

BEFORE THE  
UNITED STATES OF AMERICA POSTAL RATE COMMISSION  
WASHINGTON, D.C. 20268-001

Documentation of Statistical Analyses, 1989

Docket No. RM89-3

COMMENTS OF  
THE STAFF OF THE BUREAU OF ECONOMICS OF THE  
FEDERAL TRADE COMMISSION<sup>1</sup>  
(submitted April 24, 1989)

I. INTRODUCTION

The staff of the Bureau of Economics of the Federal Trade Commission (FTC) appreciate the opportunity to submit these comments to the Postal Rate Commission (PRC) concerning its proposals to improve documentation of statistical analyses that underlie its rate and service decisions.<sup>2</sup> The PRC's proposals would require identification of assumptions, data sources, and techniques used in statistical analyses, and under specific circumstances would make original data sets and updated data available to interested parties. Our experience suggests that the PRC's proposals may offer substantial benefits in return for relatively modest costs. We discuss this below and we also suggest additions and modifications to the proposed rules that may be desirable.

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<sup>1</sup> These comments represent the views of the staff of the Bureau of Economics of the Federal Trade Commission. They are not necessarily the views of the Commission or any individual Commissioner. Questions about these comments may be addressed to John C. Hilke, Federal Trade Commission, Bureau of Economics, 6th Street and Pennsylvania Avenue, N.W., Washington, D.C. 20580, telephone: (202) 326-3483.

<sup>2</sup> The proposed rules and invitation to comment were published in the Federal Register, Vol. 54, No. 44, on March 8, 1989 at pages 9848-9852.

## II. FEDERAL TRADE COMMISSION STAFF EXPERTISE

The FTC is an independent regulatory agency responsible for maintaining competition and safeguarding the interests of consumers.<sup>3</sup> The staff of the FTC, upon request by federal, state, and local government bodies, often analyze regulatory or legislative proposals that may affect competition or the efficiency of the economy. In the course of this work, as well as in antitrust and consumer protection research and litigation, the staff frequently present econometric and other statistical evidence and evaluate similar evidence presented by other parties.

The FTC staff have commented previously on various issues before the PRC, including: (1) use of a single set of rate hearings to establish a series of United States Postal Service (USPS) rate changes;<sup>4</sup> (2) elaboration of competition issues inherent in proposed rate and classification changes related to electronic computer originated mail (ECOM);<sup>5</sup> (3) drawbacks to a proposed modification of the test period for cost recovery in ECOM;<sup>6</sup> (4) advantages of setting ECOM rates to cover full costs;<sup>7</sup> (5) costs and benefits

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<sup>3</sup> 15 U.S.C. Section 41 et seq.

<sup>4</sup> PRC Docket No. MR82-3, filed November 4, 1982.

<sup>5</sup> PRC Docket No. R83-1, filed June 1, 1983.

<sup>6</sup> PRC Docket No. R83-1, filed June 16, 1983.

<sup>7</sup> PRC Docket No. R84-1, filed December 23, 1983.

of current preferred mail rates;<sup>8</sup> (6) expedited procedures in reviewing proposed rate changes for Express Mail;<sup>9</sup> and, most recently, (7) a complaint urging a study of the possibility of exempting addressed third class mail from the private express statutes.<sup>10</sup> Several of our comments have referenced the PRC's difficulties in reaching informed decisions on postal rates and services because of the lack of sufficient accessible data on demand for and costs of different postal services.

### III. THE PRESENTATION OF STATISTICAL ANALYSES

#### A. Introduction

In order for statistical analyses effectively and efficiently to provide objective information for the PRC to use in making rate and service decisions, participating statistical analysts must clearly explain what they did and why, and the sources and characteristics of the data on which they relied.<sup>11</sup> Further, statistical results must be replicable, if the PRC is to place substantial confidence in them.<sup>12</sup> Documentation and replication are

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<sup>8</sup> PRC Docket No. SS86-1, filed April 20, 1986.

<sup>9</sup> PRC Docket No. RM88-2, filed October 14, 1988.

<sup>10</sup> PRC Docket No. C89-1, submitted February 28, 1989.

<sup>11</sup> See McAleer, M., A. Pagan, and P. Volker, "What Will Take the Con Out of Econometrics?" American Economic Review 75:3 (June 1985), pp. 293-307.

<sup>12</sup> Statistical results are replicable if other analysts obtain the same results when they employ the same data and procedures. Dewald, W., J.

central elements in the application of the scientific method, and no less should be expected from any statistical analyses presented to the PRC that purport to be objective. Consequently, we concur with the PRC's proposal that statistical analyses on which the parties urge the PRC to place serious weight adhere to these criteria. At the same time, the PRC recognizes that application of unnecessary restrictions and arbitrary requirements could discourage useful analyses and cause a net decrease in the availability of useful information to the PRC.<sup>13</sup> We believe that the PRC's proposals make appropriate allowance for this concern.

#### B. Failure of Current Rules

The USPS and other parties who present statistical analyses to the PRC often do not, in the PRC's view, provide the analyses in a form that can be readily understood, reviewed, or challenged.<sup>14</sup> Current submissions sometimes fail to define the variables used, identify sources of data, explain the theoretical concepts employed, provide citations for statistical

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Thursby, and R. Anderson, "Replication in Empirical Economics: 'The Journal of Money, Credit, and Banking' Project," American Economic Review 76:4 (September 1986), pp. 587-603.

<sup>13</sup> For example, the PRC proposes that requests to the USPS from interested parties for additional statistical analyses be restricted to plausible alternative assumptions, rather than to all potential alternatives.

<sup>14</sup> The implications of a statistical analysis may be unclear either because the analyst has failed to provide clear descriptions and references about what was done or because the results are inconclusive. There is nothing that procedural changes can do about the latter and therefore the PRC's proposals will have no effect in such instances. In the former case, procedural changes, such as those proposed by the PRC, can increase the amount of useful information obtained from each statistical test.

techniques, indicate alternative assumptions considered, report relevant statistics, or justify the exclusion of potential explanatory variables. The PRC states that it is particularly concerned about statistical analyses of demand for different classes of mail.<sup>15</sup> These analyses have become essential elements in many of the PRC's rate and service decisions. As a result of poor documentation, the PRC has sometimes been forced, even in some of its most important decisions, to rely on statistical analyses on which it cannot place great confidence.<sup>16</sup> With better documentation and descriptions, independent review and evaluation of statistical analyses by the PRC's staff and other parties become possible, and this will help insure that the PRC's decisions are based on sound and objective analyses.

The FTC staff's experience in commenting on PRC matters is consistent with the PRC's observations. Poor documentation of studies submitted to the PRC results in a lack of sufficient information to replicate results and to test results for robustness.<sup>17</sup> For example, in our comments on procedures for adjusting Express Mail rates<sup>18</sup> we observed that "one rationale for the USPS's involvement in expedited mail could be economies of

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<sup>15</sup> See the Federal Register notice at p. 9849.

<sup>16</sup> See the Federal Register notice at pp. 9848-9849. It reads in part: "... the principal obstacle to effective review by the Commission has been the inadequate support offered for the numerous subjective judgments that the Postal Service has employed in developing the econometric models upon which its forecast is based. In the past the Commission often had been put in the position of having to 'take or leave' the Postal Service's volume forecast, and some unsupported judgments that underlie it, because there has been no viable alternative to the Postal Service's econometric demand models."

<sup>17</sup> Results are robust if slight changes in the data sample, variables, and/or statistical techniques do not substantially alter the results.

<sup>18</sup> PRC Docket No. RM88-2, filed October 14, 1986, p. 8.

scope between Express Mail and statutorily protected classes of mail service."<sup>19</sup> However, the empirical evidence presented to the PRC on this important question was insufficient to make a determination.<sup>20</sup> If the procedural changes proposed by the PRC had been in force, they might have helped the PRC resolve the question by pinpointing data deficiencies and allowing interested parties to respecify the models so that the results could more adequately address the question of economies of scope (and scale).

Similarly, when commenting on a proposed study of an exemption from the private express statutes for addressed third class mail, the FTC staff concluded that there was insufficient statistical information in the USPS's submissions to judge what effects such an exemption might have. If better documented demand analyses and tests for robustness, as now contemplated in the PRC's proposals, had been available at the time, they could have provided very useful information on this issue.<sup>21</sup>

Finally, in our comment on ECOM demand forecasts, we expressed concern that the lack of well-documented statistical information on demand might make it difficult for the PRC to determine whether the USPS's demand

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<sup>19</sup> An "economy of scope" exists when the cost of providing a good or service is lower if it is produced in conjunction with another good or service than if it is produced alone. By comparison, an "economy of scale" exists when the per item cost of providing a good or service decreases as the quantity of production increases. Economies of scope and scale may exist simultaneously.

<sup>20</sup> PRC Docket No. C89-1, filed February 28, 1989, at pages 3-4.

<sup>21</sup> PRC Docket No. C89-1, filed February 28, 1989. Data from earlier rate making cases could be used if made available in a well-documented fashion.

estimates for ECOM were unduly optimistic.<sup>22</sup> If the PRC's proposed rules had been in effect at that time, interested parties could have requested econometric forecasts from the USPS, or produced such forecasts themselves, using alternative models and data that could have been compared to the USPS's projections.

### C. Potential Benefits

The potential benefits to consumers from improved statistical information and the resulting improvements in decision-making may be substantial, if for no other reason than that the volume of affected commerce is in excess of \$30 billion annually and there appears to be considerable room for improvement in the analyses now submitted.<sup>23</sup> We have found that well-documented statistical work can provide useful information in the FTC's antitrust and consumer protection work on those occasions when suitable data are available, and we believe that the PRC may experience a similar increase in useful information, if it adopts the proposed (or similar) rules.<sup>24</sup>

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<sup>22</sup> PRC Docket No.R83-1, filed June 16, 1983, pp. 9-10.

<sup>23</sup> Revenues of the U.S. Postal Service alone exceed \$30 billion. See "Summary Financial and Operating Statements," various dates, Department of the Controller, U.S. Postal Service. To the extent that rate and service decisions of the PRC impact on private firms providing similar services, the volume of affected commerce is greater than the revenues of the USPS.

The PRC's views on the shortcomings of previous statistical analyses are discussed in the Federal Register notice at pages 9848-9850.

<sup>24</sup> See for example, Barton, D., and R. Sherman, "The Price and Profit Effects of Horizontal Merger: A Case Study," Journal of Industrial Economics 33:2 (December 1984), pp. 165-177, and Cox, S., "Advertising Restrictions Among Professionals: Bates v. State Bar of Arizona," in Kwoka, J., and L.

Regardless of the reasons for the current shortcomings of statistical analyses submitted to the PRC, the PRC's proposals are likely to produce substantial improvements for three reasons. First, the procedures will dictate minimum standards of presentation that will make the details of the analyses more transparent and accessible to the PRC. When analyses are more understandable because they are better explained and documented, the insights from them are more likely to be incorporated into decisions. Second, by permitting other parties to propose alternative specifications (or to obtain the data directly), the PRC's proposals promote competition in providing the "best model" to incorporate in rate and service decisions. In this way, the PRC reduces its dependence on submissions from any single party and removes a possible source of bias in its decisions. Third, by establishing an ongoing data collection process for postal data, the proposed regulations should help all parties to update statistical analyses of postal demand conditions in a timely manner. Further, regular data updates may alert interested parties to changes in circumstances that may warrant the attention of the PRC or the USPS. Increasing the understandability of analyses, removing bias, and ensuring up-to-date data all have the potential to improve the quantity of useful information available to the PRC and the quality of the PRC's decisions based on it.

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White, Editors, The Antitrust Revolution, Glenview, Ill.: Scott, Foresman and Company, 1989, pp. 134-159. Data of sufficient quantity and quality for econometric work are not available, however, in many cases.

We find that obtaining the original data is very helpful in evaluating analyses submitted by other parties and in assessing the effects on the results of using alternative explanatory variables, assumptions, or statistical techniques.

The proposals also may reduce the administrative costs of the PRC and private parties by reducing the amount of investigation otherwise required. The proposals should reduce the amount of necessary investigation into theoretical assumptions, data sources, and statistical techniques used in analyses presented to the PRC by making this information available in initial submissions.

#### D. Potential Costs of the Proposals

The primary costs associated with the PRC's proposals relate to additional time and care in preparing the documents and statistics to be submitted. If the analysts now submitting work to the PRC are following acceptable professional procedures, but are not reporting the work thoroughly, then the primary costs to them would seem to stem from the increased use of labor, materials, and equipment to document the progress of the analyses. We do not expect these costs to be excessive. Once parties know that such documentation is expected, they may develop and implement low cost procedures to preserve the necessary information.<sup>25</sup>

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<sup>25</sup> If the USPS or other presenters are not following professionally accepted procedures, the new requirements would force them to do so or to disclose that such procedures were not followed. In this event, revising procedures to comply with professional requirements could entail additional costs (and in some cases perhaps significant additional costs), but should also improve the accuracy of the analyses. However, analyses that do not follow professional procedures may not be particularly useful to the PRC. It may be preferable that they not be submitted.

These rules could impose a different type of cost by burdening the use of statistical analysis to such an extent that parties opt to abandon this form of analysis -- a troubling possibility that could result in poorer rate and service decisions. We do not believe that the PRC's proposals pose a significant danger of driving out objective statistical analyses. This is because the PRC's proposals primarily require disclosure of work that presumably is routinely being done, but not reported or presented.

Finally, the rules could induce some parties to attempt to confuse or hamper understanding of statistical analyses by using the new regulations as an excuse for "overdocumenting" the data and the theoretical assumptions or statistical techniques employed. Such efforts to "bury" the PRC in documents could adversely affect the PRC's ability to evaluate materials adequately, particularly when there are tight time constraints.<sup>26</sup> However, we believe this is unlikely to happen frequently. The PRC nevertheless may wish to consider monitoring statistical submissions to detect and to discourage this practice if the proposed rules are adopted.

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<sup>26</sup> Although overdocumentation is a possible problem, it may be of limited concern to the PRC for three reasons. First, current rules appear to permit overdocumentation, which apparently has not posed a problem for the PRC to date, suggesting that it may continue to be a minor concern. Second, where private parties, as well as the PRC, are reviewing an analysis, overdocumentation may not be a serious obstacle to informed decision-making to the extent that private parties have sufficient staffing flexibility to advise the PRC of the critical information contained within voluminous submissions. Third, provision k.2.iv.d., calling for a summary of the sources of the input data, should help alleviate the effect of efforts to overdocument the data.

#### IV. SPECIFIC PROVISIONS

The PRC may wish to consider the following modifications to its proposals.

##### Sensitivity Analysis

The PRC proposals do not include provisions requiring any sensitivity tests. The literature on econometrics and the experience of the FTC staff suggest that imposing modest sensitivity testing requirements might be useful.<sup>27</sup> Sensitivity tests illustrate how and to what degree the results of a statistical test change with slight changes in data or assumptions. When results are robust, increased confidence in the data and analysis is often warranted. Requesting modest sensitivity testing should not be burdensome, again because good econometric practice already includes such testing. Sensitivity analysis may also assist in expediting proceedings because they may forestall or narrow the scope of challenges from other parties.

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<sup>27</sup> Leamer, E., "Sensitivity Analyses Would Help," American Economic Review 75:3 (June 1985), pp. 308-313.

The PRC proposals permit other parties to request limited tests of this nature, but do not require that such tests be done routinely.

## Ad Hoc Econometric Techniques

The PRC proposes to exclude use of ad hoc econometric techniques that have not been reviewed in econometrics texts and journal articles.<sup>28</sup> While we agree that utilization of such techniques should generally be avoided, the PRC might wish to consider altering this provision to provide an exception when there are no viable alternatives. Such an exception would avoid placing the PRC in the position of choosing to learn nothing about a particular question of fact rather than choosing to learn something based on ad hoc techniques.<sup>29</sup>

## Prior Forecasts

Section 3001.54 provides specific requirements for the forecasts of future postal demand. Assessment of the reliability (or bias) of these forecasting models may be facilitated by requiring that the USPS also submit econometric analyses indicating (1) the accuracy of previous USPS models in predicting demand, and (2) the accuracy of the current USPS model in predicting past changes in demand using earlier data.

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<sup>28</sup> Subsection "e" of proposed rule 31.k.2.iii.

<sup>29</sup> Alternatively, the PRC could disclose its intention to discount analyses which use ad hoc statistical procedures needlessly. This could be sufficient to discourage the practice, once the PRC is no longer dependent on the analysis provided by a single party. Further, such a disclosure policy could avoid creating disincentives for innovative econometric techniques where there are no viable alternatives.

## V. CONCLUSION

The PRC has proposed rules designed to improve documentation and clarity of statistical analyses presented to it. Our experience is consistent with the PRC's view that there is substantial room for improvement in the presentation of statistical studies to the PRC. Such improvements are likely to improve the PRC's decisions, which affect a large volume of commerce. In contrast, the costs of the improvements are likely to be small--consisting largely of disclosing work already being done. We believe that benefits from these changes may be substantial and that they will outweigh any costs likely to be attributable to them.