Conversely, under the second scenario, the LECs should receive an exogenous adjustment equal to 100% of their increased costs due to SFAS 106, because the double count problem simply wouldn't exist. Yet in this circumstance as well, the AT&T approach would allow an exogenous adjustment for the same 55% of SFAS 106 accruals as before. This is clearly an illogical result.

One can therefore see that AT&T's suggested approach to the double count does not address the specific factors that affect the extent of double count, i.e.:

- Differences in plans between the LECs and non-LECs

- Differences between the LECs and non-LECs which will give rise to different SFAS 106 costs (e.g., demographic differences).

- Proportion of increased aggregate labor costs due to SFAS 106, that in fact is reflected in GNP-PI.

As noted, it is precisely these critical factors detailed above that are addressed completely and comprehensively in the Godwins Report.

MCI Contention - (Page 31) "If the Commission does decide to afford these LECs exogenous treatment for SFAS 106 costs, this double counting must be eliminated. This can be accomplished either through the removal of medical care inflation from the GNP-PI or through the removal of medical care inflation from the SFAS 106 accruals."

Response - While this "solution" differs slightly from AT&T's suggested "solution" (pages 13-14 of its filing) in that MCI focuses on the medical care inflation component of GNP-PI, conceptually it is very similar, and suffers from the same

fundamental flaws as the AT&T suggestion. As with AT&T, the MCI suggestion simply doesn't address the source of any potential double count. The double count does not arise from the discount of future inflation, but only from the differential impact of SFAS 106 on the LECs relative to others, and the extent to which the price cap index will allow the LECs to recover some of those additional costs, as the macroeconomic effects of the introduction of SFAS 106 are reflected in the economy as a whole. As with the AT&T solution, the MCI solution produces the same exogenous adjustment, whether in reality there is no double counting (no non-LEC firm incurs SFAS 106 costs), or complete double counting (all firms, including LECs, experience identical increases in costs due to SFAS 106, and the GNP-PI fully reflects those increased costs). This is clearly an illogical result.

SECTION II

RESPONSE TO OBJECTIONS REGARDING ACTUARIAL ANALYSIS

A. Methodology

There were three objections raised with respect to the basic methodology employed in the actuarial analysis undertaken by Godwins.

AT&T Contention - (pp. 11 -12)

"... the study is flawed because the government sector is not included. Although SFAS 106 does not affect the accounting practices of the government, growth in retirement health care costs for the government sector of the economy will affect the growth in GNP-PI because GNP-PI includes government SFAS 106-like OPEB expense... If OPEB-related expenses of the government were included in the analyses, the GNP-PI would be higher, and this would have the effect of reducing the amount of the LEC's SFAS 106 expense potentially eligible for exogenous recovery."

Response -

AT&T's contention that the exclusion of the government sector from the analysis results in an overstatement of the amount of the LECs' SFAS 106 expense eligible for exogenous treatment is completely invalid, because it is based on a misstatement of fact. The statement that "the GNP-PI includes government SFAS 106-like OPEB expense" is simply wrong. Government entities are not subject to SFAS 106, nor are they required by the Government Accounting Standards Board (GASB) to account for retiree medical benefits on anything other than a "pay-as-you-go" basis. It must be emphasized that the critical issue is not what effect will the increase in the "pay-as-you-go" costs of retiree medical plans have on GNP-PI. (The GNP-PI will increase due to increases in "pay-as-you-go" costs, regardless of whether SFAS 106 ever becomes effective.) Rather, the critical question is what effect will there be on GNP-PI, due to the requirement that private sector employers change the way in which they account for retiree medical plans. As AT&T

itself concedes, government sector employers are not required to change their accounting for retiree medical plans, and therefore the fact that many governmental entities sponsor such plans is not relevant to the analysis. As a result, the Godwins Report considered the government sector (see page 21 of the study), and correctly excluded it from the covered population for the calculation of the increase in labor costs experienced by firms subject to SFAS 106.

MCI Contention - (Page 26) "The USTA study uses data from only one insurance company to arrive at the cost of medical claims for the calculation of the nationwide Benefit Level Indicator."

Response - The inferred intent of the MCI comment is to suggest that Godwins used "data from only one insurance company" to come up with per capita claim costs, which were then used to derive aggregate SFAS 106 costs for the U.S. as a whole. MCI has clearly failed to appreciate the validity of the data, and the limited use to which the insurance company claims data was put. In particular,

(1) The insurance company used is, by any measure, one of the five largest Life and Health insurance carriers in the United States.

(2) The data collected was for gross medical claims, not amounts reimbursed by company plans.

(3) The data was sufficiently extensive to ensure that no statistical fluctuations (i.e., sampling errors) would materially affect the results.

(4) The data was used to form a frequency and amount distribution, against which actual plan provisions of the LECs and the companies in the Godwins database were applied, to evaluate the relative benefit levels of the TELCO plans compared to those provided by other employers.

(5) Changes in the underlying distributions derived from the insurance company data would not have had any significant effects on the ultimate result. This is because the key results of the Godwins study were related to the ratio of the GNP-BLI to TELCO-BLI, and not to the absolute value of either.

Ad Hoc Contention (ETI) (Page 21) - "Finally, the Godwins Report ignores *the usual uncertainty that is associated with survey results measured by calculated standard errors*. As we discussed, Godwins utilized data from a survey of 830 employers who sponsor post-retirement plans and 170 employers who do not. It is a well accepted fact that data from surveys are subject to uncertainty which is usually measured by the standard error.[49] However, these standard errors are never taken into account in the calculation of the Benefit Level Indicators (BLIs). Thus the data shown in the table on page 28 of the Godwins Report assumes that the standard deviation is zero. This is obviously incorrect. Furthermore, there is no information as to the variance or the standard deviation of the sample data so that the sensitivity of the results can be analyzed. Combined with the fatal errors discussed above, this shows a report which was designed to come to a particular conclusion favorable to the LEC's."

Response - The "standard error" for the calculation of the average Benefit Level Indicators was not shown[1] because in this case, the effect of the "standard error" was deemed to be

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1 Ad Hoc references page 28 of the Godwins Report. We assume that they are referring to the table shown on page 16 of the report since there is no table nor any data appearing on page 28 of the Godwins Report.

immaterial. The reason it is immaterial is that the Godwins data is not a "survey" in the traditional sense of the word (i.e., a small sample from a large universe); rather, it is a data base comprising companies that employ approximately one-half of all employees who work for companies that provide post-retirement medical benefits.

However, in the interest of completeness, we have included in Appendix A the calculation of the variance and standard deviation, which are inherent in the calculation of the average BLIs used in the Report. As can be seen from the exhibits, the standard deviation for the average pre-65 BLI is .015, while the standard deviation for the post-65 BLI is a mere .008. Had the average BLIs been one standard deviation higher than the values actually used for both the pre-65 and the post-65 BLI, the relative impact of SFAS 106 on GNP compared to TELCO would have increased from 28.3% to 29.1%. Given that the sensitivity analysis of the overall result utilized a range for this value of 17.8% to 44.5%, it is quite clear that the effect of the "standard error" referred to by ETI is immaterial.

B. Actuarial Assumptions

There was one objection raised regarding the reasonableness of the assumptions utilized in determining the ratio of GNP-BLI to TELCO-BLI.

MCI Contention - (Page 28) FN 35

"Within the USTA study, in its flawed attempt to estimate relative benefit ratio levels, the consultant utilizes turnover rates that are markedly lower than the average turnover rate. This results in inflated estimates of the OPEB liability. Like most of the assumptions used by USTA, the grounds for this are unsupported. USTA remarks that it chose this estimate because of the historical patterns of longer service life and higher average age for TELCO employees versus other employees. Unfortunately, the study does not indicate what time frame was used for this comparison, or whether the experience of the last few years, with the large amount of downsizing exhibited by the TELCO firms, has been included."

Response -

There appear to be two contentions made in MCI's comment. First, that the Godwins study did not use the "average turnover rate" for TELCO and second, that even if the average rate, based on "historical patterns of longer service life and higher average age" were used, such turnover rates would still be too low because of "the large amount of downsizing exhibited by the TELCO firms."

With respect to the first contention, the turnover rates used for TELCO (T-2) are the average of the rates used by the LECs in their most recent actuarial studies (generally 1990 or 1991). With respect to the second contention, downsizing through Early Retirement programs should not have any impact on assumed turnover rates because such turnover rates are only utilized for projecting future pre-retirement withdrawals. This should be obvious since an individual is no longer subject to the turnover rates once that individual becomes eligible for retirement.

Further, MCI seems to have misinterpreted the statement made

in the Godwins Report (page 48-FN 3) that,

> "Supporting evidence for low incidence of turnover at TELCO relative to national average can be seen by the higher average age and past service of TELCO employees relative to average age and service of national working population."

The point here is not that there have been "historical patterns of longer service life and higher average age for TELCO employees," but rather that the current age/service characteristics of TELCO (age = 41.6 / service = 16.6, as of 1/1/91) provide evidence of low turnover rates (i.e. low turnover rates in the past produced the current demographic makeup of the group). Recent downsizing could not have contributed to producing these age/service characteristics because recent staff reductions among the LECs were not accomplished through layoffs among the younger short-service employees prior to 1991.

While the above concept is well known among professional actuaries, we have performed some additional analysis and provided a more detailed explanation below, which should make our point somewhat clearer.

The average age and service of an employee group is not a simple function of withdrawal rates, but higher withdrawal will generally push down averages.[2]

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2 The fact that the average age of a population will increase if mortality rates are reduced is obvious. It can also be shown that a similar effect occurs in a company's "population". An employee group has exits from death, retirement, and termination, which exits correspond to mortality in the general population. Population growth, the growth of the firm, and the economic cycle all affect the number and average ages of replacements, which replacements correspond to births in the general population. Since the calculations for TELCO were based on very large employee groups, the variations in growth of firms cannot hide the effect of withdrawals.

Calculations were performed to test the hypothesis that the "T_6 / T_2" choice of withdrawal tables was consistent with the observed differentials between average age and average service of TELCO compared to the nation as a whole. With hire age and retirement age as parameters for calculating the average age and average service of stationary populations resulting from T_2, T_6, and T_{10} based upon all retirements at a given retirement age and all hires at a given hire age, the table in Appendix B clearly indicates differences that are not only consistent with the results shown in the Godwins Report, but in fact suggest that the differences in turnover rates between TELCO and the rest of the U.S. working population may be even greater than T-2 versus T-6.

For example, if one were to look at a company that hires new employees at an average age of 27, that experiences turnover rates equal to T-2, and retirements at age 62 (a situation not unlike TELCO), one would find that after this company matures it can expect to have an employee population with an average age of 41.54, and an average past service of 14.54 years. If, instead, turnover rates equal to T-6 were applied, the average age and service of the population would be 38.80 and 11.80, respectively. This theoretical difference, between populations subject to T-6 and T-2, is actually less than the observed differences in age/service characteristics between TELCO and the non-TELCO firms (see page 47 of the Godwins Report). While TELCO and the rest of the GNP have different retirement patterns, it can be seen from the table that differences in average retirement ages have only a minor impact on the basic result.

Finally, it should be noted that the sensitivity analysis performed by Godwins is more than sufficient to allow for any potential understatement of TELCO's turnover rates. On

pages 34 and 35 of the Godwins Report, it is shown that even if the same turnover rates were used for both TELCO and the rest of the working population, the relative impact of SFAS 106 on GNP, compared to TELCO, would only increase from 28.3% to 34.6%. As noted on page 40 of the Godwins Report, overall results are shown using values for this relative impact, ranging from 17.8% to 44.5%.

C. Accuracy and Reliability of Results

There were two objections raised with respect to the overall accuracy and reliability of the Godwins findings that labor costs of non-LEC firms sponsoring retiree medical plans will increase 3.19% as a result of SFAS 106.

AT&T Contention - (pp. 9 - 10) "The results of the Godwins Study depend on the calculation that the adoption of SFAS 106 will increase labor costs by 3% for firms incurring OPEB expenses. The 3% estimate is derived using numerous factors, each subject to error as noted in Godwins' section on sensitivity of results (pp. 34-43). The cumulative impact of reasonable variations in each factor renders the 3% estimate suspect."

Response - It is precisely the sensitivity analysis referred to by AT&T that gives us great confidence in the robustness of the bottom line result. In the extremely unlikely event that the actual increase in labor costs is as high as 5% (extremely unlikely, because such a result would require that virtually all of the factors for which uncertainty exists[3] have been maximally understated)[4] then the total amount of unrecovered SFAS 106 costs is reduced by a mere 12% (from 84.8% to 74.7% as shown on page 41 of the Godwins study). Thus, there can be little doubt as to the solidity of the results, and the Commission can be quite confident that any uncertainty in the basic results of the actuarial analysis will not have a significant effect on the final result.

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3 See pp. 34-37 of the Godwins study.

4 In fact, great care was taken to be conservative in estimating those factors to ensure that the impact of SFAS 106 on GNP-PI was, if anything, overstated. See, for example, the following in the Godwins Report:

- Calculation of prefunding adjustment (page 19)
- Basic BLI methodology (page 34)
- Average retirement ages for non-LECs (page 35)
- Discussion of labor cost percentage adjustment (pages 36-37)

MCI Contention - (Page 25)

"In no place within the study is there an attempt to verify the costs of SFAS 106 to non-LEC firms."

"The 3.19% increase in labor costs to non-LEC firms providing OPEB does not square with other estimates of the SFAS 106 costs..... This amount is only 40% of the estimates by Warshawsky (in Postretirement Health Benefit Plans: Costs and Liabilities for Private Employers, No. 76 Finance and Economics Discussion series, Division of Research and Statistics, Division of Monetary Affairs, Federal Reserve Board, Washington, D.C., June 1989)."

Response -

MCI's contention is a gross misrepresentation of the facts. It is true that in the referenced article Warshawsky does estimate that, based on 1988 data, the aggregate increase in retiree medical expense due to the introduction of SFAS 106 would be much higher than the 3.19% estimated by Godwins. However, despite the fact that Warshawsky is a well trained economist and clearly undertook his research in a responsible manner, MCI has utilized the results of that research irresponsibly. Specifically, the following must be noted:

(1) Warshawsky himself now recognizes that his original estimate was unrealistically high, and he has significantly reduced this estimate in his most recent analysis.[5]

(2) Even Warshawsky's revised estimate is significantly higher than other aggregate estimates produced by the GAO[6] and EBRI[7] for the same time period. Despite this,

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5 "The Uncertain Promise of Retiree Health Benefits," the AEI Press, 1992.

6 General Accounting Office, Human Resources Division, "Employee Benefits: Companies' Retiree Health Liabilities Large, Advance Funding Costly," June 1989, GAO/HRD-89-51.

7 Employee Benefit Research Institute, "Issues and Trends in Retiree Health Insurance Benefits", Issue Brief No. 84, November 1988.

MCI selected Warshawsky's earlier estimate and chose to ignore both Warshawsky's revision and other lower estimates. These other estimates are quite consistent with the Godwins estimate, and are fully encompassed by the sensitivity analysis included in the Godwins Report.

(3) Warshawsky's revised estimate is itself too high because his assumptions regarding plan provisions, actuarial assumptions, and demographics were wrong. These erroneous assumptions are described in greater detail below.

(4) Estimates produced by Warshawsky, as well as the GAO and EBRI, are all based on 1988 plan provisions. The Godwins estimate is more accurate because it is based on 1990 plan provisions, which are more up-to-date.

Each of these points is discussed in greater detail below.

(1) Warshawsky now recognizes that his original estimate was wrong.

In the material referred to by MCI, Warshawsky estimated that aggregate SFAS 106 costs in 1988 dollars would have been $67.9 billion, while "pay-as-you-go" costs were $14.5 billion. This net increase in costs of $53.4 billion translates to approximately 6.82% of 1988 total compensation[8] for covered employees, and directly corresponds to the Godwins estimate of 3.19%.

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8 1988 Total Compensation for U.S. workers was $2921.3 billion as shown in the November, 1991 Survey of Current Business. Based on the GAO study, 26.8% of all workers are covered by plans subject to SFAS 106 (see page 21 of the Godwins Report). Therefore, according to Warshawsky, additional SFAS 106 costs are 53.4 ÷ (2921.3 X .268) = 6.82% of compensation.

Warshawsky now realizes that his earlier estimate was based on an erroneous demographic makeup of the total covered population (for example, the ratio of active employees to retirees used was 3.8 to 1, which is far lower than for the typical company[9]). In his recent book (The Uncertain Promise of Retiree Health Benefits, the AEI Press 1992), Warshawsky revises his estimate of aggregate 1988 SFAS 106 accrued liability and expense downward by 25% and 12%, respectively. In this new study, the aggregate estimate of SFAS 106 expense becomes $58.9 billion, while "pay-as-you-go" costs are reduced to $11.3 billion. Thus the net increase due to SFAS 106 of $47.6 billion now translates to an increase of 6.08% of compensation. As shown in item (3) below, even this estimate is unrealistically high, due to the incorrect assumptions that Warshawsky relies on.

(2) *Warshawsky's revised estimate is significantly higher than other estimates of aggregate SFAS 106 costs.*

Both the GAO and EBRI produced estimates of SFAS 106 liabilities, based on 1988 data, that can be directly compared to that produced by Warshawsky. Warshawsky's revised estimate of $332.1 billion is, in fact, 50% higher than the GAO estimate of $221.0 billion, and 34% higher than EBRI's estimate of $247.0 billion. While neither the GAO nor EBRI explicitly calculated the increase in aggregate annual expense as a result of SFAS 106, their liability estimates translate to increases of 4.05%[10] and 4.52%[11] of compensation, respectively. Both of these values are well within the range of values used in the sensitivity analysis performed by Godwins. Page 41 of the Godwins Report illustrates results assuming the aggregate increase in costs due to SFAS 106 range from 2% to 5% of total compensation of covered employees. Even at the very high value of 5% (high because this

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9 See page 47 of the Godwins Report.

10 221 ÷ 332.1 x 6.08% = 4.05

11 247 ÷ 332.1 x 6.08% = 4.52

value, in addition to being materially higher than both the GAO and EBRI estimates, would also require that virtually all the factors outlined on pages 34-37 of the Godwins Report to have been maximally underestimated), the percentage of TELCO's SFAS 106 costs that are not recovered, through the GNP-PI increase and wage rate reduction, is only reduced from 84.8% to 74.7%.

(3) Warshawsky's revised estimate is too high due to incorrect assumptions.

In carefully reviewing the methodology employed by Warshawsky, it becomes quite clear why he arrives at aggregate cost estimates that are so much higher than the GAO and the EBRI estimates, as well as the Godwins estimate. Simply put, the methodology employed by Warshawsky utilizes assumptions regarding plan provisions, the demographic profile of the covered population, and actuarial assumptions to be used by companies to calculate SFAS 106 expense, that are demonstrably wrong. Specifically, in estimating the SFAS 106 accrued liability, Warshawsky:

- Assumes a "reasonably generous health plan with low deductibles and co-payments" for <u>all</u> companies (Pg. 92). A multitude of surveys (see, for example, <u>Health Care for Retired Employees</u> by Betty Malroy Stagg, The Conference Board Research Bulletin No. 202, 1987) demonstrate that this is simply not the case. Many companies in fact provide quite a bit less than "reasonably generous" benefits.[12] In fact, using data not available to Warshawsky, the Godwins BLI methodology was developed to specifically isolate the variation of "generosity" among companies' retiree medical plans.

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12 See page 7 of the Conference Board report cited above and pages 9-11 of the <u>Hewitt Associates 1990 Survey of Retiree Medical Benefits</u>.

- Assumes lifetime coverage for both the retiree and his spouse, for all companies. This is clearly unrealistic, and contradicted by the Conference Board material referenced above.[13]

- Assumes all active employees become eligible for full benefits at age 55. This also is contradicted by the studies referred to above.[14]

- Assumes mortality at 83 GAM[15] rates while many companies continue to assume higher mortality rates.

- Utilizes a 1% spread between the discount rate and medical trend rate combined with a 4% per year aging factor.

- Assumes a retirement age of 62.5, in contrast with the evidence of average retirement ages between 63.5 and 64, as shown on page 35 of the Godwins Report.

Strong evidence that Warshawsky's actuarial assumptions as to trend and mortality result in unrealistically high SFAS 106 costs can be seen from the fact that the LECs used much lower cost assumptions to calculate their SFAS 106 costs. In fact, only 2 out of the 11 LECs on whom data was collected used the 83 GAM table for their SFAS 106 calculations, and the average spread between the discount rate and the ultimate trend rate for the LECs' SFAS 106 calculations is 2.57%. This is particularly compelling, given the fact that the respondents to the LECs' filings with the Commission have indicated that they believe that the assumptions used by the LECs overstate their SFAS 106 accruals.

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13 See pages 7-8 of the Conference Board report.

14 See page 9 of the Hewitt Associates study cited in footnote 12 on the previous page.

15 The 1983 GAM mortality table is the most modern (lowest death rates) currently used for pension valuations in the United States. While it was published by the Society of Actuaries in October, 1983, it still has not been universally adopted by enrolled actuaries for their pension valuations.

In addition to the problems cited above, Warshawsky also assumes that the demographic profile of the entire covered population is a "reasonably mature and stable group" which is "typical of many large companies." While Warshawsky does not disclose the specific age and service characteristics of this group, based on his statements we must assume that it is older and has longer service than the average covered group. (Note that the GAO survey[16] reports that a very significant number of retiree medical programs are sponsored by companies with less than 500 employees.) By utilizing a demographic profile of such age/service characteristics, Warshawsky is undoubtedly overstating aggregate costs still further.

(4) *All three estimates (Warshawsky, GAO and EBRI) are based on out-of-date data.*

After rejecting Warshawsky's estimate due to the serious problems noted above, there still remains the question of why the GAO and EBRI estimates are both slightly higher than the Godwins estimate of aggregate SFAS 106 costs. The simple explanation for this is that retiree medical plans have changed substantially, between the time the data was gathered for the three estimates noted above (1988), and the time period for which plan provision data was collected for the Godwins study (1990). In fact, according to the Hewitt Associates 1990 Survey of Retiree Medical Benefits, 70% of all surveyed companies changed their retiree medical plans in 1988 or 1989. Thus, the Godwins estimate must be regarded as more accurate because it uses more recent information.

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16 General Accounting Office, Employee Benefits, "Extent of Companies' Retiree Health Coverage," GAO/HRD-90-92, March 1990.

SECTION III

RESPONSE TO OBJECTIONS REGARDING MACROECONOMIC ANALYSIS

A. Methodology and Choice of Model

MCI and AT&T raise three questions about the choice of a macroeconomic model and its use in estimating the impact of SFAS 106 on GNP-PI.

MCI Contention - (Page 31) "Such a model, in its final form, is nothing more than a somewhat advanced spreadsheet model. ... This cannot be viewed as an objective forecasting tool, but rather as a means to legitimize overly simplistic calculations."

Response - By calling the Godwins model a "somewhat advanced spreadsheet model", MCI means that the model is used to perform "what if" exercises. But a "what if" exercise is exactly what is required to study the impact on GNP-PI of the introduction of SFAS 106. To calculate the differential impact of SFAS 106, we need to ask "what happens to the value of GNP-PI if SFAS 106 is introduced." Any economic model, even a large-scale commercial econometric forecasting model, would have to be put through a "what if" exercise to determine the impact of SFAS 106. The criticism of the Godwins model for being used to perform "what if" exercises is unwarranted.

MCI Contention - (Page 32) "USTA contends that the model, while not being useful for forecasting macroeconomic activity, can somehow be used for forecasting the differences in macroeconomic activity depending on a shift in an exogenous variable (the multiplicative term used to adjust labor costs for the SFAS-106 impacts.)[41] [footnote not repeated here] This distinction is artificial--if a model cannot be relied upon to forecast the interactions within the economy, how can it be utilized to predict the differences due to some alteration to one value within the model?"

Response - To appreciate the distinction that MCI asserts is artificial, consider a simple example from outside the realm of regulation or economics. Suppose you are planning to take a 500-mile trip by car and you are concerned about how long the drive will take. The length of time will depend on the weather, road constructions along the way, traffic, accidents along the way, whether your car has mechanical trouble, and so on. Owing to the various unpredictable factors, any forecast of the duration of the trip may well be in error by an hour or more.

Now suppose that in planning your trip you want to know how much driving time you can save by packing lunch to eat while driving. If lunch at a fast food restaurant takes about half an hour, you estimate that packing lunch saves about half an hour. This informed guess can be made without having to (1) predict the overall duration of a trip that includes stopping for lunch; and (2) predict the overall duration of a trip that does not include stopping for lunch. You can avoid all of the complicating factors involved in trying to predict the overall duration of the trip. The prediction of the effect on duration of stopping for lunch may not be exactly right. (Indeed if you pack lunch rather than stop for lunch, you will never know if your prediction was right.) However, the forecast error of the effect of stopping for lunch is likely to be much smaller than the forecast error for the overall duration of the trip.

This example illustrates that when estimating the effect on a variable caused by a particular event, it is not necessary to forecast the actual value of that variable. The Godwins model calculates the effect of SFAS 106 on GNP-PI without having to forecast the actual level of GNP-PI.

AT&T Contention - (Page 10)

"Second, Godwins offers no methodology to test the validity of the macroeconomic model's results...If the model parameters and equations do not adequately describe real world data, then any predictions it gives are of little value."

Response -

These comments raise two separate questions: (1) do the model's parameters and equations adequately describe real world data? and (2) how can one test the validity of the model's results about the impact of the introduction of SFAS 106? In answer to the first question, the model's key parameters do describe real world data. The inputs to the model consist of 6 numerical parameters. Two parameters measure the share of labor cost in total cost, and the baseline values of these parameters were chosen to match the actual share of labor cost in total cost in the United States. One parameter measures the share of private sector employment covered by SFAS 106 benefits, and the value of this parameter was chosen to reflect the fact that of the 95.8 million private sector employees, 30.7 million are eligible to have a portion of their medical costs in retirement met by their employer's medical plan, subject to SFAS 106. A fourth parameter measures the percentage by which SFAS 106 directly increases the labor costs of employers that offer post-retirement medical benefits. The baseline value for this parameter was based on the extensive actuarial study in the Godwins Report. A fifth parameter is the wage elasticity of labor supply, and as discussed on page 30 of the Godwins Report, the value of this elasticity was based on a published summary, by Mark R. Killingsworth, of the extensive econometric literature on the elasticity of labor supply. A sixth parameter, the price elasticity of demand, was not based directly on a specific set of data or a specific set of econometric studies. However, econometric studies of demand for various goods tend to find price elasticities on the order

of one, or smaller. (For example, on page 16 of its report submitted in opposition to the direct cases, ETI cites a price elasticity of demand of 0.723 for interstate switched access, in a study by J. Gatto et. al. of AT&T.) Experimentation with the model revealed that (1) the results of the model are not very sensitive to the price elasticity of demand; and (2) higher values of the price elasticity of demand tend to increase the calculated impact of SFAS 106 on GNP-PI. To guard against understating the impact on GNP-PI of the introduction of SFAS 106, it was decided to use a value for this parameter that likely overstates the true value, so a value of 1.5 was used in the baseline case, as explained on page 29 of the Godwins Report.

The second question, which concerns testing the model's results about the impact of SFAS 106, is a conceptual question that would confront <u>any</u> model, not just the Godwins model, used to estimate the impact of SFAS 106 on GNP-PI. As AT&T points out on page 10, "there is no way to independently verify by observation the true change in GNP-PI due to SFAS 106 even after SFAS 106 goes into effect." This quoted sentence is correct, but notice that this sentence is independent of the choice of a model. As explained in the May, 1992 Godwins Response to Paragraph 16 of the FCC Order of Investigation and Suspension (p. 7), it is impossible to directly observe the impact of SFAS 106 on GNP-PI, even after the fact, because we have no way to directly observe what GNP-PI *would have been* in the absence of SFAS 106. This problem is faced by predicted changes based on econometric models as well as changes based on quantitative classical general equilibrium models, such as the one used in the Godwins Report.

AT&T (p. 10) goes on to point out that "standard economic practice is to perform tests whenever a model is based on estimates to see how closely the model mirrors actual data." For example, large-scale commercial econometric forecasting models are designed to forecast the values of various macroeconomic variables. Then the actual values of these variables are compared to the values forecasted by the model, and the difference between the actual and forecasted values is called the forecast error. Statistical properties of forecast errors, such as the root mean square error or the mean absolute forecast error, are then calculated. Although this statistical analysis of forecasts is commonly applied to large-scale econometric models, one should not be misled into thinking that these analyses can test the validity of a model's prediction about a change in a macroeconomic variable (such as GNP-PI), when some aspect of the model is changed (such as the introduction of SFAS 106). Statistical properties of forecast errors can be used to test the accuracy of conditional forecasts[17], but do not address the question of the model's accuracy when predicting the effects of a change in the model's inputs.

We are faced with a choice between a quantitative classical general equilibrium model of the sort used in the Godwins Report and a large-scale commercial econometric forecasting model. Neither type of model has been tested for the validity of the predicted macroeconomic effects resulting from the introduction of SFAS 106. Both types of models

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17 Conditional forecasts use assumed future values of various inputs to the model, and thus are "conditional" on these assumed future values.

"fit" their key parameters to real world data: quantitative classical general equilibrium models base their parameters on independent econometric studies and/or calibration of certain parameters to make the values of certain variables match actual data; econometric models estimate the values of their parameters econometrically.

Which type of model should we use? The Godwins Report lists five desirable criteria for a model to be used to study the impact of SFAS 106 on GNP-PI. The quantitative classical general equilibrium model in the Godwins Report satisfies all five of these criteria, but as explained in the May, 1992 Godwins Response to Paragraph 16 of the FCC Order of Investigation and Suspension, large-scale commercial econometric forecasting models fail to satisfy at least two of these criteria.

B. Sensitivity

AT&T raised three questions about the sensitivity of the results.

AT&T Contention - (Page 10) "Third, the validity of the macroeconomic model is further called into question because of the great sensitivity it exhibits to changes in assumptions. For example, altering the baseline assumption of labor elasticity from zero to an elasticity of 0.1 increases the impact on GNP-PI by more than 400% (a 0.0642% impact vs. the 0.0124% base case impact.)"

Response - In judging whether the difference between 0.0124% and 0.0642% is large, it is important to look at the magnitudes involved. Both of these numbers are a tiny fraction of 1 percent. True, the larger of these two numbers is 5 times as large as the smaller number, but both of these numbers are essentially zero, and five times zero is still zero. To see that there is no essential difference, suppose that in the absence of SFAS 106, GNP-PI would have a value of 125.0. A 0.0124% increase would result in a GNP-PI of 125.0155, whereas a 0.0642% increase would result in a GNP-PI of 125.0802. GNP-PI is only reported to one decimal place, so the alleged "great sensitivity" amounts to the difference between 125.0 and 125.1 for GNP-PI. Rather than looking unstable, the results appear remarkably robust to this change in parameter value.

Instead of focusing on the sensitivity of the GNP-PI effect, one might want to focus on the percentage of additional SFAS 106 costs "to be met from other sources" reported in columns headed (c) in the sensitivity analysis on page 41 of the Godwins Report. This number is the "bottom line" number. As shown on page 41, in the baseline case, the portion of additional SFAS 106 costs to be met from other sources is 84.8%; increasing the labor supply

elasticity to 0.1 reduces this number to 84.1%. Again, the results are remarkably robust.

AT&T Contention - (Page 11) "Moreover, Godwins' analysis looks at changes in parameter values on a 'one at a time' basis (p. 38)."

Response - Section IV of the Godwins Report is devoted entirely to sensitivity analysis, and it presents two tables of results (page 39 and page 41). The table on page 39 focuses only on the sensitivity of GNP-PI to changes in parameter values, and examines these changes in parameter values one at a time. However, the table on page 41, which summarizes the sensitivity analysis for the overall results, does not look at parameter changes one at a time.

Why does the table on page 39 focus on changes in parameter values one a time? It was recognized at the outset that there are 648 possible combinations of parameter values.[18] Rather than grind through all of these combinations, it was decided to first examine the effects of changes in parameter values one at a time to learn which parameters have the largest impact on GNP-PI. As shown on page 39, the direct impact on labor costs in sector 2 and the labor supply elasticity are the two parameters for which GNP-PI exhibits the most sensitivity. Then, having learned that GNP-PI exhibits the greatest sensitivity to these two parameters, the sensitivity analysis for the overall results on page 41 examines all combinations of these two parameters.

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18 Including the baseline values, the Godwins Report examined:
- 2 values of the price elasticity of demand;
- 3 values of labor share in total cost, sector 1;
- 3 values of labor share in total cost, sector 2;
- 3 values of fraction of labor employed in sector 2;
- 3 values of direct impact on labor costs in sector 2;
- 4 values of labor supply elasticity

Thus, there are 2 x 3 x 3 x 3 x 3 x 4 = 648 combinations of parameter values.