

BEFORE THE  
POSTAL RATE COMMISSION  
WASHINGTON, D.C. 20268-0001

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EXPERIMENTAL PREMIUM  
FORWARDING SERVICE

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Docket No. MC2005-1

RESPONSE OF UNITED STATES POSTAL SERVICE  
WITNESS BETH B. ROTHSCHILD  
TO INTERROGATORIES OF THE OFFICE OF THE CONSUMER ADVOCATE  
(OCA/USPS-T2-8-13)  
(January 25, 2005)

The United States Postal Service hereby files the responses of witness Beth B. Rothschild to the following interrogatories of the Office of the Consumer Advocate:  
OCA/USPS-T2-8-13, filed on January 11, 2005.

Each interrogatory is stated verbatim and is followed by the response.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

Daniel J. Foucheaux, Jr.  
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**OCA/USPS-T2-8.** Please turn to your response to OCA/USPS-T2-1(a), wherein you state "...it has not been my responsibility to determine the relationship between consumers' responses to their likelihood of using the service or product to their actual subsequent usage of this product or service." Please confirm that this testimony indicates that you have no knowledge of whether your conclusions accurately predict actual future product usage due to a lack of confirmation between predicted and actual usage. If you do not confirm, please explain in detail.

**RESPONSE:**

Not confirmed. When I responded that it has not been my responsibility to determine the relationship between consumers' responses to their likelihood of using the service or product to their actual subsequent usage of this product or service, I was referring to the explicit responsibilities that the Postal Service has commissioned me to perform. While I have not been asked to formally examine consumers' predicted and actual responses to new Postal Service products and/or additions or modifications to existing products, I am aware of the fact that in cases where positive demand was forecasted in research using this methodology, incremental volume was achieved when the product or feature was introduced into the marketplace. My understanding is that the results of prior market research efforts have been particularly useful in informing Postal Service management business decisions with respect to the continued development and actual introduction of new products or service features.

In response to OCA/USPS-T2-1(b) I indicated that there are several compelling external factors that often explain why actual demand may be higher or lower than that which is forecasted in survey research. Such factors could include: 1) the nature of and investments in advertising and other awareness building activities to educate the public about the product; 2) the extent to which the product brought to market differs in subtle, but nevertheless meaningful, ways from the tested product; 3) changing circumstances

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or needs with respect to the intended use or non-use of the product; 4) possible overstatement of intentions to use the product; and 5) the competitive landscape or marketplace at the time of product launch. Two of these factors – awareness and overstatement – are addressed in the adjustments made to the survey results in this research.

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**OCA/USPS-T2-9.** Please turn to your response to OCA/USPS-T2-1(a), wherein you state "...it has not been my responsibility to determine the relationship between consumers' responses to their likelihood of using the service or product to their actual subsequent usage of this product or service." Please reconcile this statement with the statement in your response to OCA/USPS-T2-1(c), "Based upon my more than 33 years in the survey research business, I have complete confidence in the market estimation approach used here."

**RESPONSE:**

As noted in response to OCA/USPS-T2-8, while it has not been my commissioned responsibility to examine the relationship between forecasted demand and actual demand, I am aware of the fact that in prior instances when this methodological approach was used to estimate consumers' likelihood of using a new Postal Service product or service, incremental volume was achieved. In addition, when I made the statement that "I have complete confidence in the market estimation approach used here," I was referring to the research methodology and the specific procedures used here.

First, the methodology applied here is commonly used, frequently referenced in survey research literature, and accepted as a standard for forecasting new product use. For example, Armstrong, Brodie and McIntyre (1987) provide a summary of forecasting methods in marketing, and argue that intention surveys are widely used for this purpose, and that "the validation research supports this practice." (Armstrong, Brodie, and McIntyre, (1987), p.10).<sup>1</sup>

Second, the research design, implementation protocols, and analytic techniques were applied with utmost care and assiduous attention to quality control by highly

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<sup>1</sup> Armstrong, S., Brodie, R., and S. McIntyre (1987) Forecasting Methods for Marketing: Review of Empirical Research, International Journal of Forecasting, 3, 335-337.

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trained, experienced survey research professionals within my organization. For these reasons, I have confidence in the market estimation approach used here as well as the standards under which it was carried out.

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**OCA/USPS-T2-10.** Please turn to your response to OCA/USPS-T2-3(a), wherein you state, “The size of the sub-sample (40,000 records) was chosen to ensure that the number of records with matched telephone numbers would be large enough to obtain a sufficient number of interviews from the Temporary Forwarding stratum.” Please explain the statistical techniques used in defining and determining the quantity associated with “large enough”.

**RESPONSE:**

A preliminary sample allocation (in terms of completed interviews) for the Temporary Forwarding stratum was determined, along with the allocations in other strata, based upon the criteria described in response to OCA/USPS-T2-4. For the Temporary Forwarding stratum, assumptions were also made concerning likely eligibility and cooperation rates, and the match rate for telephone look-up. This determined an estimate of the overall amount of sample that would be selected for telephone look-up. The sample size of 40,000 significantly exceeded this estimate by a factor of approximately 10, to provide a margin for error concerning the assumptions underlying the calculations as well as “ready sample” in the event more records were needed to complete the required number of interviews in the Temporary Forwarding stratum.

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**OCA/USPS-T2-11.** Please turn to your response to OCA/USPS-T2-4(a) wherein you state, “In the absence of design effects and assuming that 10 percent of those surveyed would be likely to use the service....”

- (a) Please explain what you mean by “design effects”, how “design effects” is computed, and the implications of changes in “design effects.”
- (b) Please explain the basis for the assumption that 10 percent of those surveyed would be likely to use the service, as opposed to, for example, 5 percent or 15 percent.

**RESPONSE:**

a) A “design effect” for a specific statistic is the ratio of the sampling variance of the statistic computed under the sample design, divided by the variance of the statistic for a sample of the same size under the assumption that the design is a simple random sample. For a given sample design, design effects will vary across statistics of interest. As a result, there is no single design effect that applies for all items in a survey or across surveys. After a survey is completed, the design effect for a specific statistic can be computed using the estimated sampling variance for the statistic, and the estimated variance under the assumption that the sample was a simple random sample of the same size.

Prior to fielding a survey, a forecast of the average design effect calculated across statistics of interest is sometimes used to select a sample design from a set of candidate designs. However, it is important to note that design effects and sampling variances depend upon population characteristics, in addition to characteristics of the sample design, and these population characteristics are typically unknown prior to the survey. After fielding a survey, average design effects are sometimes used to provide a rough proxy for sampling variances of specific statistics when proper estimates of sampling variances have not been computed. For this survey, estimated sampling

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variances taking the design effects into account have been provided for all relevant statistics of interest, and this analysis of average design effects is, therefore, unnecessary.

b) When forecasting the variance of an estimate of a population proportion prior to conducting a survey, an assumption concerning the true population proportion is required to make this calculation. The variance of an estimate would be largest when  $p=50\%$  and smallest as it approaches  $0\%$  or  $100\%$ . Although a range of possible variance estimates on different population proportions (e.g., half-widths of  $1.5\%$  when  $p=5\%$ ,  $2.5\%$  when  $p=15\%$ , and  $3.5\%$  when  $p=50\%$ ) was considered, it was felt that a population proportion of  $10\%$  would be reasonable given the product being researched. However, once again, proper estimates of sampling variances and confidence intervals were calculated using the survey sample after the survey was conducted for relevant statistics of interest.

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**OCA/USPD-T2-12.** Please turn to your response to OCA/USPS-T2-6(a), wherein you state, "I believe that the sample of completed interviews is statistically accurate...." Please provide the statistical calculations underlying and substantiating your statement.

**RESPONSE:**

In our response to OCA/USPS-T2-6(e), we referenced analyses showing that the exclusion of identified eligibles in the screening stage from the final sample of completed interviews did not generate any statistical bias or lack of accuracy in the conclusions. Since the populations of eligibles and ineligibles are different, a comparison of the population of eligibles to characteristics of the general population of households is not appropriate. However, it is possible to compare characteristics of the screened sample (i.e. both eligibles and ineligibles) with characteristics of the general population to ensure that there is no bias. For the Temporary Forwarding and Snowbird strata, it is also possible to compare demographic information associated with ZIP Codes of primary residences for individuals who completed the screening (either eligible or ineligible) with demographic information for the sampling strata from the sampling frames.

While the demographic information available from the screening is limited, it is possible to construct estimates of the average household size from S4C. The screening survey estimate of the average number of people per household (2.6) is identical to the 2003 estimate from the American Community Survey (available on the Census Bureau's website), and the March 2004 estimate from the Current Population Survey conducted by the Census Bureau and Bureau of Labor Statistics. For the Temporary Forwarding stratum, estimates of average median household income and average median home value from the survey were not statistically different from averages calculated using the

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sampling frame ( $p=0.12$  and  $0.98$ , respectively). Similarly, for the Snowbird stratum, screening survey estimates of average median household income and average median home value were not statistically different from averages calculated using the sampling frame ( $p=0.39$  and  $p=0.23$ , respectively). Note that in all cases, the screening sample is quite large.

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**OCA/USPS-T2-13.** Please turn to your response to OCA/T2-7(b), wherein you discuss the “awareness” adjustment. Please explain the justification for the size of the adjustment.

**RESPONSE:**

As noted in my response, only those individuals who indicated awareness of existing Postal Service forwarding services were treated as aware, and, therefore, included in the base for calculating potential demand. The percent of those aware was calculated from responses to question S5b and included only those who were aware that the Postal Service either forwarded mail on a temporary basis or bundled and reshipped it as a special service. The percent was 81%. To my knowledge, the survey-derived forwarding service awareness figures represented the best estimates of awareness to be used for this adjustment.