DID CABLE RE-REGULATION WORK?

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Once, there was a girl that enjoyed collecting data. She collected not one, not two, not three, but four sets of data for her econometrics project! The accounting concept of "sunk costs" finally hit home. Sunk costs have already been incurred- these costs cannot be changed regardless of the action taken so they are irrelevant to the decision at hand. The first data set was too small. The second data set looked promising until she realized that the analysis would have been a nightmare. The third data set was completely boring- it would never do. She tossed them. Finally, she discussed the project with some friends. One mentioned that she had collected data about the cable industry the previous year and offered to give the girl a small subset of her data. As they discussed deregulation and re-regulation, an idea began to form…

EXECUTIVE SUMMARY

The "Cable Television Consumer Protection And Competition Act of 1992" repealed the deregulation of cable television in 1984. The purpose of the Cable Act was to make cable television rates in communities where there was a cable monopoly comparable to rates in communities where there was cable competition. The purpose of this paper is to determine whether or not re-regulation actually worked. Did cable prices really decrease after re-regulation? Did the number of subscribers increase?

The data includes 780 observations for the two years before and after re-regulation in 1992. Each observation for a specific cable system includes the monthly rate for basic tier service (adjusted for inflation), the number of channels in the basic tier service, and the number of households with the ability to receive cable service. These variables are included in the regressions along with a dummy variable for the regulatory period.

The first regression lets us compare the basic rates of cable systems before and after re-regulation in 1992 (controlling for the number of channels). We test for a significant non-zero coefficient on REG, which is the difference in adjusted rates after regulation compared to the adjusted rates before regulation. The coefficient is not significant, which indicates that cable rates did not change after regulation.

The second regression lets us compare the number of cable television subscribers before and after regulation. Homes passed is included as a control variable because it is possible that more homes were able to receive cable after regulation. The coefficient on REG is the difference in the number of subscribers before and after regulation. After controlling for the number homes that are able to receive cable, we conclude that the number of subscribers did not change after re-regulation.

BACKGROUND

Cable television systems were developed in the late 1940s and early 1950s. Their purpose was to bring television broadcast signals to small or isolated communities where signals could not be picked up directly off the air. As the number of television stations grew, other services were developed to attract more customers. Many cities and a few states began regulating the rates charged to cable subscribers. There was fierce competition between cable companies in negotiating franchises with communities.

The Cable Communications Policy Act of 1984 gave the Federal Communications Commission (FCC) jurisdiction over cable television. It created a standard procedure for renewing franchises that gave operators relatively certain renewal. It also deregulated rates so that operators could charge what they wanted for different service tiers, as long as there was "effective competition" for the service. After deregulation, cable television rates rose substantially (almost 60% between 1986 to 1990). Millions of subscribers began complaining to their US Representatives.

In response to consumer outrage, the federal government re-imposed federal rate regulation on cable companies. The "Cable Television Consumer Protection And Competition Act of 1992" repealed the deregulation of cable television in 1984. The Act sought to re-regulate cable television rates on the basic tier (mostly local channels) and on the expanded basic tier (which includes stations such as CNN, MSNBC, etc.) to protect consumers.[1]

The purpose of the Cable Act was to make cable television rates in communities where there was a cable monopoly comparable to rates in those few communities where there was cable competition. The purpose of this paper is to determine whether or not re-regulation actually worked. Did cable prices really decrease after re-regulation? Did the number of subscribers increase?

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[1] Utility Consumer's Action Network. Cable History. Retrieved May 8, 2002 from <http://www.ucan.org/law_policy/catvhistory.html>.

DATA

The data was provided by Stacie Kelley who collected it from the FCC's "Annual Report on Cable Industry Prices." There are 780 observations for the two years before and after re-regulation in 1992. There are about 200 cable systems represented with rates for all four years. The systems were selected on a stratified random sample basis to mirror the population. It includes systems with 1- 9,999 customers, systems with 10,000 - 49,999 customers, and systems with more than 50,000 customers. The companies have more than 400,000 customers total (when you combine the numbers from each system) because those with less than 400,000 customers are not subject to the same regulations. Each observation for a specific cable system includes:

ADJRATE: Operator's monthly rates for basic tier service adjusted for inflation[2]
REG: Dummy variable where 1= regulated and 0 = not regulated
CCOUNT (CHANNEL COUNT): Number of channels in basic tier service
HP (HOMES PASSED): Number of households with the ability to receive a cable service whether or not they actually subscribe

HYPOTHESES

My first hypothesis is that the price of basic rates changed after re-regulation. The following equation lets us compare the basic rates of cable systems before and after re-regulation in 1992. The coefficient on REG is the difference in adjusted rates after regulation compared to the adjusted rates before regulation. CCOUNT is included as a control variable because firms could have increased or decreased the channel count to justify a price increase or decrease. After the industry was regulated, many operators took channels out of the regulated tier and created a new tier at extra cost. An interaction term between CCOUNT and REG is included to determine whether CCOUNT had a different effect on the adjusted rate before and after regulation.

$$ADJRATE = ß_0 + ß_1 REG + ß_2 CCOUNT + ß_3 (CCOUNT*REG) + e$$

We are testing for a significant non-zero coefficient on $ß_1$. A two-tailed test will detect a change in either direction. Though re-regulation was supposed to decrease prices, they could have actually increased.

My second hypothesis is that the number of subscribers changed after re-regulation. The following equation lets us compare the number of subscribers before and after regulation. The coefficient on REG is the difference in the number of subscribers before and after regulation. Homes passed is included as a control variable because it's possible that more homes were able to receive cable after regulation.

$$SUBSCRIBERS = a_0 + a_1 REG + a_2 HP + a_3 (HP*REG) + e$$

Once again, we are testing for a significant non-zero coefficient on a_1.

RESULTS

Results from the first regression indicate that cable rates did not change after re-regulation. The coefficient on REG is not significant (the t-statistic is –0.026 and the p-value is 0.979). The coefficient on CCOUNT is highly significant (the t-statistic is 5.887 compared to critical value of 2.576 with 776 degrees of freedom). The results indicate that the adjusted rate for cable television service was about $15.54 plus $0.14 per channel.

The coefficient on REG*CCOUNT is not significant (the t-statistic is -0.308372 and p-value is 0.7579) so I dropped from the model and ran the regression again. Now, the coefficient on REG is more significant (the t-statistic is –1.308 and p-value is 0.191), but it is still not significant at a conventional level. The intercept and coefficient on CCOUNT change slightly. The results indicate that the adjusted rate for cable television service was about $15.70 plus $0.14 per channel. Once again, the coefficient on CCOUNT is highly significant (the t-statistic is 8.167 and the p-value is 0.000). The low r-squared indicates that REG and CCOUNT explain about 8% of the variation in adjusted rates.

Policy makers hoped that cable television rates would decrease after the Cable Act passed in 1992. A

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[2] Basic tier service is the lowest priced and most popular service.

histogram reveals that the mean adjusted rate before re-regulation was $19.92 and the mean adjusted rate after re-regulation was $19.72. However, the regression indicates that rates really did not change after re-regulation. I thought that cable operators could have reduced the number of channels available when they lowered their rates. However, a comparison of the mean channel count before and after re-regulation shows that the number of channels actually increased after re-regulation. On average, cable operators offered 31 channels before re-regulation and 32 after re-regulation.

The mean number of subscribers before re-regulation was 17,661 and the mean number of subscribers after re-regulation was 18,015. However, more homes were able to receive cable after re-regulation. The mean number of homes passed for cable was 30,620 before regulation and 32,083 after regulation. Results from the second regression indicate that after controlling for homes passed, the number of subscribers did not change after re-regulation. The coefficient on REG is not significant (the t-statistic is 1.272 and the p-value is 0.204). However, the coefficient on HP is highly significant (the t-statistic is 60.259 compared to critical value of 2.576 with 776 degrees of freedom). The coefficient on HP is 0.459, which indicates that for every 100 additional homes that are passed by cable before regulation, 46 become subscribers. The coefficient on HP*REG is also highly significant (the t-statistic is -3.693 and the p-value is 0.0002). For every 100 additional homes that are passed by cable during regulation, 42 become subscribers. The intercept c is not interesting because it tells us how many subscribers there would be if zero homes were passed by cable. The r-squared in this regression is 0.901.

Re-regulation could have induced companies to lay more cable, which would explain the increase in homes passed. Therefore, I ran the second regression again without controlling for homes passed. The intercept c is the mean number of subscribers before re-regulation (17,661) and the coefficient on REG is the change in the mean number of subscribers after re-regulation (354). The coefficient on REG is not significant (the t-statistic is 0.168 and the p-value is 0.866) which indicates that the mean number of subscribers did not change after re-regulation.

APPENDIX

Dependent Variable: ADJRATE
Method: Least Squares
Date: 05/11/02 Time: 16:12
Sample(adjusted): 1 780
Included observations: 780 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15.53553	0.768468	20.21622	0.0000
REG	-0.028220	1.083906	-0.026035	0.9792
CCOUNT	0.141468	0.024029	5.887467	0.0000
REG*CCOUNT	-0.010294	0.033380	-0.308372	0.7579

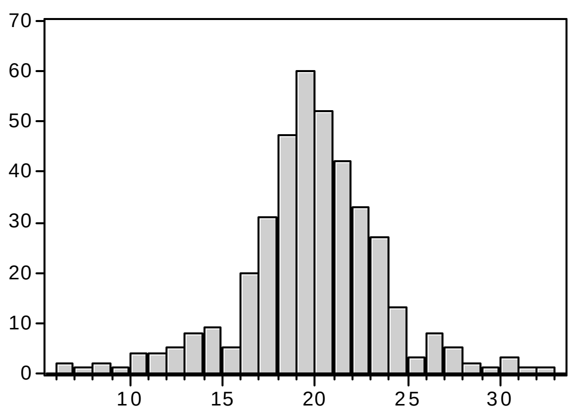
R-squared	0.079898	Mean dependent var	19.80903
Adjusted R-squared	0.076341	S.D. dependent var	3.906467
S.E. of regression	3.754396	Akaike info criterion	5.488847
Sum squared resid	10938.10	Schwarz criterion	5.512741
Log likelihood	-2136.650	F-statistic	22.46154
Durbin-Watson stat	1.831235	Prob(F-statistic)	0.000000

Dependent Variable: ADJRATE
Method: Least Squares
Date: 05/11/02 Time: 15:54
Sample(adjusted): 1 780
Included observations: 780 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15.70081	0.550374	28.52755	0.0000
REG	-0.351983	0.269184	-1.307591	0.1914
CCOUNT	0.136134	0.016669	8.166717	0.0000

R-squared	0.079785	Mean dependent var	19.80903
Adjusted R-squared	0.077416	S.D. dependent var	3.906467
S.E. of regression	3.752209	Akaike info criterion	5.486405
Sum squared resid	10939.44	Schwarz criterion	5.504326
Log likelihood	-2136.698	F-statistic	33.68399
Durbin-Watson stat	1.830089	Prob(F-statistic)	0.000000

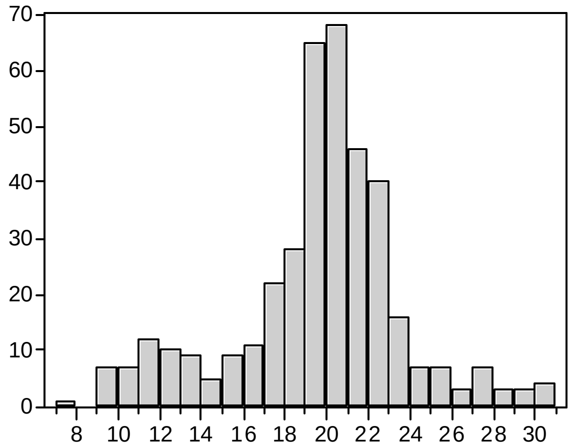
ADJRATE (NO REGULATION)



Series: ADJRATE
Sample 1 390
Observations 390

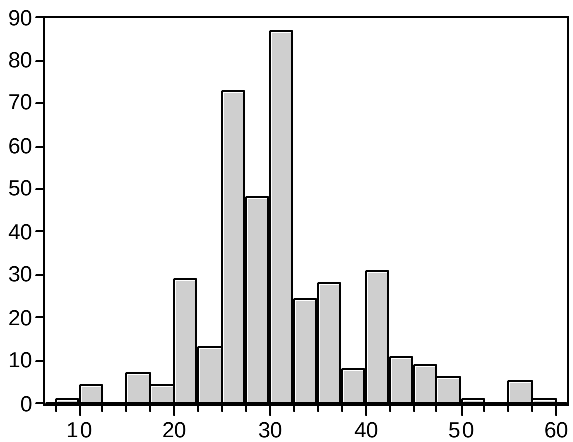
Mean	19.91922
Median	19.95000
Maximum	32.47912
Minimum	6.500000
Std. Dev.	3.774696
Skewness	-0.275734
Kurtosis	4.765122
Jarque-Bera	55.57128
Probability	0.000000

ADJRATE (REGULATION)



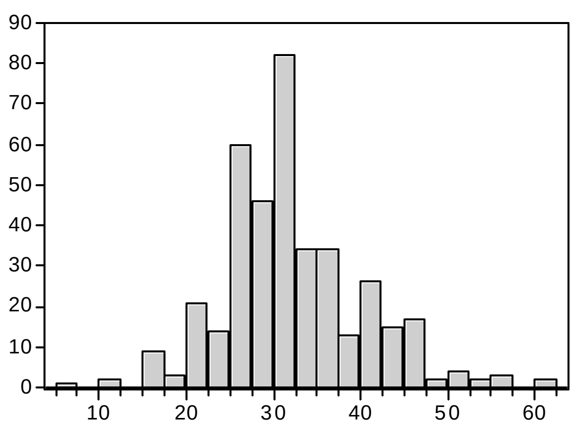
Series: ADJRATE	
Sample 391 780	
Observations 390	
Mean	19.69884
Median	20.20894
Maximum	30.92156
Minimum	7.790273
Std. Dev.	4.035781
Skewness	-0.385592
Kurtosis	3.824366
Jarque-Bera	20.70747
Probability	0.000032

CCOUNT (NO REGULATION)



Series: CCOUNT	
Sample 1 390	
Observations 390	
Mean	30.98718
Median	30.00000
Maximum	58.00000
Minimum	9.000000
Std. Dev.	7.922007
Skewness	0.589144
Kurtosis	3.931686
Jarque-Bera	36.66653
Probability	0.000000

CCOUNT (REGULATION)



Series: CCOUNT	
Sample 391 780	
Observations 390	
Mean	31.95385
Median	31.00000
Maximum	62.00000
Minimum	5.000000
Std. Dev.	8.215474
Skewness	0.540276
Kurtosis	3.979234
Jarque-Bera	34.55552
Probability	0.000000

Dependent Variable: SUB
Method: Least Squares
Date: 05/11/02 Time: 16:02
Sample(adjusted): 1 780
Included observations: 777
Excluded observations: 3 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3595.468	523.3527	6.870067	0.0000
REG	940.5122	739.6255	1.271606	0.2039
HP	0.459584	0.007627	60.25894	0.0000
HP*REG	-0.038707	0.010482	-3.692643	0.0002

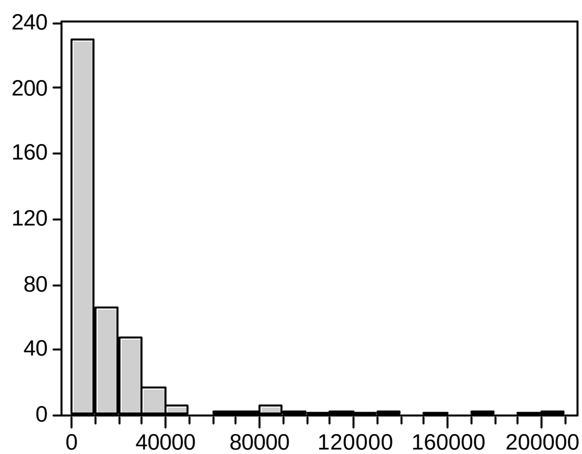
R-squared	0.901281	Mean dependent var	17853.25
Adjusted R-squared	0.900898	S.D. dependent var	29343.55
S.E. of regression	9237.485	Akaike info criterion	21.10506
Sum squared resid	6.60E+10	Schwarz criterion	21.12903
Log likelihood	-8195.316	F-statistic	2352.441
Durbin-Watson stat	1.951871	Prob(F-statistic)	0.000000

Dependent Variable: SUB
Method: Least Squares
Date: 06/03/02 Time: 11:29
Sample(adjusted): 1 780
Included observations: 780 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	17661.31	1484.289	11.89883	0.0000
REG	353.6590	2099.102	0.168481	0.8662

R-squared	0.000036	Mean dependent var	17838.13
Adjusted R-squared	-0.001249	S.D. dependent var	29294.07
S.E. of regression	29312.36	Akaike info criterion	23.41197
Sum squared resid	6.68E+11	Schwarz criterion	23.42391
Log likelihood	-9128.667	F-statistic	0.028386
Durbin-Watson stat	0.323123	Prob(F-statistic)	0.866249

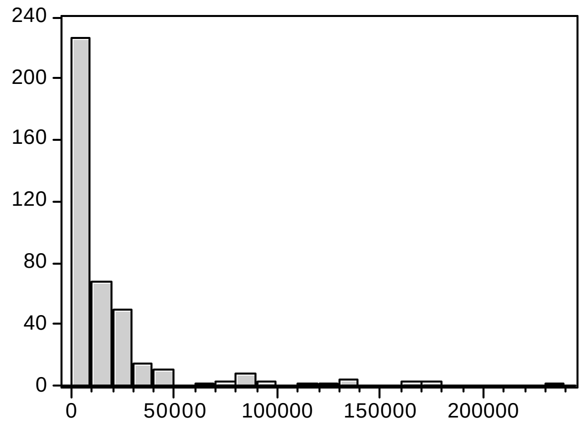
SUB (NO REGULATION)



Series: SUB
Sample 1 390
Observations 390

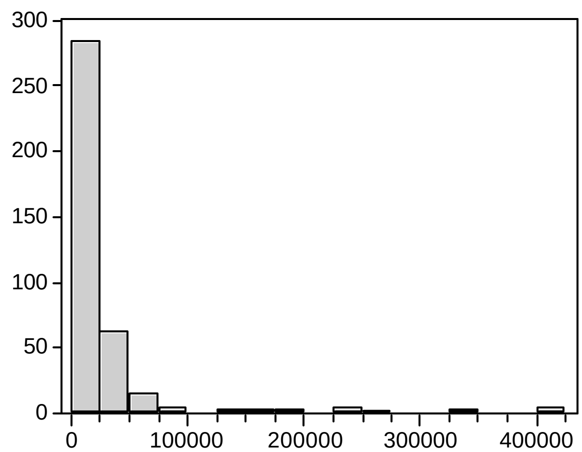
Mean	17661.31
Median	8246.000
Maximum	204819.0
Minimum	110.0000
Std. Dev.	29550.08
Skewness	3.997548
Kurtosis	21.10549
Jarque-Bera	6365.618
Probability	0.000000

SUB (REGULATION)



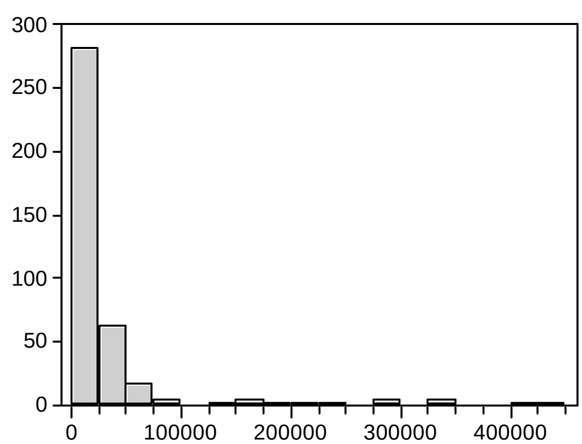
Series: SUB	
Sample 391 780	
Observations 390	
Mean	18014.96
Median	8824.500
Maximum	232674.0
Minimum	83.00000
Std. Dev.	29072.69
Skewness	3.903527
Kurtosis	20.77146
Jarque-Bera	6122.592
Probability	0.000000

HP (NO REGULATION)



Series: HP	
Sample 1 390	
Observations 389	
Mean	30620.01
Median	11930.00
Maximum	413832.0
Minimum	200.0000
Std. Dev.	61488.53
Skewness	4.279235
Kurtosis	22.75446
Jarque-Bera	7512.339
Probability	0.000000

HP (REGULATION)



Series: HP	
Sample 391 780	
Observations 388	
Mean	32083.10
Median	12406.00
Maximum	438651.0
Minimum	200.0000
Std. Dev.	65302.20
Skewness	4.246609
Kurtosis	22.08400
Jarque-Bera	7054.065
Probability	0.000000