Evidence on Vertical Mergers

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Evidence on Vertical Mergers

So far we have seen different reasons for vertical mergers:

- Coordination of Prices (Double Monopoly).
- Coordination of Advertising (Retail Price Maintenance).
- Excluding other input suppliers, possibly more efficient. (Naked Exclusion and Chicago Irrelevance Result).

Now we need some evidence.

- Historically, mergers with as little as 3% of market share were stopped. (Brown Shoe Decision)

Two Empirical Papers for Today

- Hortacsu and Syverson “Cementing Relations” Journal of Political Economy (2008).
  Pro-productivity motives for vertical integration, and really clean industry.
- Tasneem Chipty “Vertical Integration, Market Foreclosure and Consumer Welfare in the Cable Television Industry”, American Economic Review (2001).
  More negative viewpoint here.

Supply Assurance and Bargaining over joint investments

- Firms may integrate to assure coordination of inputs.
- It is often difficult to contract around unforeseen events (Hurricane Sandy say).
- So it might be easier to just have joint ownership.
- Notice that the first large scale companies were in Railroads, where coordination was essential.
- This opens up the problem of the boundaries of the firms: transactions mediated by markets versus firms (Williamson Nobel Prize).

Hortacsu-Syverson on Cement

- Cement and Ready-Mix Concrete Plant Mergers.
- About 200 Cement plants, and 5,000 ready-mix concrete plants in the United States.
- Data from the Census of Manufacturing 1963-1997 (for this paper).
- Observe mergers via changing ownership codes.
- Sufficient data on plant operations to get at productivity, and marginal costs.
- Tons of mergers in this industry.
- In most countries, cement and concrete are vertically integrated. Not in the U.S. for regulatory reasons.

Hortacsu-Syverson: Prices

Do vertical merger raise prices or efficiency?

Initial Regressions:

$$p_{it} = \mu_i + \alpha \text{share integrated}_{it}$$

And

$$q_{it} = \mu_i + \alpha \text{number integrated firms}_{it}$$

where the market is defined by CEA (Component Economic Area: Clusters of Counties where people commute).

Hortacsu-Syverson: Initial Evidence

TABLE 1
MARKET-LEVEL RELATIONSHIPS BETWEEN AVERAGE PRICES, TOTAL QUANTITIES, AND THE EXTENT OF INTEGRATION

	QUANTITY-WEIGHTED AVERAGE PRICE				TOTAL QUANTITY			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
R^2	.065	.070	.430	.429	.072	.185	.890	.891
Market share of vertically integrated firms	−.143* (.029)		−.083* (.041)		1.532* (.290)		.331* (.154)	
Number of vertically integrated firms		−.037* (.006)		−.014 (.011)		.637* (.043)		.153* (.034)
Market fixed effects?	No	No	Yes	Yes	No	No	Yes	Yes

NOTE.—The table shows the coefficients obtained by regressing quantity-weighted average concrete prices and total concrete quantities sold in a market on either the market share or the number of vertically integrated firms operating in the market. The sample consists of 1,873 market-year observations. Standard errors are clustered by market.

* Significant at the 5 percent level.

Hortacsu-Syverson: Variation in Mergers

TABLE 2
EVOLUTION OF VERTICAL INTEGRATION IN THE CEMENT AND READY-MIXED CONCRETE INDUSTRIES

	1963	1967	1972	1977	1982	1987	1992	1997
Cement plants that are vertically integrated (%)	21.9	47.4	41.9	34.8	32.5	35.2	49.5	30.5
Cement sales from vertically integrated producers (%)	25.2	51.2	48.4	41.0	49.5	51.3	75.1	55.4
Ready-mixed plants that are vertically integrated (%)	1.8	3.2	3.8	3.1	3.0	5.5	11.1	10.6
Ready-mixed sales from vertically integrated producers (%)	6.1	8.9	10.0	8.7	8.5	11.3	14.4	14.2
Ready-mixed plants in multiunit firms (%)	24.8	26.4	32.2	34.3	35.4	41.7	49.6	55.6
Ready-mixed sales from plants in multiunit firms (%)	40.1	46.3	52.4	54.0	50.9	57.5	61.3	65.0

NOTE.—The table shows the fraction of plants (or sales) accounted for by firms of various organizational types in the cement and ready-mixed concrete industries.

Hortacsu-Syverson: Prices

TABLE 4
VERTICAL INTEGRATION AND READY-MIXED CONCRETE PRICES: PLANT-LEVEL RESULTS

	WITHIN-MARKET DIFFERENCE				CHANGE FOR CONTINUERS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Observations	12,553	12,553	8,555	8,555	4,025	4,025	2,439	2,439
R^2	.424	.425	.501	.501	.456	.460	.575	.576
Vertical integration indicator	−.022*	−.017*	−.006	−.006	.011	.011	.003	.005
	(.006)	(.006)	(.007)	(.007)	(.035)	(.035)	(.034)	(.034)
Multiunit indicator		−.012*		−.001		−.037		−.033
		(.004)		(.005)		(.020)		(.028)
TFP			−.214*	−.215*			−.237*	−.237*
			(.015)	(.015)			(.028)	(.028)
	INTEGRATED VS. UNINTEGRATED ENTRANTS				INTEGRATED ENTRANTS VS. UNINTEGRATED INCUMBENTS			
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Observations	2,771	2,771	2,025	2,025	7,490	7,490	6,104	6,104
R^2	.563	.566	.655	.655	.430	.430	.523	.523
Vertical integration indicator	−.037*	−.025	−.020	−.012	−.023	−.023	−.012	−.012
	(.018)	(.019)	(.020)	(.020)	(.012)	(.012)	(.012)	(.012)
Multiunit indicator		−.032*		−.025		NA		NA
		(.012)		(.014)				
TFP			−.218*	−.215*			−.221*	−.221*
			(.031)	(.031)			(.019)	(.019)

NOTE.—The table shows the results from regressing plant-level concrete prices on a number of variables. Vertical integration (multiunit) indicator is equal to one if the plant is in a vertically integrated (multiunit/multiplant) firm and zero otherwise; TFP is the plant's quantity-based total factor productivity. See the text for details. In the vertically integrated entrants vs. non–vertically integrated incumbents comparison, there are no observations of new multiunit

Hortacsu-Syverson: Different Comparisons Groups

- Vertical Integrated, versus Not.
- Just look at new plants, or just plants in the market that were acquired.
- TFP is productivity: think of it as a measure of average costs.

Hortacsu-Syverson: So Prices are lower, but why

Prices could drop because:

- Costs drop.
- Some other reason.

Hortacsu-Syverson: Productivity

TABLE 5
PLANT-LEVEL TFP COMPARISONS

	Within-Market Difference (1)	Change for Continuers (2)	Integrated vs. Unintegrated Entrants (3)	Integrated Entrants vs. Unintegrated Incumbents (4)
Observations	8,555	2,439	2,025	6,104
R^2	.308	.419	.573	.352
Vertical integration indicator	.043*	.102	.054	.046*
	(.014)	(.055)	(.045)	(.028)

NOTE.—The table shows the results from regressing ready-mixed concrete plants' TFP levels on an indicator for the plant being in a vertically integrated firm. All regressions include market-year fixed effects.

* Significant at the 5 percent level.

Hortacsu-Syverson: Productivity → Prices

Now we can separate the effects of vertical integration through productivity, versus those through integration directly.

TABLE 6
VERTICAL INTEGRATION AND READY-MIXED CONCRETE PRICES: MARKET-LEVEL RESULTS
BENCHMARK SPECIFICATION

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Observations	1,870	1,870	1,870	1,550	1,550	1,870	1,870	1,870	1,550	1,550
R^2	.087	.433	.434	.573	.573	.087	.432	.432	.573	.573
Market share of vertically integrated firms	−.125*	−.090*	−.086*	−.043	−.043					
	(.028)	(.041)	(.041)	(.039)	(.039)					
Market share of multiunit firms			−.015		.001					
			(.022)		(.024)					
Number of vertically integrated firms						−.028*	−.015	−.013	−.009	−.007
						(.007)	(.011)	(.011)	(.009)	(.009)
Number of multiunit firms								−.003		−.004
								(.004)		(.004)
Quantity-weighted average TFP				−.293*	−.293*				−.294*	−.294*
				(.054)	(.054)				(.054)	(.054)
Market fixed effects?	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes

NOTE.—The table shows the coefficients obtained by regressing quantity-weighted average concrete prices in a market on either the market share or the number of vertically integrated firms operating in the market. The market share or number of multiunit firms and the quantity-weighted average TFP in the market are also included in some specifications. All regressions control for the HHI and density of demand in the market as well as year effects (coefficients not reported). Standard errors are clustered by market.

* Significant at the 5 percent level.

Hortacsu-Syverson: Why are the integrated plants more efficient?

TABLE 16
BECOMING INTEGRATED: READY-MIXED CONCRETE CONTINUERS AND ENTRANTS

	Growth of					
	Labor Productivity	Real Revenue	Total Employment	Total Hours	Nonproduction Worker Ratio	Capital-Labor Ratio
	A. Changes among Continuers (Conditioning on Being Unintegrated in Previous Census)					
Observations	15,919	16,358	16,274	15,933	9,166	16,271
R^2	.194	.274	.204	.217	.189	.180
Vertical integration indicator	.105*	−.399*	−.396*	−.439*	−.030	.018
	(.049)	(.060)	(.061)	(.064)	(.022)	(.076)
	B. Integrated Entrants Compared to Unintegrated Entrants					
Observations	7,681	8,005	7,871	7,687	7,870	5,405
R^2	.330	.339	.325	.323	.34	.433
Vertical integration indicator	.336*	.125	−.157*	−.162*	−.044*	.263*
	(.047)	(.079)	(.073)	(.078)	(.014)	(.073)
	C. Integrated Entrants Compared to Unintegrated Incumbents					
Observations	18,038	18,310	18,220	18,045	18,217	12,760
R^2	.240	.228	.193	.195	.222	.378
Vertical integration indicator	.358*	−.281*	−.510*	−.514*	−.061*	.259*
	(.038)	(.063)	(.060)	(.064)	(.012)	(.058)

NOTE.—This table reports differences in key dependent variables (listed at the head of each column) across integrated and unintegrated producers. Panel A compares growth rates across integrated and unintegrated continuers (plants that survive for two consecutive censuses). Panel B compares integrated and unintegrated entrants (plants appearing in their first census). Panel C compares integrated entrants to unintegrated incumbents. Market-year fixed effects are included in all specifications.

* Significant at the 5 percent level.

Next Paper: Chipty on Cable TV

- Cable TV is important: 90 percent of americans have it, and they spend about 2.8 hours a day watching TV (18 percent of waking hours).
- Lots of mergers, both horizontal (between local cable monopolies), and vertical (content providers and local monopolies).
- I've always though of net neutrality to be about foreclosure as well.

Chipty: Cable TV Structure

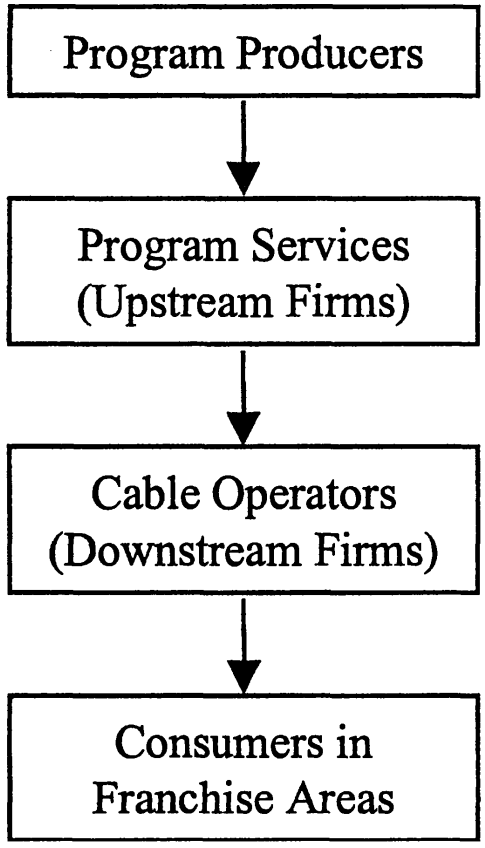

FIGURE 1. INDUSTRY STRUCTURE

Chipty: Data

- 1991 Data on 11,039 cable franchises.
- This data comes from the Factbook, surveys of cable companies.
- Things like price of basic and premium, as well as number of channels are in here.
- Data on integration is harder: look for ownership stakes in local cable companies.
- Demographics and TV market from the U.S. Census and Arbitron (also in radio).

Price-quantity-service variables			
Price of premium cable	Cost of living adjusted, average monthly price of premium cable.	System	9.42
Price of basic cable	Cost of living adjusted, monthly price of basic cable.	System	16.11
Basic penetration rate	Fraction of homes passed that subscribe to basic cable, defined as basic subscriptions divided by homes passed.	System	0.65
Basic-only penetration rate	Fraction of homes passed that subscribe only to basic cable, defined as (basic subscriptions − premium subscriptions) divided by homes passed.	System	0.28
Premium penetration rate	Fraction of homes passed that subscribe to premium cable, defined as premium subscriptions divided by homes passed.	System	0.37
Premium-also penetration rate	Fraction of basic subscribers that subscribe also to premium cable, defined as premium subscriptions divided by basic subscriptions.	System	0.59
Premium services	Number of premium program services offered.	System	3.39
Basic services	Number of basic program services offered.	System	16.47
Basic program duplication	Number of basic program services offered/number of program service types offered.	System	1.66
System and owner characteristics			
System age	Number of years since franchise began.	System	14.55
System size	Channel capacity.	System	38.40
	Number of homes covered locally.	System	18,963.17
Owner's horizontal size	Number of homes covered nationally.	Owner	3,539,030.36
Integration with basic services	Number of basic program services with which the system owner is vertically integrated.	Owner	2.58
Integration with premium services	Number of premium program services with which the system owner is vertically integrated.	Owner	0.11

Chipty: Integrated vs Not Integrated

TABLE 2—AVERAGE PRODUCT CHARACTERISTICS BY OWNERSHIP STATUS

Variable	Full sample $N = 1{,}919$	Unintegrated systems $N = 1{,}269$	Basic systems $N = 544$	Premium systems $N = 106$
Price of basic cable	16.383	15.984	17.273	16.596
Price of premium cable	9.573	9.523	9.490	10.599
Basic penetration rate	0.652	0.649	0.656	0.673
Basic-only penetration rate	0.284	0.310	0.232	0.239
Premium penetration rate	0.369	0.339	0.425	0.434
Premium-also penetration rate	0.592	0.546	0.683	0.676
Premium services	3.388	3.160	4.002	2.972
Basic services	16.475	14.809	19.890	18.887
Integration with basic services	2.580	0.000	7.763	6.868
Integration with premium services	0.105	0.000	0.000	1.906

Notes: Unintegrated systems are systems where the operator is vertically unintegrated. Basic systems are systems where the operator owns at least one basic service, but no premium services. Premium systems are systems where the operator owns at least one premium service.

Chipty: Regression Analysis

- Chipty runs regressions of the form:

$$\text{Number of Channels Basic}_i = \alpha_B \text{Vertical Integration Basic}_i + \alpha_P \text{Vertical Integration Premium}_i + X_i\delta$$

$$\text{Number of Channels Premium}_i = \beta_B \text{Vertical Integration Basic}_i + \beta_P \text{Vertical Integration Premium}_i + X_i\delta$$

Chipty: Regression Analysis

TABLE 3—EFFECTS OF INTEGRATION ON THE EQUILIBRIUM NUMBERS OF BASIC AND PREMIUM SERVICES OFFERED

	Panel A: Number of Basic Services Offered						Panel B: Number of Premium Services Offered					
	(1)			(2)			(3)			(4)		
Variable	Coefficient	*t*-statistic robust	*t*-statistic OLS	Coefficient	*t*-statistic robust	*t*-statistic OLS	Coefficient	*t*-statistic robust	*t*-statistic OLS	Coefficient	*t*-statistic robust	*t*-statistic OLS
Constant	23.967	1.814	2.759	4.039	0.314	0.429	−11.265	3.075	4.125	−13.496	3.558	4.918
Integration with basic services	0.176	2.975	5.968	0.150	3.396	4.664	−0.015	1.126	1.604	−0.018	1.334	1.895
Integration with premium services	−0.931	5.541	3.908	−0.759	2.882	2.916	−0.604	12.734	8.07	−0.585	12.726	7.725
Natural log of owner's horizontal size	0.034	0.297	0.620	0.052	0.435	0.875	0.051	2.254	2.963	0.053	2.239	3.047
System age	−0.044	3.020	3.329	−0.099	6.316	6.968	−0.005	0.908	1.305	−0.012	1.876	2.799
Natural log of homes passed	2.218	17.412	26.230	2.714	19.841	30.850	0.365	8.506	13.751	0.421	10.282	16.438
Channel capacity	0.181	12.181	19.253				0.020	4.685	6.855			
Natural log of income	−0.909	0.721	1.143	−0.197	0.172	0.227	0.237	0.834	0.950	0.317	1.112	1.255
Natural log of population density	−0.016	0.113	0.131	0.139	0.920	1.052	0.097	1.743	2.534	0.114	2.055	2.960
Younger viewership	−12.484	1.044	1.203	−26.207	2.047	2.316	1.243	0.395	0.381	−0.293	0.091	0.089
Older viewership	−6.090	1.046	1.430	−4.077	0.663	0.887	1.201	0.846	0.897	1.426	0.993	1.053
Non-white viewership	2.111	1.337	1.940	2.031	1.329	1.708	0.494	1.141	1.444	0.485	1.117	1.401
Household size	0.420	0.283	0.350	1.894	1.110	1.446	0.226	0.607	0.599	0.391	1.019	1.025
Natural log of television households	−1.599	3.602	4.332	−0.635	1.364	1.590	0.473	1.784	4.077	0.581	2.143	4.993
Area of dominant influence rank	−0.026	3.044	3.727	−0.011	1.138	1.405	0.007	1.464	3.078	0.008	1.818	3.842
Adjusted R^2		0.624			0.551			0.389			0.374	

Notes: Parameters estimated using ordinary least squares. Robust variance estimation allows for heteroskedasticity and for correlation in errors across systems owned by the same owner. Absolute value of *t*-statistics shown in columns adjacent to coefficient.

Chipty: Case Studies

Chipty looks at specific cases of vertical integration: home shopping, and movie channels.

- Home Shopping: QVC, HSN.
  If you own QVC, are you more likely to carry it, and less likely to carry HSN.
- Movie Network: AMC.
  Similarly, does ownership of AMC raise the probability of carrying it.

Chipty: Home Shopping (QVC)

Marginal Effect of a Probit: Probability of having QVC

	(1)	
Variable	Marginal effect	*t*-statistic robust
System owner vertically integrated with QVC (1 = yes, 0 = no)	0.328	5.430
Natural log of owner's horizontal size	0.020	1.920
System age	0.002	0.630
Natural log of homes passed	0.090	6.510
Channel capacity	0.006	3.380
Natural log of income	−0.233	1.690
Natural log of population density	0.033	1.970
Younger viewership	−0.428	0.270
Older viewership	1.240	1.700
Non-white viewership	−0.003	0.020
Household size	0.250	1.290
Natural log of television households	−0.006	0.080
Area of dominant influence rank	0.000	0.210
1-logL/log0		0.200
Predicted fraction of all systems that carry QVC		0.403
Fraction of all systems that carry QVC = 0.421		

Chipty: Home Shopping (HSN)

Marginal Effect of a Probit: Probability of having HSN

Variable	(1) Marginal effect	(1) *t*-statistic robust
System owner vertically integrated with QVC (1 = yes, 0 = no)	−0.249	6.590
Natural log of owner's horizontal size	0.012	1.270
System age	−0.002	0.700
Natural log of homes passed	0.063	6.100
Channel capacity	0.006	5.770
Natural log of income	−0.107	1.090
Natural log of population density	0.013	1.000
Younger viewership	−1.313	0.960
Older viewership	0.766	1.370
Non-white viewership	−0.065	0.500
Household size	0.312	1.920
Natural log of television households	−0.079	1.680
Area of dominant influence rank	−0.002	2.030
1-logL/log0		0.177
Predicted fraction of all systems that carry HSN		0.234
Fraction of all systems that carry HSN = 0.280		

Chipty: AMC Channel (Premium Movies)

Variable	(1) Marginal effect	(1) *t*-statistic robust
System owner vertically integrated with a premium movie service (1 = yes, 0 = no)	−0.155	2.250
System owner vertically integrated with AMC (1 = yes, 0 = no)	0.321	2.620
Natural log of owner's horizontal size	0.004	0.220
System age	0.002	1.560
Natural log of homes passed	0.092	5.760
Channel capacity	0.007	5.640
Natural log of income	0.008	0.080
Natural log of population density	−0.007	0.350
Younger viewership	2.134	1.540
Older viewership	−0.122	0.170
Non-white viewership	−0.178	0.960
Household size	−0.234	1.240
Natural log of television households	−0.068	1.310
Area of dominant influence rank	−0.001	1.280
1-logL/logL0		0.216

Chipty: Regression Analysis – Prices (P)

- Uptake

$$\text{Prices Basic}_i = \alpha_B \text{Vertical Integration Basic}_i + \alpha_P \text{Vertical Integration Premium}_i + X_i\delta$$

$$\text{Prices Premium}_i = \beta_B \text{Vertical Integration Basic}_i + \beta_P \text{Vertical Integration Premium}_i + X_i\delta$$

Chipty: Regression Analysis – Prices (P)

TABLE 6—EFFECTS OF INTEGRATION ON EQUILIBRIUM PRICES

	Panel A: Price of Basic Cable						Panel B: Price of Premium Cable					
	(1)			(2)			(3)			(4)		
Variable	Coefficient	*t*-statistic robust	*t*-statistic OLS	Coefficient	*t*-statistic robust	*t*-statistic OLS	Coefficient	*t*-statistic robust	*t*-statistic OLS	Coefficient	*t*-statistic robust	*t*-statistic OLS
Constant	1.048	0.107	0.186	−2.168	0.226	0.385	7.477	2.073	2.652	7.685	2.154	2.745
Integration with basic services	0.049	0.833	2.538	0.045	0.755	2.310	−0.034	2.002	3.569	−0.034	1.997	3.545
Integration with premium services	−0.385	3.833	2.485	−0.357	3.827	2.294	0.516	9.582	6.670	0.514	9.564	6.653
Natural log of owner's horizontal size	0.139	1.123	3.907	0.142	1.146	3.968	0.067	1.954	3.771	0.067	1.954	3.762
System age	−0.044	3.316	5.093	−0.530	3.911	6.222	0.011	1.937	2.461	0.011	2.152	2.655
Natural log of homes passed	0.467	3.207	8.497	0.547	3.827	10.395	−0.037	0.673	1.224	−0.039	0.776	1.484
Channel capacity	0.029	3.675	4.781				−0.002	0.542	0.620			
Natural log of income	0.867	0.903	1.678	0.982	1.045	1.892	−0.200	0.734	0.774	−0.207	0.765	0.804
Natural log of population density	−0.378	4.010	4.801	−0.353	3.649	4.468	−0.095	1.732	2.421	−0.097	1.782	2.468
Younger viewership	7.616	0.928	1.129	5.402	0.682	0.798	−4.831	1.578	1.434	−4.688	1.567	1.395
Older viewership	−8.999	1.650	3.252	−8.674	1.600	3.117	−0.489	0.279	0.354	−0.510	0.288	0.369
Non-white viewership	1.240	1.290	1.753	1.227	1.268	1.725	0.033	0.068	0.094	0.034	0.070	0.096
Household size	2.517	2.211	3.224	−2.279	2.021	2.908	0.381	0.868	0.978	0.366	0.836	0.941
Natural log of television households	0.646	2.052	2.694	0.801	2.491	3.354	0.268	1.421	2.236	0.258	1.376	2.172
Area of dominant influence rank	0.011	1.796	2.400	0.013	2.165	2.949	0.001	0.369	0.617	0.001	0.330	0.550
Adjusted R^2		0.166			0.156			0.055			0.055	

Chipty: Regression Analysis – Uptake Rates (Q)

- Uptake

$$\begin{aligned}\text{Uptake Basic}_i =& \alpha_B \text{Vertical Integration Basic}_i \\ &+ \alpha_P \text{Vertical Integration Premium}_i + X_i\delta\end{aligned}$$

$$\begin{aligned}\text{Uptake Premium}_i =& \beta_B \text{Vertical Integration Basic}_i \\ &+ \beta_P \text{Vertical Integration Premium}_i + X_i\delta\end{aligned}$$

Chipty: Regression Analysis – Uptake Rates (Q)

TABLE 7—EFFECTS OF INTEGRATION ON EQUILIBRIUM PENETRATION RATES

	Panel A: Basic Penetration Rate						Panel B: Basic-Only Penetration Rate					
Variable	Coefficient	Robust	WLS	Coefficient	Robust	WLS	Coefficient	Robust	WLS	Coefficient	Robust	WLS
Constant	−1.097	1.456	3.579	−1.114	1.400	3.600	1.398	2.031	5.233	1.415	1.888	5.293
Integration with basic services	0.004	1.174	3.307	0.004	1.079	3.226	0.006	3.416	9.922	0.007	3.484	10.835
Integration with premium services	0.009	1.397	1.544	0.011	1.415	1.751	0.003	0.391	0.934	0.003	0.419	0.872
Natural log of owner's horizontal size	−0.023	2.448	7.236	−0.023	2.397	7.148	−0.022	3.180	11.116	−0.023	3.103	11.376
System age	0.008	5.503	16.570	0.008	6.016	17.837	0.008	9.417	19.371	0.008	9.246	18.780
Channel capacity	−0.002	2.561	5.968				0.001	2.121	4.394			
Natural log of income	0.196	2.751	6.444	0.198	2.684	6.453	−0.108	1.490	5.958	−0.118	1.586	6.305
Natural log of population density	−0.023	2.539	5.036	−0.028	3.027	6.042	−0.003	0.460	2.222	−0.001	0.070	1.485
Younger viewership	−0.681	1.056	1.737	−0.675	0.625	1.705	−0.836	0.882	0.799	--0.924	0.962	1.098
Older viewership	1.103	3.366	6.984	1.119	3.209	7.027	1.205	3.548	11.717	1.185	3.393	11.466
Non-white viewership	−0.159	1.752	3.777	−0.176	1.839	4.136	−0.189	2.327	6.593	−0.183	2.140	6.379
Household size	0.212	2.027	4.831	0.225	2.019	5.084	0.169	1.345	4.655	0.172	1.339	4.730
Natural log of television households	−0.025	1.081	2.365	−0.032	1.413	3.025	−0.021	1.246	0.266	−0.012	0.626	0.636
Area of dominant influence rank	−0.001	1.008	2.672	−0.001	1.204	3.115	0.000	0.205	2.927	0.000	0.536	3.739
Adjusted R^2		0.379			0.365			0.497			0.490	

Chipty: Regression Analysis – Uptake Rates (Q)

	Panel C: Premium Penetration Rate						Panel D: Premium-Also Penetration Rate					
Variable	Coefficient	Robust	WLS	Coefficient	Robust	WLS	Coefficient	Robust	WLS	Coefficient	Robust	WLS
Constant	−3.650	3.609	10.471	−3.661	3.614	10.519	−2.079	2.024	6.211	−2.135	1.961	6.364
Integration with basic services	−0.010	2.257	8.130	−0.010	2.264	8.131	−0.015	4.709	11.474	−0.015	4.533	11.880
Integration with premium services	0.030	2.873	4.804	0.033	2.766	4.784	0.014	1.594	2.102	0.014	1.744	2.097
Natural log of owner's horizontal size	0.021	1.463	5.821	0.021	1.463	5.832	0.038	3.383	10.659	0.039	3.311	10.810
System age	−0.001	0.717	1.839	−0.001	0.713	2.005	−0.008	5.620	14.584	−0.008	5.611	14.159
Channel capacity	0.000	0.219	0.621				−0.001	1.343	3.732			
Natural log of income	0.314	3.391	9.381	0.314	3.393	9.378	0.299	2.503	8.650	0.308	2.491	8.867
Natural log of population density	0.022	1.398	4.510	0.023	1.352	4.746	0.022	1.977	4.326	0.019	1.608	3.799
Younger viewership	−1.646	1.312	3.384	−1.647	1.308	3.386	0.079	0.046	0.168	0.213	0.124	0.452
Older viewership	0.341	0.756	1.937	0.343	0.746	1.948	−1.975	4.568	11.009	−1.951	4.430	10.844
Non-white viewership	0.357	4.150	7.835	0.358	4.155	7.862	0.318	2.451	7.117	0.312	2.330	6.968
Household size	0.338	2.903	6.287	0.338	2.878	6.283	−0.170	0.755	3.340	−0.173	0.761	3.396
Natural log of television households	−0.008	0.213	0.680	−0.006	0.181	0.574	0.007	0.255	0.639	0.002	0.057	0.161
Area of dominant influence rank	0.000	0.561	1.574	0.000	0.543	1.503	−0.001	0.769	1.838	−0.001	0.840	2.263
Adjusted R^2		0.336			0.336			0.517			0.513	

Chipty: Conclusions

- Vertical Integration leads to better cable packages.
- Vertical Integration leads to higher prices.
- Net effect on consumers depends on tradeoff between quantities and prices.