USTA claims that over the long term (i.e., since 1948), LEC input prices have grown at the same rate as economy-wide input prices.

- Pre-divestiture LEC input price experience cannot capture current market conditions
- Post-divestiture BOCs are not engaged in the same business as the pre-divestiture Bell System
  - CPE rentals, which represented in the range of 20% or more of pre-divestiture Bell revenues, are no longer offered
  - InterLATA long distance services which, exclusive of access charges, represented at least 10% of pre-divestiture Bell revenues, are no longer offered
- And, most importantly, the vertical integration of the pre-divestiture Bell System no longer exists

Pre-divestiture LEC input price experience cannot capture current market conditions

- Due to vertical integration of Western Electric with Bell Operating Companies, the nature and mix of pre-divestiture "inputs" was dramatically different than now, making pre-divestiture input price experience entirely irrelevant for present and future conditions.

- There was minimal or no competition in the provision of equipment and most materials to the pre-divestiture Bell System Operating Companies.

  - Pre-divestiture Bell System companies purchased virtually all CPE, central office switches and other equipment, wire and cable, transmission systems, and most materials and supplies, from their "manufacturing and supply" affiliate — Western Electric Company

  - WECO faced no competitive pressures to innovate or to improve its overall productivity; intense competition in today's telecom equipment market forces incumbents to pursue both technology and productivity, and to flow through gains directly to their customers.

USTA seeks to "cherry-pick" its way through fundamentally conflicting positions of its own experts

- Taylor asserts that LEC input price movements are not "statistically different" from economy-wide input price changes, which he contends are growing at the rate of GDP-PI + 0.3%, i.e., 4% annually since 1984.
  - Taylor bases his claim on the use of long-term, mostly pre-divestiture input price experience for the period 1948-1979
  - But he also contends that growth in post-divestiture (1984-92) input prices are not statistically different from economy-wide price movements
- Christensen, however, studied LEC Total Factor Productivity (TFP) for the post-divestiture period (1984-92) and in that study employs post-divestiture LEC input price data showing LEC input price growth for the period at an annual rate of 2.6% less than GDP-PI, the very same data that Taylor rejects as anomalous!

USTA relies on Christensen's TFP growth rate estimate (2.6%) but jumps over to Taylor's position when it comes to LEC input prices

Christensen:

LEC Productivity grew at least 2.6% per year for 1984-1992.

Productivity growth is best measured by Total Factor Productivity ("TFP").

TFP growth rate = output quantity growth rate – input quantity growth rate

Based on the Christensen May 1994 Study for 1984-1992 period

- **LEC output quantity grew at 3.5%**
- **LEC input quantity grew at 0.9%**
- **Therefore, LEC TFP annual growth rate = 2.6%.**

Christensen's TFP using Taylor's input price theory:

The GDP-PI minus 2.6% input price component is integrally related to the 1.1% input price growth rate and the 0.9% input quantity growth rate used in the Christensen May, 1994 study.

The integral relationship between input price and input quantity is a known economic fact in the context of TFP studies. If one changes, the other must also change.

- **Thus if USTA wants now to discredit Christensen's input price measure, the result would be a direct and immediate change in the measure of TFP.**

- **Our analysis shows that changing the input price growth rate to USTA's claimed value, and then recalculating TFP using Christensen's process, leads to essentially the same X Factor as under the Ad Hoc formulation.**

Christensen's TFP using Taylor's input price theory:

While the lack of all input data used by Christensen precludes a complete replication of his process, a rough calculation illustrates this point.

Because USTA did not supply the input expenditure data that Christensen utilized, it was first necessary for us to extrapolate this value from the data that was supplied

- **Christensen had calculated that total LEC input quantity increased at a rate of 0.9% by, in effect, subtracting the rate of change in input prices from the rate of change in dollar expenditures on inputs.**

On that basis, and using his input price growth rate of 1.1%, total dollar expenditures on inputs must have increased at an annual rate of 2.0%.

Christensen's TFP using Taylor's input price theory:

Suppose USTA replaces Christensen's 1.1% input price growth rate with Taylor's claimed 4.0% input price growth rate. Since the growth in total dollar expenditure on inputs was 2.0%, input quantity must have decreased at a rate of 2.0% (i.e., 2.0% growth in expenditures minus 4.0% increase in input prices).

Christensen study:

Input quantity growth = 2.0% expenditure growth – 1.1% input price growth = 0.9%

Christensen study revised per Taylor input price growth:

Input quantity growth = 2.0% expenditure growth – 4.0% input price growth = –2.0%

TFP would then be calculated as output quantity growth of 3.5% minus the input quantity growth of –2.0%, resulting in a TFP growth rate of 5.5%.

- **This calculation can be readily confirmed by the Commission were it to obtain from USTA all data necessary to replicate Christensen's analysis**

Ad Hoc vs. USTA on the development of the X factor

	Ad Hoc	USTA
Productivity	2.6%	2.6%
Input Price Differential	GDP-PI – 2.6%	GDP-PI + 0.3%
Consumer Productivity Dividend	0.5%	0.0%
Final Price Cap Index Formula	GDP-PI – 5.7%	GDP-PI – 2.3%

Adoption of the USTA position would result in an inappropriate transfer of at least $8-billion of wealth from telecommunications users to LECs over the next four years, chilling competitive activity and creating a significant drag on the US economy.

The parties' positions on the X Factor / Price Cap Formula issue

Ad Hoc analysis yields 5.7% .

AT&T analysis yields 5.47% .

MCI analysis yields 5.9% .

USTA method, but using Taylor's input price theory, yields 5.7%

These results explain why LEC rates of return have increased under the 3.3% price cap program.

Clearly, the X Factor should be increased to at least 5.7%.

In a competitive market, firms do not retain indefinitely the fruits of their efficiency and productivity gains

- **Benefits will be retained only for a short period of time, and will disappear once improvements and innovations are mimicked by competitors**

By contrast, in resisting consumer dividend and sharing, USTA seeks to capture permanently all LEC productivity and efficiency gains, a result that is simply not possible under competitive market conditions.

Ad Hoc Telecommunications Users Group

Response to USTA's latest TFP Study and "Rolling Average" Proposal

A. USTA's eleventh hour filing is procedurally defective

The Commission should reject USTA's last-ditch attempt to de-rail the price caps rule changes that have been justified by the record in this docket:

> USTA's earlier study has been battered by commenters who identified major flaws.
>
> USTA buried substantial revisions in its last minute *ex parte* filing, including changes to the *historical* data upon which its earlier productivity study was supposedly based.
>
> Thus, USTA has conceded that its earlier submission was unreliable.

Eleventh hour data dumps deprive the Commission and interested parties of any meaningful opportunity to comment:

> Critical scrutiny of USTA's previous version of its TFP study disclosed fundamental defects.
>
> By inserting significant data changes into the record at the last minute, USTA can effectively insulate its "evidence" from critical review

Therefore, the Commission should give little or no weight to this filing when it considers the countervailing evidence in the record.

B. USTA's new plan and new data cannot withstand even cursory review

1. *USTA failed to correct defects in its calculation of the X factor*

Ad Hoc pointed out in earlier pleadings that the annual change in the prices of inputs utilized by LECs is growing at a consistently *slower* rate than the economy-wide input price changes USTA used in its TFP study. What USTA used produces an artificially low X factor.

Rather than correct that error, USTA's new study continues to use a much higher inflation rate as the basis for the annual change in LEC input prices.

2. *The USTA proposal itself refutes USTA's claim that its new proposal relies on a mere mechanical process.*

- The new January 1995 Christensen study appears to constitute a major revision of the earlier work, including pervasive and significant modifications to the underlying historical data for the same 1984-1992 time period included in the original study.

If the calculation of the TFP or of a differential TFP is as mechanical as USTA claims, so extensive a revision as it now offers should not have been possible or even imaginable.

3. *USTA's Proposed TFP Calculations Won't Be Based on Publicly Available Information*

USTA claims that the ongoing recalculation of LEC productivity that it proposes uses publicly-available data on LEC prices and costs.

That data will not be publicly available as the LEC's ARMIS reporting and tariff filing support requirements change or if LEC services are de-tariffed or offered at prices that are not directly reflected in LEC tariffs and other "public record" documents.

USTA is also asking for precisely those regulatory changes that will reduce available information regarding LEC costs and demand.

4. *The USTA Plan would re-establish the link between rates and costs*

The TFP USTA would use is limited to the price cap LECs themselves. By using that TFP in a five-year moving average, USTA's proposal gives price caps LECs both the ability and the incentive to keep productivity measures low:

> The annually-recalculated X factor would be driven by current changes in LEC TFP, trended by means of a moving average.
>
> Any activities that result in a lower TFP for a particular year will reward the LEC with a lower X factor two years forward.
>
> Therefore, when LECs pursue speculative and/or non-productive capital spending programs, whose costs are not expressly allocated away from interstate services subject to price cap regulation, the LECs can produce

a decreasing TFP trend (or, more generally, one that is less than it would have otherwise been).

A moving average TFP must include comparable services furnished by interexchange carriers, competitive access providers, value-added network service providers, and other industry members whose rates are entirely disconnected from LEC costs in order to establish a truly exogenous X factor.

C. USTA subsequent ex parte filings demonstrate that its data and methodology are wholly unreliable

USTA's unexplained use of inconsistent TPIs is inherently suspect

USTA made pervasive changes to underlying historical data