Table 1 FCC's Estimates of Differential Costs of Coin Versus Coinless Calls ($ per Call)	
Cost Component	**Differential Cost**
Coin Mechanism	$0.032
Line (Charges Dependent on Usage)	$0.025 to $0.030
Collection and Maintenance	$0.021 to $0.030
ANI	-$0.01
Interest	-$0.008
Total	$0.060 to $0.074
Average Calculated by FCC	$0.066

32. Most of the differential costs estimated by the FCC are NTS, rather than TS, costs. In particular, the costs of the coin mechanism are primarily NTS. Most maintenance costs are also NTS. The only significant TS costs are probably line charges (positive differential), interest costs (negative differential), and coin collection costs (positive differential). (Costs of collection and uncollectibles for coinless calls — disregarded by the FCC — are also TS.) The net differential in TS costs is certainly far less than $0.066 per minute.

33. In order to convert NTS costs from dollars per month to dollars per call, the FCC had to divide by quantity. They reasonably chose to divide by the usage of a marginal payphone. The usage of such a phone is significantly less than the average usage of all payphones.

34. The FCC set per-call compensation for coinless calls on an interim basis for two years at the competitive local coin price ($0.35 per call) less the estimated differential ($0.066 per call) or $0.284 per call. Thereafter, the compensation is to be $0.066 per call *less* than the price per coin call.

35. The Court was puzzled by the Commission's "market-based" approach to compensation and has sought clarification concerning the logic and justification for the Commission's approach. We believe the Commission's approach provides an effective means for guaranteeing fair

compensation while simultaneously avoiding the problems besetting any approach that attempts to set compensation on the basis of a cost model.

36. As we have remarked, the problem with use of a cost model is that it does not permit compensation to vary to reflect relevant economic differences in supply and demand conditions. Phones with low usage will be economically viable if (the few) callers can be charged sufficient amounts to recover costs of production. Pay stations with quality features (*e.g.*, enclosures, volume adjustments, frequent maintenance, *etc.*) can earn their keep if customers can be charged rates that recover the cost of supplying a premium product. The FCC's approach solves this problem because it relies on market compensation to sift different alternatives and screen for the services that make economic sense. The cost modeling approach fails to solve this problem and will provoke a degradation in service quality with which the FCC is legitimately concerned.

37. The Commission's approach would also permit a variety of suitable economic adjustments to occur automatically through changes in the market-mediated local coin rate. Productivity enhancements that lower costs would be automatically passed through in charges for compensation of coinless calls. Changes in the general purchasing power of money would be automatically reflected in compensation for coinless calls to the extent that the market permitted inflation adjustments for local coin call charges.

38. It is worth noting that the Commission's cost estimate of $0.35 per call has relevance only for the interim period. After the interim period, the market will reach an equilibrium at which average price (of all calls) equals average cost (of all calls). That equilibrium depends only on the Commission's estimate of the *differential* between the costs of local coin and coinless calls. In the Court's language, the long-run equilibrium does not involve apples at all; it depends only on oranges.[20]

39. Finally, and perhaps most importantly from the Court's viewpoint, the Commission's plan is also consistent with setting compensation fairly. As we have noted, in a differentiated competitive equilibrium, total costs equal total revenues with any excess of one over the other simply prompting an equilibrating adjustment in supply and demand. Thus in a differentiated competitive

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[20] In the same language, our result that in a differentiated competitive equilibrium, average cost equals average price implies that even for the interim plan, the (so-called) apples and oranges can reasonably be regarded as homogeneous fruit.

equilibrium, the average cost of *all* calls (coin plus coinless) will equal the average price of ***all*** calls. Rates are reasonable in the conventional regulatory sense because there are no excess earnings while suppliers earn returns sufficient to cover their costs including their cost of capital.

40. Let us assume, for purposes of argument, that there are two kinds of calls, that the marginal TS costs of local coin and coinless calls are the same and that their respective elasticities of demand are identical. In this special case, the "differentiated" competitive equilibrium compensation rates for the two types of calls would be identical and would equal average cost. The FCC, remarking that the competitive rate for local coin calls established in the marketplace was $0.35 and that this may be reasonably interpreted, given the absence of barriers to resource mobility, as indicative of average cost for *both* types of calls, would thus set a coinless compensation rate of $0.35.

41. The FCC recognized that the $0.35 rate would need to be adjusted if marginal TS costs of production differ as between the two types of calls. If the marginal TS costs of coinless calls are lower, markups to reflect (assumedly) equal demand elasticities would produce a lower rate for coinless compensation to reflect the lower (marginal-cost) base. A differential competitive equilibrium on these assumptions would thus result in a lower charge for coinless compensation.

42. In summary, the basic logic of the Commission's market-based approach is as follows:

i. The bulk of the costs that must be recovered are NTS costs;

ii. The market is competitive; therefore rates generally reflect costs;

iii. The rate for the most common type of call, the local coin call, is a reasonable first approximation of the average cost per call, and therefore of the average cost of a coinless call;

iv. By adjusting that rate for differences in marginal TS costs attributable to each type of call, the Commission sought a better approximation of the cost that would be recovered from each coinless call in a freely functioning market; and

v. An even better approximation could be developed by further adjusting the local coin rate for differences between the elasticity of demand in the local coin market and the elasticity of demand that would prevail in the coinless market if it were free to function. The Commission found, however, that it had inadequate evidence to make this adjustment. It, therefore, chose an equal per-call allocation of NTS costs to both types of services.

B. Potential Improvements in the Commission's Approach

43. In reality, we think the rates for coinless calls that would be charged in a competitive equilibrium would likely be considerably higher than those resulting from the FCC's compensation scheme. As noted earlier, we question whether marginal TS costs are substantially greater for coin calls than for coinless calls. Indeed, AT&T's expert himself suggests that they are approximately equal.[21] We note that part of the FCC's estimated differential of $0.066 per call derives largely from an allocation to local coin calls of NTS costs associated with coin mechanisms. The first point to note is that these costs are *fixed* and not part of marginal costs for use in calculating economic proportional markups. As fixed costs, they are to be recovered in proportional markups over marginal TS costs. These costs are incurred regardless of the number of coin calls that are made. Coinless calls are not afforded both the benefits of the economies of scope associated with joint provision of coin and coinless call capability *and* avoidance of the *full* costs of providing such a joint capability. The fact that coinless calls do not require the coin apparatus is irrelevant for purposes of establishing responsibility for fixed cost recovery.[22]

44. While there is some difference in marginal TS costs as between coin and coinless calls, it appears to have been somewhat overstated by the FCC's faulty estimate. The effect of this misallocation and overstatement of cost is to shift costs from coinless to coin calls. In a differentiated competitive equilibrium, those costs would be recovered in inverse relation to demand elasticities. Given the magnitude of the relevant demand elasticities, coin calls would bear only a

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21 *See* Warren-Boulton, *op. cit.*

22 The price of coinless calls must, of course, be less than the stand-alone cost of payphones that handle only coinless calls. Otherwise such phones would be widely deployed. Such phones save the cost of coin-collection apparatus and expense, but have fewer calls per month over which to spread NTS costs. In reality, this constraint does not appear to be binding at current prices. Very few coinless-only payphones have been deployed relative to the number of coin phones. Apparently, the economies of scope outweigh the cost savings from providing only coinless calls.

small portion of those costs. The ultimate effect is a double whammy; coin calls, which should bear only a small portion of the shifted costs end up bearing the entire amount.

45. The FCC and many other regulatory agencies are often averse to applying Ramsey pricing principles (*i.e.*, exploiting information about demand elasticities) to recover fixed costs in a minimally distortionary manner as would market forces. There are extensive information requirements and, consequently, regulators have generally accepted the usefulness of inverse pricing principles as a source of general qualitative guidance rather than for precise pricing guidance.

46. The FCC has historically adopted fully distributed costs to set prices. Where elasticities of demand are similar, this may not be a matter of great consequence. In the instant setting, it would imply comparable markups of coin and coinless calls. The question is whether demand elasticities are, in fact, approximately equal to one another. Where demand elasticities differ markedly and where marginal costs are a small fraction of total costs (both true for payphones), the assumption of equal elasticities can lead to substantial economic inefficiency.

47. We have not attempted to estimate elasticities of demand for coin and coinless calls. In an earlier submission, Hausman estimated that the demand elasticity of coinless calls is only about one-fifth that of local coin calls.[23] AT&T's expert (Warren-Boulton) challenged this estimate by observing that Hausman has not taken account of the possibility that other types of calls might be substituted for coinless calls (as contrasted with not making a particular call at all). While we think Warren-Boulton has a point, we think it is highly doubtful that this kind of substitution could fully overbalance the five-to-one ratio that Hausman's elasticity estimates disclose. Moreover, as Hausman observes, the high market compensation for 0+ calls supplies direct evidence that demand for coinless calls is inelastic (relative to demand for local coin calls).

48. If demand for coinless calls is less elastic than that for local coin calls, this implies that the FCC has, if anything, *understated* the appropriate compensation for coinless calls compared to what would be charged in competitive equilibrium. Given the uncertainty and dispute about the demand elasticity parameters, it is perhaps not surprising that the FCC proceeded as it did.

[23] *See* Declaration of Professor Jerry A. Hausman, *In the Matter of Implementation of the Pay Telephone Reclassification and Compensation Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-128, *Comments of the RBOC/GTE/SNET Payphone Coalition.*

49. Warren-Boulton claims that the FCC's long-term plan gives payphone operators the incentive to raise coin prices in order to get higher prices for coinless calls. This claim is theoretically incorrect if the FCC sets the differential so as to replicate a differentiated competitive equilibrium. In that case, if the coinless rate is in equilibrium, so is the coin rate. Consequently, raising both coin and coinless rates would lose profits in both markets.

50. Warren-Boulton's analysis on this point suggests that he believes that the competitive differential between the prices of coin and coinless calls is *less* than the differential called for in the FCC's plan so the regulated price of coinless calls is less than the competitive price. If so, after the competitive industry adjusts to the regulated differential, the coinless price is less than at the differentiated competitive equilibrium, while the local coin price is higher. At this regulated equilibrium, the population of payphones adjusts so that the average cost (of all calls) equals the average cost (of all calls). If the FCC does not want this outcome, the solution is not to abandon the market-based approach, but rather to get the differential between coin and coinless prices right.

51. Some commenters have claimed that the local coin rate is upwardly biased as an indicator of costs, because it is rounded upward to the nearest $0.05. That claim might be correct if the population of payphones were fixed. If that were the case, the local coin price would *have* to be rounded up to ensure recovery of the relevant costs so payphone operations would be sustainable. If it were rounded down, full costs would not be recovered and the number of phones would decline (contrary to the assumption of fixed supply).

52. In reality, the population of payphones is not fixed. Consequently, the local coin rate may be rounded down, instead of up, at the differentiated competitive equilibrium. Consider the following example:

- Suppose that, apart from the need to round the local coin-call rate, there would be a differentiated competitive equilibrium at $0.375 per call. In that case, it is possible, and not unlikely, that the rounded competitive price of local calls would be $0.35. Because that price is less than the unrounded price, the population of payphones would be somewhat smaller at the rounded equilibrium than at the unrounded equilibrium. As a result, average usage per payphone would rise, and average cost per call would decline. Consumers would benefit from the lower price, but would lose from lessened availability of payphones. At the new equilibrium, average price (of all calls) would equal the average cost (of all calls).

53. If, contrariwise, the local coin rate were $0.40 per call at the new equilibrium, the population of payphones would expand. As a result, usage per payphone would decline, and average cost per call would rise. Consumers would benefit from increased availability of payphones, but would lose as a result of the higher price. At the new differentiated competitive equilibrium, average price (of all calls) would equal the average cost (of all calls).

V. Conclusions

54. The FCC's approach has the marked advantage of affording protection against the downward spiral in the quantity and quality of payphone service that is liable to result from an attempt to estimate cost per call on the basis of a cost model. The basic problem with a cost-model approach is that cost per call turns on the number of phones, which is itself a function of the compensation supposedly to be set. There is thus a circularity which poses the danger of a spiraling degradation of service, precisely analogous (albeit in the reverse direction) to the spiraling expansion of (excess) capacity that occurred under airline regulation which attempted to increase airline profitability by permitting fare increases. The FCC has ingeniously come up with an approach that is, in principle, related to costs and thus rate reasonability, but which, at the same time, would afford adequate flexibility to permit compensation to vary to reflect differences in operating conditions and service quality.

55. The Commission's approach would permit compensation to vary across different payphones, whose economic characteristics may vary considerably. As we have emphasized, failure to afford adequate flexibility to address a variety of different operating circumstances (*viz.*, "to make one size fit all") will result in a collapse of product quality to levels consistent with the level of administered compensation. The Commission approach, in contrast, would afford incentives for payphones to be provided in locations where there is little usage, but where what usage does occur may be highly valued and sufficient to support deployment of a station. Similarly, there would be incentives to deploy higher quality equipment and supply higher quality service since there is a reasonable expectation that associated costs can be recovered.

56. In our view, payments to site owners are simply a cost of doing business. Any failure to permit full recovery of such costs will simply diminish provision of service. Payments to site owners serve the useful economic purpose of assigning scarce space among competing uses.

57. We are certainly cognizant of special, relatively infrequent circumstances where individuals find themselves with limited supply alternatives and may be susceptible to monopolistic exploitation. We think there are far more efficacious means for addressing these special circumstances than offering people who make coinless calls a free ride on other callers' willingness to pay charges embodying payments to site owners to locate a payphone on their premises. In any event, the FCC found that locational rents are generally not excessive. Consequently, the average price of all calls (including any locational rents) is approximately equal to the average cost of calls.

58. In developing its compensation plan, the FCC appears to have assumed (implicitly) that elasticities of demand are equal. Our reading of the evidence leads us to conclude that they are not and that demand for coinless calls is less elastic and, therefore, would be assigned a greater fixed cost burden under competitive conditions. In addition, the Commission appears to have overstated the differential between the marginal TS costs of coin and coinless calls and, on this count, likely understates the appropriate coinless compensation.

I hereby swear and affirm that the statements contained in the attached Declaration are true and correct to the best of my knowledge and belief.

John Haring

County of Montgomery

State of Maryland

Subscribed and sworn before me this 13th day of July 1998.

Adrienne Wells Vendig

Notary Public

ADRIENNE WELLS VENDIG
NOTARY PUBLIC STATE OF MARYLAND

My commission expires: My Commission Expires September 28, 1998

I hereby swear and affirm that the statements contained in the attached Declaration are true and correct to the best of my knowledge and belief.

Jeffrey H. Rohlfs

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Received a B.A. with highest honors from the University of Virginia, where he was awarded the John R. Williams Prize as the outstanding honors graduate in the class of 1968, and M.Ph. and Ph.D. degrees in Economics from Yale University. He was a Woodrow Wilson Fellow, held a Yale University Fellowship, a Brookings Research Fellowship and is a member of Phi Beta Kappa and Phi Eta Sigma. His areas of specialization are industrial organization, regulated industries and monetary theory. He was a lecturer and teaching assistant at Yale University and an Adjunct Professor at the University of Maryland's University College.

He served as Chief Economist at the Federal Communications Commission and Chief of the Commission's Office of Plans and Policy during the Reagan and Bush administrations. At the FCC, he was a leading exponent of incentive regulation and pricing freedom for telephone companies operating in competitive environments. He was the principal architect of the Commission's price-cap regulatory reform plans as well as its efforts to strengthen resource rights in the electromagnetic spectrum and in broadcast programming.

Prior to his six years at the FCC, he was Visiting Professor of Economics at the University of Virginia, worked as a private economic consultant and served consecutively on the staffs of the Federal Trade Commission's Bureau of Economics, the Civil Aeronautics Board's Office of Economic Analysis and the U.S. Department of Justice's Economic Policy Office. He has prepared papers and reports on a wide range of subjects including telecommunications economics and regulation as well as accounting standards, conglomerate mergers, energy policy and resources, and the OPEC cartel.

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