CTIA-The Wireless Association®, WC Docket No. 05-337, CC Docket No. 96-45, 3–4 (June 6, 2007) (accessible via the Electronic Comment Filing System) [hereinafter CTIA Comment] (arguing that from 2002 to 2007, “annual high-cost universal service support for wireless ETCs has increased to about $1 billion”). Total outlays for competitive ETCs in 2006 were approximately $1 billion. Recommended Decision, supra note 20, ¶ 4. Therefore, it follows that wireless providers make up a majority of competitive ETCs.

173 Recommended Decision, supra note 20, ¶ 4.

174 See CTIA Comment, supra note 172, at 3. Wireless subscribers have grown “from 118 million in June 2001 to more than 233 million in December 2006.” Id. at 4. CTIA argues that consumers demand wireless services, and instead of trying to manage competitive ETC growth, the “Commission instead should be asking why incumbent LECs continue to receive the lion’s share of high-cost funding, even while wireless carriers serve more lines, carry more minutes . . . .” Id. at 4–5.
Wireless networks are generally less expensive to deploy and maintain than wireline networks. The identical support rule, however, allows wireless ETCs to receive support at the same per-line level as the incumbent LEC. As a result, wireless ETCs are essentially receiving a higher rate of return on their network investments than incumbent wireline ETCs at the expense of consumers. This result may have a perverse disincentive for wireline incumbents to update their networks, as their support would increase, the competitive advantage of wireless ETCs would also increase.

Reform must remove this disincentive by forcing all supported providers to seek the lowest level of support necessary. Ideally, this will minimize the annual outlays for high-cost support, thereby reducing the actual cost to consumers and consumption distortions caused by USF.

B. Contribution Methodology

The current contribution methodology struggles under increased demand for support driven by the high-cost fund. As previously stated, the contribution factor has increased dramatically since 2001. This arises from a disparity in the rate of growth in the contribution base and the increase in demand for support. For instance, from 2001 to 2006 the contribution base remained relatively flat, decreasing slightly from approximately $80 billion in 2001 to approximately $79 billion in 2006. Over the same period, total USF outlays have

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175 See In re Federal-State Joint Board on Universal Service Seeks Comment on the Long Term, Comprehensive High-Cost Universal Service Reform, National Telecommunications Cooperative Association Initial Comments, WC Docket No. 05-337, CC Docket No. 96-45, 12 (May 31, 2007) (accessible via the Electronic Comment Filing System) [hereinafter NTCA Comment]. NTCA argues that the identical support rule can allow "a large wireless CETC to receive rural support even if it can be extremely profitable in rural markets without support." Id. at 19.


177 See CTIA Comment, supra note 172, at 20 (arguing that when a wireless competitive ETC receives support under the identical support rule, the support is likely a windfall). An extreme example of the identical support rule in practice is illustrated by the Sandwich Isles Communications Company in Hawaii, which serves 1,238 customers using wireline technology and receives $13,345 per line per year in support. Sprint/Nextel provides wireless service in the area and qualifies for high-cost support at the same per line level for their 717 subscribers. Hazlett, supra note 63, at 20.

178 CONG. BUDGET OFFICE, supra note 6, at 2 (citing the high-cost fund as one reason that spending on USF programs has increased; and acknowledging that increasing demand for support has had a greater impact on the growth of the contribution factor than a declining base for support).

179 See supra notes 171–173 and accompanying text.

180 Universal Service Monitoring Report, supra note 18, at 1-13 tbl.1.1. The contribution base is derived from telecommunications providers' interstate and international end user revenue. 47 C.F.R. § 54.709(a)(2) (2006).

181 Multiplying the contribution base by the contribution factor for a given period yields
increased from approximately $4.9 billion to approximately $6.6 billion. The contribution factor must make up the difference—a shortfall of over $1.5 billion.

The subsequent price increases for long distance, wireless, and VoIP services have an inversely proportional effect on the consumption of such services. An increase in the contribution factor increases costs to consumers in real terms (the price paid for a service) and in costs generated from an increase in distortion of consumption decisions. The total cost to consumers of maintaining the high-cost fund is estimated to be approximately $4.1 billion or as much as $30 per consumer annually.

Contribution methodology reform must focus on decreasing the distorting effects on consumption. Inherent in decreasing this effect is decreasing the cost per consumer of maintaining universal service. This is achieved by reforming the contribution methodology and the high-cost fund.

VI. LEGISLATIVE PRINCIPLES: MITIGATING THE POLITICAL FEASIBILITY OF REFORM TO EFFECTUATE CHANGE

To remedy the failures of the current high-cost mechanism and contribution methodology, Congress should adopt two principles within which high-cost and contribution reform should occur. The principles avoid the implicit principle-agent problem facing both Congress and the Commission. Congress can adopt these general principles without upsetting the balance of constituent interests, and the Commission would be acting under the guidance of Congress. In a manner similar to the 1996 Act, Congress can adopt the general principles and require the Commission to enact the specific reform. To ensure timely adoption of reform, Congress should force the Commission to issue a rulemaking and adopt an order within a specific time frame. Further, Congress must

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182 Cong. Budget Office, supra note 6, at 4 tbl.1-1.
183 Universal Service Monitoring Report, supra note 18, at 1-36 tbl.1.11.
184 The inverse relationship is due to the economic principle of supply and demand. As the price of a good increases above an equilibrium, the demand for that good decreases. The distortion is equal to the difference between demand at the price without the tax and demand with the tax. The cost in real terms is the line item on consumers' bills. See supra Part II.A.
185 See supra Part II.A.
186 See Crandall & Waverman, supra note 41, at 119. This estimate represents the net welfare loss of middle and upper income households. Crandall and Waverman discuss the welfare loss and gains in terms of household incomes because they provide estimates based on the goals of USF of providing telephone service to everyone, and income redistribution. See id. While this Comment does not explicitly argue that USF operates as a form of income redistribution, based on Crandall and Waverman's estimates of $4.1 billion in welfare loss of middle and upper income households to generate a gain of only $435 million per year for lower income households, the theory appears to have some validity.
require that reforms meet both of these principles. To do so, Congress may have to allow the Commission to act under the proposed principles in a manner inconsistent with the existing seven principles of section 254. While the principles in section 254 should be met, certain reforms should not be disregarded for failing to meet one, or maybe several of the principles.

The principles address the failures of the high-cost mechanism and contribution methodology at a high level. The principles strive to achieve a contribution methodology that reduces the distorting effects of funding USF while simultaneously reducing the overall cost of the high-cost fund. Distortions in consumption decisions are sought to be minimized by adoption of a support mechanism that encourages efficiency and a contribution methodology that distributes the burden across the largest number of consumers. The principles are developed in turn below, and applied to current reform proposals to exhibit the principles' functionality.

A. High Cost Support Reform Principle

In order to manage the costs of providing high-cost universal service, support must be distributed in a manner that encourages carriers to seek and use support efficiently. To encourage efficient use of support, Congress should adopt a principle similar to the following:

The Commission, in consultation with the Joint Board, shall adopt a mechanism for determining support for services in high-cost, rural, and insular areas that distributes the minimum support necessary for the provision, maintenance, or upgrading of facilities. The Commission shall require every eligible provider seeking support under this mechanism to submit projected costs for the period in which they are seeking support.

Under this principle, the current forward-looking economic cost model and embedded cost mechanism for determining support cannot exist. Both high-cost support mechanisms in their present form do not encourage providers to seek the minimum support necessary for the provision of service. In fact, the opposite is true. Further, any mechanism created under this principle would necessarily eliminate the identical support rule because each provider would be required to prove their own costs.

Although the Commission must still adopt the specific mechanism under this principle, the principle ensures that such a mechanism must minimize the

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187 There are many individual components of the high-cost fund that could be reformed at the micro level, which is beyond the scope of this paper. Some of these individual components include narrowly targeting support, disaggregating support and altering the services supported, among others. See 2007 Public Notice, supra note 19, ¶ 1.

188 See supra Part V.A for a discussion of the disincentive for recipients of high-cost support.

189 For a discussion of the identical support rule, see supra Part V.A.
amount of support necessary. Theoretically, a mechanism established under this principle would ultimately decrease the burden on consumers by reducing the overall demand for support. Further, because the principle is general in nature and does not explicitly injure the economic interest of any constituency, it allows legislators to effectuate reform without seriously alienating their constituencies.

In the current debate over high-cost USF reform, competitive bidding appears as a widely discussed method of encouraging efficiency in the system. Competitive bidding in this context generally takes the form of a reverse auction. Reverse auctions for USF support “contemplate competitive bidding for the obligation to serve a specified area at an acceptable quality of service for a specified term, with the benefit of receiving ... support to do so.” In its Report and Order, the Commission agreed with the Joint Board that there are benefits to competitive bidding, such as “its potential as a market-based approach to determining universal service support, if any, for any given area.” Nonetheless, because the record was not sufficient to determine what form the competitive bidding mechanism should take, and because the Commission feared that there was insufficient competition in rural areas to effectuate such a mechanism, the Commission deferred consideration of the use of competitive bidding.

In 2006, the Joint Board sought comment on the merits of a reverse auction mechanism for determining high-cost support. After consideration of the 2006 comments, the Joint Board sought comment on three specific reverse auction proposals: CTIA-The Wireless Association’s proposal, Verizon’s

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190 In implementing reform under this principle the Commission would have to develop a support mechanism that encourages those providers seeking support to operate efficiently without having to bear the burden of increased oversight and administrative cost. Otherwise, the cost savings may be lost.

191 See supra note 29 and accompanying text.

192 Federal-State Joint Board on Universal Service Seeks Comment on the Merits of Using Auctions to Determine High-Cost Universal Service Support, Public Notice, 21 F.C.C.R. 9292, at 9292 n.1 (Aug. 11, 2006) [hereinafter 2006 Public Notice]. The Joint Board uses the phrases “competitive bidding” and “reverse auction” interchangeably to refer to “any market process in which the identities of the buyers or sellers and the price and other terms of trade are determined by an explicit comparison of bids or offers.” Id.

193 Id. ¶ 4.

194 Report and Order, supra note 5, ¶ 320.

195 Id. ¶¶ 321, 324.

196 Id. ¶ 1.

197 2007 Public Notice, supra note 19, ¶ 4. The Joint Board also invited commenters “to file additional auction proposals ... related to using reverse auctions to calculate and distribute high cost support.” Id.

Each proposal differs in the specifics, but all require providers seeking high-cost support to prove their costs to the Commission, with the lowest "bid" receiving support. Therefore, if two providers seek support from the high cost fund, the provider seeking the lowest level of support wins.

A reverse auction would take significant strides towards decreasing costs by requiring competitors to bid down their demand for high cost support, as required by the principle. However, the reverse auction mechanism also has its downfalls.

First, while a reverse auction mechanism may encourage lower costs when there is a competitor, it does not encourage any cost savings when there is only one provider in a given area. Any reverse auction mechanism adopted under the principle must make accommodation for areas with one provider, and may ensure the provider does not receive support based on embedded costs or forward-looking economic costs.

Second, a reverse auction may not satisfy the competitive neutrality principle adopted under section 254. Given that wireless carriers have lower costs of deployment and maintenance than wireline providers, it is likely that, under a strict reverse auction, wireless providers will have a significant advantage over wireline providers. Therefore, on its face, the mechanism is not competitively neutral. Inconsistency with this principle of section 254 would have to be reconciled before a mechanism could be adopted under the new principle. As proposed above, Congress could draft the principle such that a reform meeting the proposed principles is preferred even if it violates a principle of section 254.

B. Contribution Methodology

Effective reform of the USF contribution methodology should seek to minimize the distortion caused by consumers funding USF. A contribution methodology that limits distortion is one that limits the size of the distorting

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201 Some proposals allow for the slightly higher cost providers to receive support at a lower amount than the "winner."
cost and spreads the cost over the greatest number of consumers.\textsuperscript{203} To achieve this, Congress should adopt a principle similar to the following:

The Commission, in consultation with the Joint Board, shall require contribution to the Universal Service Fund in a manner that is technologically neutral. The contribution methodology must distribute the burden of funding universal service across the broadest feasible base of possible contributors; take into account the multiplicity of services subscribed to by any one consumer; and limit the possibility of multiple contributions.

This principle should implement a contribution methodology that spreads the burden across a broad base, while attempting to eliminate multiple contributions by any one consumer. The overall burden will, in theory, be lower due to a larger base of contributors. A lower burden per consumer corresponds to a lower consumption distortion created by the tax.\textsuperscript{204}

This principle recognizes that many consumers subscribe to multiple services that may be required to contribute under this principle, including long-distance telephone service, wireless telephone service, VoIP, and possibly broadband Internet service. In the event that a contribution methodology required all of these services to contribute, the tax may discourage consumers from adopting a particular service. The second clause considers this possibility, requiring that the Commission consider such an effect in the creation of a contribution methodology under this principle.

In its report on universal service funding, CBO cites three possible contribution reform proposals, including a numbers-based approach.\textsuperscript{205} A numbers-based approach to contribution reform seeks to spread the burden of funding universal service across the broadest base of consumers possible. Generally, under this approach a fee would be levied on a provider for each telephone number assigned to a customer.\textsuperscript{206} A "pure" numbers-based proposal would be technologically neutral—applying the tax across all communications technologies including landline, wireless, cable telephony, and interconnected VoIP.\textsuperscript{207} It is estimated that there are over 524 million telephone numbers eligible for contribution under this proposal.\textsuperscript{208} With total USF outlays from 2006 at $6.6

\textsuperscript{203} See PROGRESS & FREEDOM FOUND., supra note 2, at 35 (identifying five considerations in achieving a "lower social cost for raising a given amount of tax revenue:" broadening the base of tax payers; levying the tax on a good with an inelastic demand; adopting a technologically neutral tax; levying taxes on final goods; and adopting a transparent taxing mechanism).

\textsuperscript{204} See supra Part II.A (discussing the balance of costs and benefits).

\textsuperscript{205} CONG. BUDGET OFFICE, supra note 6, at 13–15. The other two proposals seek to broaden the contribution base, or establish "fees based on the capacity of telephone lines."

\textsuperscript{206} Id.

\textsuperscript{207} PROGRESS & FREEDOM FOUND., supra note 2, at 36.

\textsuperscript{208} Id. (excluding low-income households).
billion,\textsuperscript{209} a numbers-based tax would result in a contribution of approximately $12.58 per number per year. As compared to the estimated $30 per consumer under the current mechanism, the numbers-based reform proposal would result in significant cost savings, especially when coupled with high-cost reform that limits the overall size of the fund.\textsuperscript{210}

Although a numbers-based proposal does not account for the multiplicity of services subscribed to by any one consumer, the Commission need only take into consideration the multiple services subscribed to by any consumer. If the Commission initiated a rulemaking to determine the effect of taxing consumers for multiple services and found that effect to be \textit{de minimis}, a pure numbers-based proposal would satisfy the contribution principle.

Taken in combination, the proposed principles should guide the Commission in crafting significant universal service reform that limits the distorting effects of supporting the system by decreasing demand for support and dispersing the cost of support. The principles represent a politically feasible solution to significant universal service reform.

VII. CONCLUSION

The current high-cost universal service fund mechanism and contribution methodology have led to significant increases in the USF and distortion in consumption decisions. Reform is hindered by policymakers' inability to rectify the growing need for reform with the political feasibility of reform. To mitigate the constraints prohibiting reform, legislators should adopt principles that require the Commission to create a high-cost support mechanism that encourages cost savings, and a contribution methodology that limits distortions in consumption decisions.

\textsuperscript{209} Universal Service Monitoring Report, supra note 18, at 1-36 tbl.1.11.

\textsuperscript{210} See CRANDALL \& Waverman, supra note 41, at 119.