APPENDIX 5A

Tests of Misspecification of the Household Travel Time Model

Tests of misspecification were performed on all linear regression models. A Bera-Jarque test of normality using sample skewness and kurtosis indicates that none of the models have a normal distribution (see Table 5.1). Consequently, all hypothesis tests are asymptotic. Interpreting the results asymptotically is justified given the large number of observations in each sample.[1]

Table 5A.1 ***Tests of Normality***

Model	***Skewness***	***Kurtosis***	***Chi-statistic***	***P-value***
City only (with neighborhood characteristics)	-0.702	1.782	316.331	.000
City only (without neighborhood characteristics)	-0.562	1.291	123.886	.000
Suburban (with neighborhood characteristics)	-0.812	2.163	269.142	.000
Suburban (without neighborhood characteristics)	-0.812	2.183	266.541	.000
Outlying Areas (with neighborhood characteristics)	-0.839	1.908	159.799	.000

[1] The metropolitan area models has 1936 observations, the least of any of the models. The suburban and outlying areas models have 2198 and 957 observations, respectively.

Outlying Areas (without neighborhood characteristics)	-0.832	1.801	167.646	.000

Second order reset tests of linearity, homoskedasticity and autocorrelation were conducted on each model as well as Chow tests of structural change in the conditional mean and variance (see, McGuirk, Driscoll and Alwang, 1993). The results of these tests appear in Table 5A.2. Tests of linearity and autocorrelation with respect to distance from the central business district both indicate correct specification of the model. Tests of homoskedasticity indicate that the conditional variance is heteroskedastic in all models. Asymptotically consistent estimates of the variances of the parameter estimates were generated and used for all hypothesis tests. Tests of structural change of the mean and variance across jurisdictions and by access to the central business district support the assumptions of parameter and variance stability.

In conclusion, misspecification tests support the models as specified. All hypothesis testing, however, must be interpreted asymptotically due to the rejection of normality and the use of asympototic consistent estimates of the parameter variances

Table 5A.2 ***Tests of Misspecification***

Model	***Models with neighborhood characteristics***						***Models without neighborhood characterisitics***					
	City Only		***Suburban***		***Outlying Areas***		***City Only***		***Suburban***		***Outlying Areas***	
Test Type	***F-statistic***	***P-value***	***F-statistic***	***P-value***	***F-statistic***	***P-value***	***F-statistic***	***P-value***	***F-statistic***	***P-value***	***F-statistic***	***P-value***
Linearity	4.416	0.203	4.416	0.203	5.997	.154	4.495	0.199	4.486	0.200	6.255	.148
Homoskedasticity	2.043	0.007	3.815	0.000	2.901	.000	2.114	0.019	5.182	0.000	4.116	.000
Autocorrelation	0.975	0.570	1.087	0.403	0.895	.697	0.691	0.915	1.352	0.192	.574	.982
Tests of Structural Change												
Access to CBD for Chow Test	.4		.75		1.25		.4		.75		1.25	
Test of Mean												
Maryland			1.333	0.171	1.080	.423			1.436	0.153	1.376	.192
Access to CBD	1.015	0.508	1.151	0.325	1.104	.386	1.052	0.475	1.181	0.332	1.258	.272
Test of Variance												
Maryland			0.928	0.884	1.079	.211			0.921	0.894	1.081	.203
Access to CBD	1.035	0.380	1.092	0.093	.740	.999	1.025	0.424	1.095	0.084	0.740	.999