



WILLIAMS MULLEN

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December 7, 2007

**BY ELECTRONIC TRANSMISSION**

Ms. Marlene H. Dortch, Secretary  
Federal Communications Commission  
Office of the Secretary  
445 12<sup>th</sup> Street, S.W.  
Washington, DC 20554

Re: Notice of Oral Ex Parte Presentations in Connection With the  
Consolidated Application for Authority to Transfer Control in Connection  
With the Sirius/XM Merger, as Amended  
(MB Docket No. 07-57)

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Dear Ms. Dortch:

On December 7, 2007, the undersigned and Benjamin D. Arden of Williams Mullen, and Messrs. J. Gregory Sidak, Hal Singer and Allan Ingraham of Criterion Economics, L.L.C., representing the Consumer Coalition for Competition in Satellite Radio ("C3SR"), met with the following FCC personnel: Mr. Gregory Crawford, Chief Economist, Office of Strategic Policy and Planning Analysis; C. Anthony Bush, Joel Rabinovitz and Jim Bird of the Office of General Counsel; Tracy Waldon, Dan Bring, Jamila Bess Johnson, George Williams, Judith Herman, and Marcia Glauber of the Media Bureau; and Marilyn Simon and Jerry Duvall of the International Bureau.

C3SR presented its concerns with the insufficient economic analysis supplied by XM Satellite Radio Holdings, Inc. ("XM") and Sirius Satellite Radio, Inc. ("Sirius") in support of their proposed merger. References were made to the attached power point presentation, "Preliminary Review of CRA Regression Analysis," produced by Messrs. Sidak, Singer and Ingraham, previously filed in the above-referenced proceeding.

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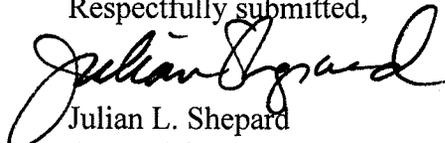
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December 7, 2007

Page 2

Pursuant to Section 1.1206 of the Commission's Rules and DA-07-1435, this letter is submitted via ECFS for inclusion in the public record of these proceedings, with an email copy to the above-mentioned meeting participants.

Respectfully submitted,



Julian L. Shepard  
Counsel for C3SR

Attachment

cc: (via e-mail)

Mr. Gregory Crawford  
C. Anthony Bush  
Joel Rabinovitz  
Jim Bird  
Tracy Waldon  
Dan Bring  
Jamila Bess Johnson  
George Williams  
Judith Herman  
Marcia Glauberman  
Marilyn Simon  
Jerry Duvall

# Preliminary Review of CRA Regression Analysis

J. Gregory Sidak, Georgetown University Law Center  
Hal J. Singer, Criterion Economics  
Allan Ingraham, Criterion Economics

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# Overview

- Limits of Analysis
- Flaws of CRA Approach
- CRA Analysis Revised
- Additional Regression Analysis

# Limits of Analysis: Elasticity

- CRA regression analysis does not provide evidence on **cross-price** elasticity of demand as required by the *Merger Guidelines*
  - Cross-price elasticity can only be estimated based on changes in the relative prices of two goods
  - Without a cross-price elasticity estimate, there is no evidence of demand-side substitution between SDARS and terrestrial radio
  - Thus, CRA has provided no evidence that the relevant product market includes terrestrial radio
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# Limits of Analysis: Cross-Sectional Data Set

- CRA's data is entirely cross sectional
  - CRA's analysis cannot explain whether a specific group of individuals substitute between satellite and terrestrial radio
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# The Flaws in CRA's Regression Analysis (1 of 2)

- CRA's regression is misspecified
  - LHS variable is satellite penetration while the RHS variable is terrestrial *signals*
  - LHS measures current satellite *demand*, but RHS measures maximum terrestrial *supply*
- Given the misspecification, how can one interpret the results?
  - Terrestrial supply is *highly* correlated with population
  - CRA's analysis amounts to a regression of 1/population on terrestrial supply

# The Flaws in CRA's Regression Analysis (2 of 2)

- CRA's analysis is performed at an inappropriately granular level
  - Presumes that the geographic market is appropriately measured at the Zip Code level as opposed to the officially recognized Arbitron Market Definitions
  - But many venture outside of their Zip Codes while listening to radio
  - Nonsensical results appear in the data (e.g., SDARS penetration of 2500 percent, which CRA then sets to 100 percent)

# An Appropriate Specification

- $SDARS\ usage = TR\ usage + \text{other factors}$
- Endogeneity controls would also be necessary
- Panel data would explain substitution over time for a given population
- CRA's dataset cannot meet this specification
- Even this specification does not explain cross-price elasticity

# Further Exploration of CRA's Regressions

- Assuming CRA's analysis is correct
    - The relationship between SDARS usage and TR signals should be negative and significant after one controls for population
  - We aggregate to Arbitron and ZCTA3 level to correct for the outlier problem in CRA's data (many observations with penetration of 0 or 1)
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# Arbitron Results 1

## Dep Var = SDARS Subs

Number of Obs	251
F(9, 861)	316.95
Prob > F	> 0.001
R-Squared	0.9221
Adj. R-Squared	0.9192
Root MSE	13166

	Coefficient	Std. Err.	t	P> t	[95% Conf. Interval]	
TR Signals	7.28E+01	163.3574	0.45	0.656	-248.9795	394.6015
Median Household Income	-794.5309	830.7849	-0.96	0.34	-2431.058	841.9959
Median Household Income^2	1.50E+01	9.060432	1.66E+00	0.099	-2.823589	32.87191
Car %	-146994	128495.5	-1.14	0.254	-400111.7	106123.7
Urban %	-64449.21	65042.47	-0.99	0.323	-192573.5	63675.1
Car % * Urban %	184695.1	160293.3	1.15	0.25	-131059.8	500449.9
Female %	196251.8	94392.3	2.08	0.039	10312.54	382191.1
Population	0.0340609	0.001359	25.07	0	0.0313844	0.036737
Population Density	-2.05E+07	1.34E+07	-1.53	0.127	-4.69E+07	5862341
Constant	-36090.28	65762.85	-0.55	0.584	-165633.7	93453.09

# Arbitron Results 2

## Dep Var = SDARS Subs

Number of Obs	251
F(9, 861)	242.12
Prob > F	> 0.001
R-Squared	0.93
Adj. R-Squared	0.9261
Root MSE	12587

	Coefficient	Std. Err.	t	P> t	[95% Conf. Interval]	
TR Signals	-7.28E+03	11410.83	-0.64	0.524	-29757.93	15201.28
TR Signals^2	529.5227	868.0347	0.61	0.542	-1180.526	2239.572
TR Signals^3	-1.90E+01	30.87066	-6.20E-01	0.538	-79.83276	41.79912
TR Signals^4	0.3480322	0.515218	0.68	0.5	-0.666959	1.363023
TR Signals^5	-0.002568	0.003251	-0.79	0.43	-0.008972	0.003837
Median Household Income	-1061.894	815.8122	-1.3	0.194	-2669.063	545.276
Median Household Income^2	16.68573	8.998922	1.85	0.065	-1.042359	34.41383
Car %	-91214.07	124515.5	-0.73	0.465	-336512.7	154084.5
Urban %	-4.65E+04	6.29E+04	-0.74	0.46	-1.70E+05	77389.76
Car % * Urban %	129910.9	154570.8	0.84	0.401	-174597.3	434419.2
Female %	121916	94878.72	1.28	0.2	-64997.39	308829.3
Population	0.0364111	0.001414	25.75	0	0.0336256	0.039197
Population Density	-1.62E+07	1.30E+07	-1.25	0.214	-4.18E+07	9394692
Constant	27538.73	85436.07	0.32	0.747	-140772.4	195849.8

# ZCTA3 Results 1

## Dep Var = SDARS Subs

Number of Obs	871
F(9, 861)	89.41
Prob > F	> 0.001
R-Squared	0.7499
Root MSE	6982.3

	Coefficient	Std. Err.	t	P> t	[95% Conf. Interval]	
TR Signals	533.5717	429.3418	1.24	0.214	1376.251	309.1074
Median Household Income	-161.3706	157.0604	-1.03	0.305	-469.6366	146.8955
Median Household Income^2	2.883565	1.539447	1.87	0.061	-.1379442	5.905073
Car %	-16352.97	11802.13	-1.39	0.166	-39517.28	6811.342
Urban %	-21411.16	8182.952	-2.62	0.009	-37472.03	-5350.292
Car % * Urban %	60063.95	20455.36	2.94	0.003	19915.74	100212.2
Female %	-86932.95	21054.81	-4.13	0.000	-128257.7	-45608.19
Population	.0341661	.0025422	13.44	0.000	.0291765	.0391557
Population Density	-248387.4	511117.1	-0.49	0.627	-1251569	754793.9
Constant	54669.89	11895.61	4.60	0.000	31322.1	78017.69

# ZCTA3 Results 2

## Dep Var = SDARS Subs

Number of Obs	871
F(9, 861)	78.50
Prob > F	> 0.001
R-Squared	0.7564
Root MSE	6906.9

	Coefficient	Std. Err.	t	P>  t	[95% Conf. Interval]	
TR Signals	-1582.79	7430.747	-0.21	0.831	-16167.4	13001.81
TR Signals^2	639.8427	6770.094	0.09	0.925	-12648.1	13927.75
TR Signals^3	372.1097	2639.101	0.14	0.888	-4807.75	5551.969
TR Signals^4	-154.925	449.9012	-0.34	0.731	-1037.96	728.1126
TR Signals^5	13.03431	27.57745	0.47	0.637	-41.0929	67.16156
Median Household Income	-152.638	150.0624	-1.02	0.309	-447.171	141.895
Median Household Income^2	2.856366	1.474546	1.94	0.053	-0.03778	5.75051
Car %	-17101.4	12293.39	-1.39	0.165	-41230.1	7027.261
Urban %	-22615.1	8196.405	-2.76	0.006	-38702.4	-6527.68
Car % * Urban %	55628.43	20227.24	2.75	0.006	15927.69	95329.16
Female %	-93750.3	20042.39	-4.68	0	-133088	-54412.3
Population	0.033636	0.002528	13.3	0	0.028674	0.038598
Population Density	-174794	476197.1	-0.37	0.714	-1109444	759854.8
Constant	58925.07	11761.34	5.01	0	35840.66	82009.48

# Preliminary Conclusion

- CRA's regression is measuring the strong correlation between population and the number of terrestrial signals
  - CRA's regression cannot explain substitution between terrestrial and satellite radio
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