

UNITED STATES OF AMERICA  
Before The  
POSTAL RATE COMMISSION  
WASHINGTON, D.C. 20268-0001

Postal Rate and Fee Changes, 2006 )

Docket No. R2006-1

RESPONSES OF OFFICE OF THE CONSUMER ADVOCATE  
WITNESS MARK J. ROBERTS TO INTERROGATORIES OF  
UNITED STATES POSTAL SERVICE (USPS/OCA-T1-45-47)  
(October 20, 2006)

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The Office of Consumer Advocate hereby submits responses of Mark J. Roberts to interrogatories USPS/OCA-T1-45-47, dated October 6, 2006. Each interrogatory is stated verbatim and is followed by the response.

Respectfully submitted,

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RESPONSE OF OCA WITNESS MARK J. ROBERTS  
TO INTERROGATORIES USPS/OCA-T1-45-47

USPS/OCA-T1-45. Please refer to your response to USPS/OCA-T1-14(b). That question sought information on the composition of your FHP measures by cost pool— i.e., "manual letters, OCR, aggregate BCS, manual flats, FSM 1000, and AFSM 100"— not by presort level. Please also refer to your response to USPS/OCA-T1-2, where you agreed that the cost of sorting a piece of mail in the Postal Service's automation mailstream is lower than that of sorting an otherwise identical piece in the Postal Service's manual mailstream.

- (a) Please refer to your description of mapsfinal.dta in OCA-LR-2, file description.pdf. Please confirm that the "K56" variable identifies the cost pools enumerated in USPS/OCA-T1 -14(b). If you do not confirm, please explain.
- (b) Please confirm that the groups you list in response to USPS/OCA-T1-14(b) do not provide a one-to-one correspondence to the cost pools listed above and in USPS/OCA-T1-14(b). If you do not confirm, please provide a crosswalk of your categories to cost pool.
- (c) Please confirm that using the "K56" variable, it is possible to disaggregate your FHP measures to the cost pools listed above and in USPS/OCA-T1-14(b). If you do not confirm, please explain.
- (d) If your response to part (c) confirms that producing the disaggregated FHP by cost pool is possible, please provide the disaggregated FHP data by cost pool requested in USPS/OCA-T1-14(b).
- (e) Are the shares of outgoing letter FHP in categories 111-114 you present in response to USPS/OCA-T1-14(b) intended to fully partition outgoing letter FHP? If not, why not?
- (f) Please explain to which of group(s) 111-114 you assign outgoing manual letter FHP.

RESPONSE TO USPS/OCA-T1-45

(a) The K56 variable corresponds to the MODS operations groups listed in USPS-LR-L56, p. 23 and 24. It is constructed directly from two variables (operation and VVgroup) supplied in USPS-LR-L-56\Section4\Data\oper-grp-maps.xls.

(b) Confirmed. Both groups aggregate over the three-digit MODS operations but in different ways.

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(c) One problem is that the data in oper-grp-maps.xls does not assign the 22 three-digit MODS operations in the OCR group (K56 = 4) to incoming and outgoing operations. If you allow me to assign these categories then I can do the aggregation you request. I will assign MODS operations 046, 831, 832, 841, 842, 881, and 882 to outgoing OCR and the remaining 15 operations to incoming OCR.

(d) Incoming Letters

Year:qtr	FHPIN	Share Manual Labor	Share OCR	Share Aggregate BCS
1999:1	25263	.089	.069	.841
2000:1	26837	.077	.062	.861
2001:1	28225	.064	.058	.878
2002:1	27173	.053	.050	.896
2003:1	27316	.042	.044	.914
2004:1	27432	.036	.040	.924
2005:1	28153	.030	.037	.933

Outgoing Letters

Year:qtr	FHPOUT	Share Manual Labor	Share OCR	Share Aggregate BCS
1999:1	13327	.094	.483	.420
2000:1	13421	.092	.471	.437
2001:1	13203	.078	.420	.503
2002:1	12349	.068	.383	.549
2003:1	11919	.058	.386	.556
2004:1	11552	.054	.375	.571
2005:1	109057	.050	.346	.604

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Incoming Flats

Year:qtr	FHP <sub>IN</sub>	Share Manual Labor	Share FSM881	Share FSM1000	Share AFSM
1999:1	4662	.212	.628	.160	.000
2000:1	4855	.206	.622	.171	.000
2001:1	5085	.188	.480	.147	.186
2002:1	5071	.115	.130	.088	.667
2003:1	5376	.076	.021	.071	.832
2004:1	5400	.063	.008	.085	.843
2005:1	5461	.057	.000	.086	.857

Outgoing Flats

Year:qtr	FHPOUT	Share Manual Labor	Share FSM881	Share FSM1000	Share AFSM
1999:1	1132	.087	.700	.214	.000
2000:1	1151	.093	.698	.208	.000
2001:1	1131	.091	.467	.205	.238
2002:1	1023	.065	.104	.154	.677
2003:1	999	.055	.015	.107	.823
2004:1	938	.055	.006	.117	.822
2005:1	927	.059	.000	.105	.836

(e) Yes. The categories account for all outgoing letter FHP.

(f) MODS category 30 (Manual letters, outgoing primary) is assigned to presort category 111. MODS category 40 (Manual letters, outgoing secondary) is assigned to presort category 112. The link between each MODS category and each presort category is given in the data set OCA-LR-L-2\DATA\FHP\mapsfinal.dta.

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USPS/OCA-T1-46. Please refer to your response to USPS/OCA-T1-15.

- (a) Does the 0.079 R-squared from your OCA-T-1 "base model" suggest to you that your model specification may be failing to include major factor(s) that explain manual flats workhours? If not, why not?
- (b) Do the lower R-squared and/or higher standard errors of the output elasticities you confirm in response to USPS/OCA-T1-15(e)-(f) indicate that your flats model developments did not improve your results? If not, why not?
- (c) Please compare the R-squared of the manual flats "base model" with that of the manual flats models from your "USPS Model" implementation, reported in Table 1 of OCA-T-1. Please provide output log(s) to support your answer, or indicate where in OCA-LR-2 the results may be found.

RESPONSE TO USPS/OCA-T1-46

- (a) Using the  $R^2$  to draw inferences about model specification is inappropriate. A low  $R^2$  does not imply that the model is bad or that there are omitted variables. Nor does a high  $R^2$  imply that the model is correctly specified or that the results are not spurious. In his textbook, *A Course in Econometrics*, Arthur Goldberger states, "In fact the most important thing about  $R^2$  is that it is not important in the CR (classical regression) model. The CR model is concerned with parameters in a population, not with goodness of fit in the sample" (p. 177). The empirical model of mail processing that I have developed is focused on providing consistent estimates of the parameters of the labor demand function. It is also the case that one has to be careful about the definition of the  $R^2$  in panel data models. The value reported for my regressions is the square of the simple correlation between the dependent variable and the fitted value of the regression, where the latter is constructed without using the plant fixed effect. This is what the STATA computer software reports as the "overall  $R^2$ " for the regression. If instead we include the plant fixed effect in the fitted value of the regression the squared correlation between actual and fitted

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values would increase to .846 in this regression. In either case, drawing conclusions about model specification on the basis of summary statistics like this is not justified.

(b) This is basically the same model I estimated in my early papers. What is different is the sample of data used. In the results from OCA-T-1 that are referenced in USPS/OCA-T1-15, the estimation is limited to plants that have the AFSM operation in place. The results that are referenced from Roberts (2006) included observations from 1999-2004 and included plants both with and without the AFSM technology. The reduction in sample size alone will result in higher standard errors for the coefficients in OCA-T-1. The conclusions that I draw from these results are discussed in OCA-T-1, p.49, line 4 to p.50, line 16.

(c) The overall  $R^2$  from the base model is .079 as discussed in the answer to part (a). The  $R^2$  from the Table 1 models are .012 for the plants with AFSM and .345 for plants without AFSM. These results are reported OCA-LR-2\ESTIMATION in the log files threestep.log at line 781 and 3stepnoafsm.log at line 223. Neither of these numbers include the plant fixed effects in the calculation of the fitted value as explained in my answer to part (a). I cannot see any reason to compare these numbers and cannot offer any conclusions from them.

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USPS/OCA-T1-47. Please refer to your response to USPS/OCA-T1-15.

- (a) Does the 0.333 R-squared from your OCA-T-1 "base model" suggest to you that your model specification may be failing to include major factor(s) that explain FSM 1000 workhours? If not, why not?
- (b) Do the lower R-squared and/or higher standard errors of the output elasticities you confirm in response to USPS/OCA-T1-15(e)-(f) indicate that your flats model developments did not improve your results? If not, why not?
- (c) Please compare the R-squared of the FSM 1000 "base model" with that of the FSM 1000 models from your "USPS Model" implementation, reported in Table 1 of OCA-T-1 . Please provide output log(s) to support your answer, or indicate where in OCA-LR-2 the results may be found.

RESPONSE TO USPS/OCA-T1-47

I assume this question is referring to my answer to USPS/OCA-T1-16, not T1-15.

- (a) Please see my answer to USPS/OCA-T1-46. In this case, the  $R^2$  for the regression, if the plant fixed effect were included in the fitted value of the demand equation, is .669.
- (b) Please see my answer to USPS/OCA-T1-46. Since this and the previous question are trying to base inferences on  $R^2$  comparisons in the manual and FSM1000 operations, for completeness it is appropriate to recognize that the AFSM operation is also part of the same model. In the OCA-T-1 base model (Table 7), the corresponding  $R^2$  for the AFSM demand equation is .856. The corresponding figure from Roberts (2006) Table 5, is .884.
- (c) The overall  $R^2$  from the base model is .333. The  $R^2$  from the Table 1 models are .343 for the plants with AFSM and .465 for plants without AFSM. These results are reported in OCA-LR-2\ESTIMATION in the log files threestep.log at line 902 and 3stepnoafsm.log at line 475. Neither of these numbers include the plant fixed effects in the calculation of the fitted value as explained in my answer

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to part (a). I cannot see any reason to compare these numbers and cannot offer any conclusions from them.