

Threats and Opportunities in Media: Piracy and Pricing

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New Challenges and Opportunities for Media Products

- Piracy as threat to appropriability
- Pricing to the rescue?

New Technologies

- Service flow from media at all-time high
- But it's hard to control distribution
 - Music, movies, TV, games,...
- How can sellers appropriate consumers' valuation?
- Threats to all media

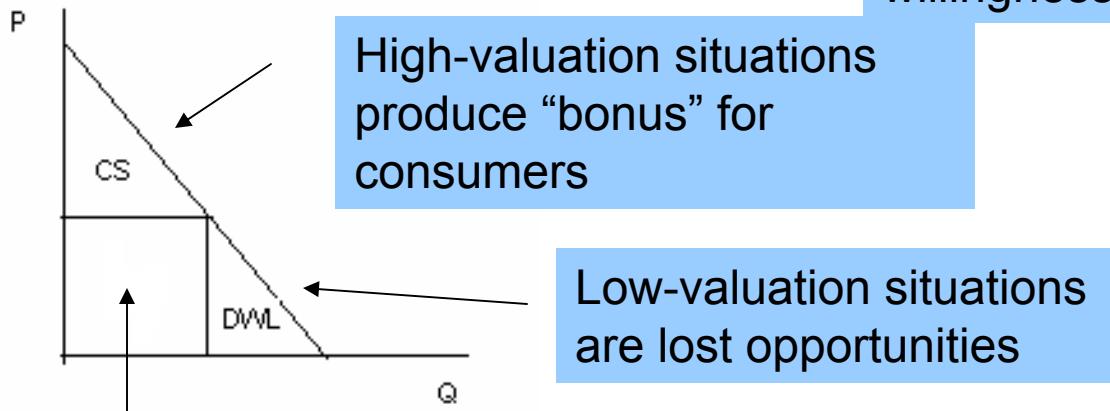
Unauthorized Distribution and Sales

- Not obvious whether “file sharing” is a friend or a foe
 - Substitution or stimulation
- Interesting differences across media
 - Music
 - Movies
 - Television

Conceptual Framework

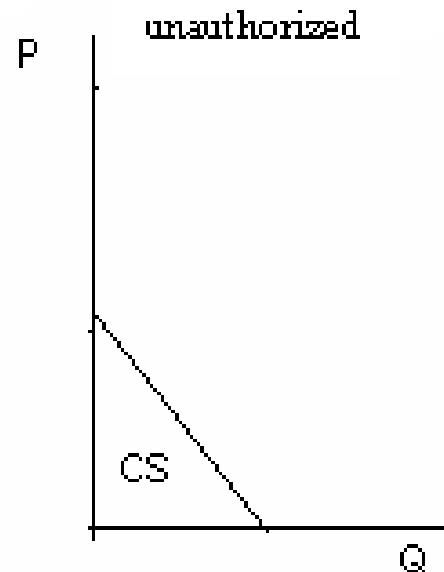
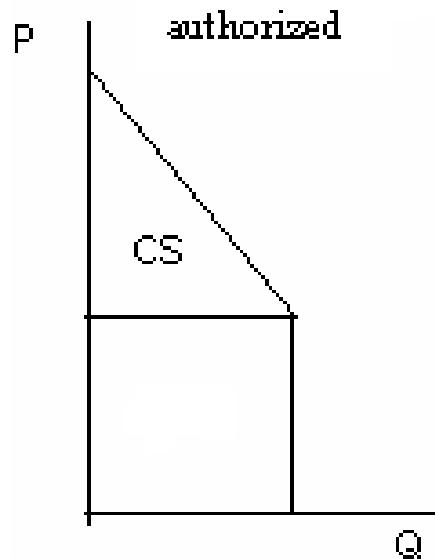
Prior to unauthorized access, single-price monopolists:

Each point represents somebody's willingness to pay for something



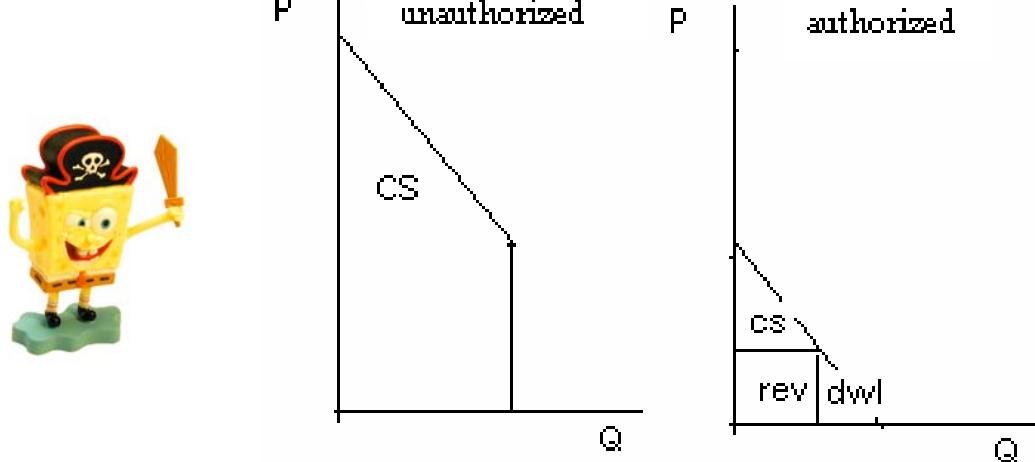
Unauthorized use segments demand

One possibility: unauth'd users are low-value demanders



- Win-win stealing
 - no lost revenue
 - consumers get IP they would have skipped

Or maybe:
unauth'd users are high-valuation demanders



Then CS increases, and revenue and deadweight loss decrease

Key point: effects of unauthorized use hinge on whether material
would have been used through authorized channels
absent the unauthorized use

But: Sharing Might Simulate Buying

- Collectively we might buy stuff we wouldn't buy alone
- Sampling as inducement to buy
- Plausibility of mechanisms varies across media

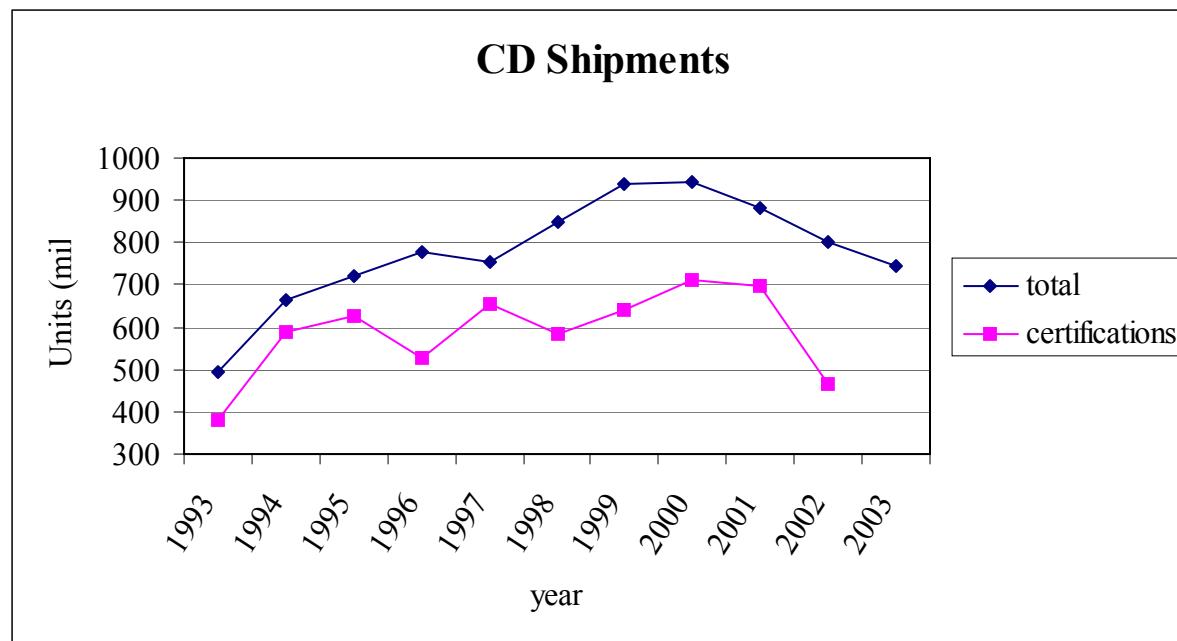


Differences across Media

- Music
 - Close substitute, quick and easy to get
 - Divided attention
- Movies
 - Web offers poor substitute, DVD copying better
 - Undivided attention
- TV different?
 - Episodes complements
 - Demand stimulation plausible

Pressure from Events

Music industry in crisis

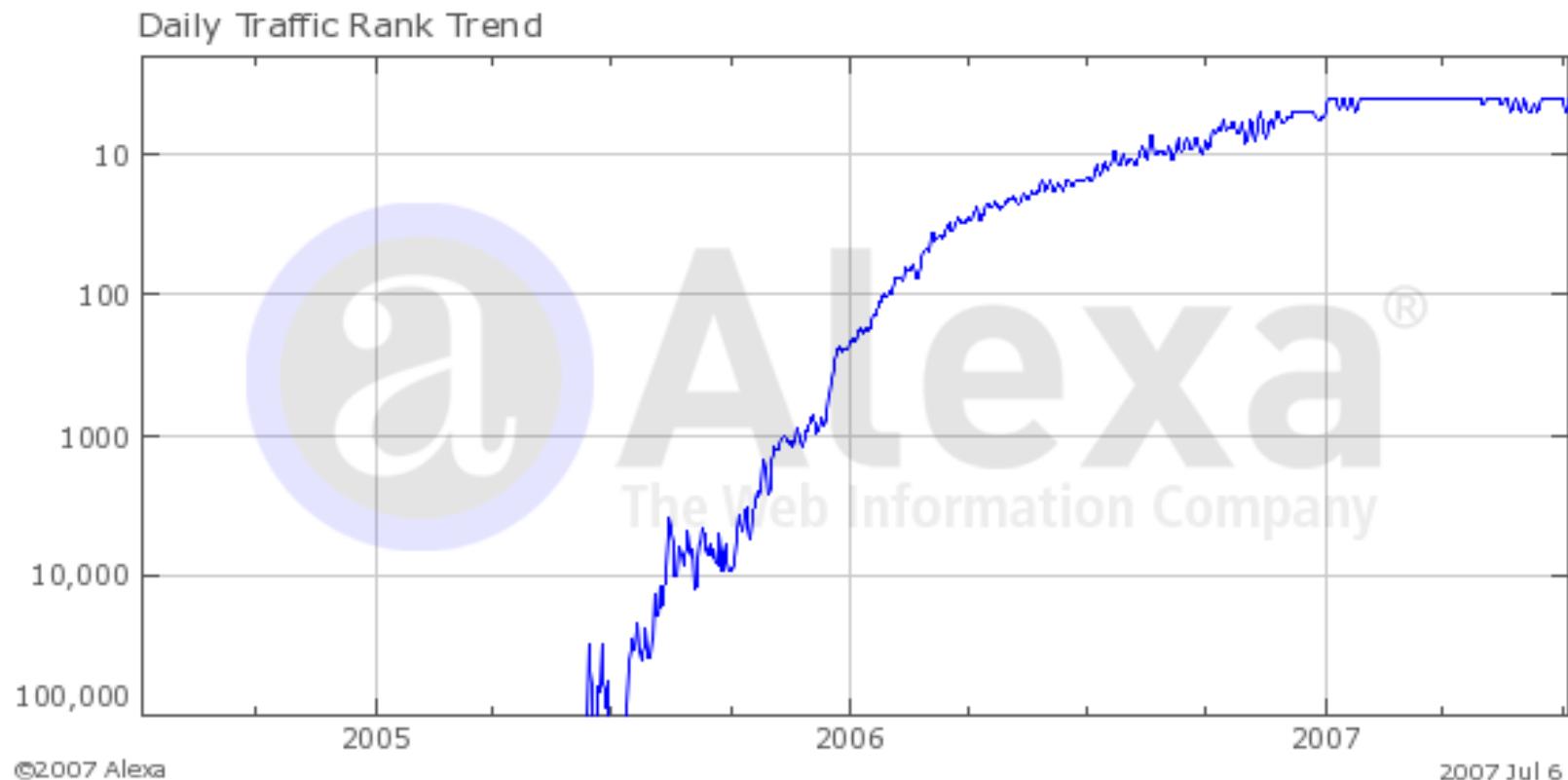


Source: RIAA

Is downloading the cause?



YouTube Growth



We've been living through an “experiment”

Networks huffy about unauthorized content

YouTube
Broadcast Yourself™

Hello, [waldfoegel1](#) | [My Account](#) | [History](#) | [Help](#) | [Log Out](#) | [Country:](#)

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Search Results for ““daily show””

Sort by: [Relevance](#) | [Date Added](#) | [View Count](#) | [Rating](#) Display:

1 - 20 of about 7,560

Ron Paul on The Daily Show (6/4/2007) Ron Paul on The Daily Show with John Stewart. www.ronpaul2008.com ...ron paul 2007 president honest integrity Time: 07:32	From: Gaines Views: 14,377 Added: 1 month ago More in News & Politics
Minuteman Protest - Daily Show Coverage the Minuteman Controversy at Columbia University using CTV News' video of the incident....CTV News Columbia University Television Jon Stewart Daily Show Minutemen Time: 02:34	From: CTVNews Views: 267,401 Added: 9 months ago More in News & Politics
This Week in God on Left Behind video game The Daily Show's Rob Corddry takes a look at the violent religious video game Left Behind: Eternal Forces on the show's This Week in God segment. Classic. Time: 01:47	From: pix18 Views: 238,338 Added: 11 months ago More in Gadgets & Games
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Is Jon Stewart Fair?

Take the POLLINGPOINT 2006 Media Bias Survey [Start](#)

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New on YouTube

Ten Will Tour the World For a Year Audition Now For [The Smirnoff Ten!](#)

Show Us How You Shake It [Win \\$10,000](#) and Other Cool Prizes!

Stressed Out?! Watch NEW [One Less Stress TV](#) And learn how to deal with stress everyday!

Hard to get data, so **survey-based** micro data on movies, music, TV

- How much do you consume through authorized channels?
 - CDs purchased
 - Movie rental, purchase
 - Watching traditional TV (or authorized)
- How much do you consume through unauthorized channels?
 - Unpaid song downloading
 - DVD copying
 - Unauthorized web viewing
- Same questions retrospectively to create panel

Findings Differ across Media

Music Findings

- Lots of unpaid consumption
- Significant sales displacement, *but far less than 1:1*
 - Consumers download low-value music
- Downloading's benefit to consumers
 - 1/3 from sellers
 - 2/3 from heaven (reduced DWL)

Movies: Hollywood Ending

- *Amount* of unpaid consumption low, but *rate* of displacement high
- Large, almost 1:1
 - Gains to consumers are mostly transfers from sellers rather than reduced DWL, as in music
 - Why so high?
 - Copying still cumbersome
 - Even when faster, movies require undivided attention
- Ominous, as copying gets easier

TV Results

- Overall, TV viewing almost flat, web viewing up 4 hours per week
- Implied change in weekly hours
 - Half authorized, half unauthorized
- Effect on networks depends on value of viewers on TV vs authorized web
- Less displacement than in movies and music
 - Movies (1:1) ... music (less) ...TV (none?)

Pricing to the Rescue?

Pricing to the Rescue?

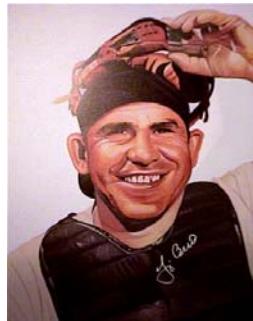
- How much revenue is foregone by uniform pricing at \$0.99, relative to other pricing schemes:
 - another uniform price, component pricing, pure bundling, (& more)
 - Person-specific pricing (“3rd degree”)
- How much of surplus is appropriable with “fancy pricing”?

Managerial Motivation

- Could sellers make more money?
- Important Aside:
 - Apple sells songs and hardware
 - 2007 iTunes revenue = \$1.7 billion
 - 2007 iPod revenue ≈ \$8 billion
 - More on this later
- Could sellers make more money, *holding consumers harmless*?

Direct Elicitation

- Ask 500 students how highly they value 50 songs
 - Top songs at iTunes, early January 2008
- “You can observe a lot just by watching”



(Yogi Berra,
Yankee catcher and philosopher)

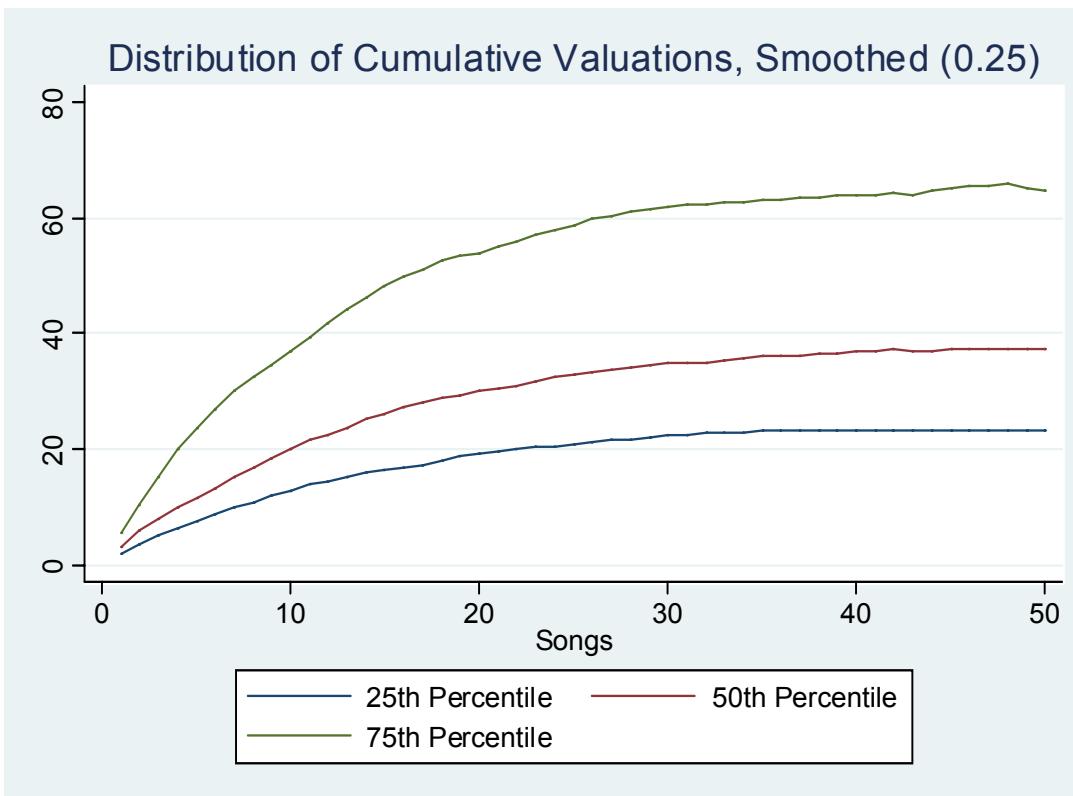
Survey Songs and their Valuations

Song name	mean	25 th pctile	median	75 th pctile
Apologize (feat. OneRepublic) - Timbaland	\$2.37	\$0.59	\$1.39	\$2.67
Big Girls Don't Cry (Personal) – Fergie	\$1.16	\$0.08	\$0.53	\$1.22
Bubbly - Colbie Caillat	\$1.47	\$0.08	\$0.68	\$1.73
Clumsy - Fergie	\$0.78	\$0.04	\$0.29	\$1.01
Crank That (Soulja Boy) - Soulja Boy Tell 'Em	\$2.00	\$0.28	\$1.01	\$2.10
Crushcrushcrush - Paramore	\$0.58	\$0.01	\$0.13	\$0.71
Cyclone (feat. T-Pain) - Baby Bash	\$1.29	\$0.08	\$0.56	\$1.45
Don't Stop the Music - Rihanna	\$1.40	\$0.11	\$0.63	\$1.44
Feedback - Janet	\$0.63	\$0.01	\$0.11	\$0.57
Hate That I Love You (feat. Ne-Yo) - Rihanna	\$1.30	\$0.10	\$0.55	\$1.47
Hero/Heroine (Tom Lord-Alge Mix) - Boys Like Girls	\$0.77	\$0.02	\$0.26	\$1.00
Hey There Delilah - Plain White T's	\$2.02	\$0.15	\$0.94	\$2.02
How Far We've Come - Matchbox Twenty	\$1.41	\$0.10	\$0.69	\$1.47
Hypnotized (feat. Akon) - Plies	\$1.15	\$0.06	\$0.48	\$1.12
I Don't Wanna Be In Love (Dance Floor Anthem) - Good Charlotte	\$1.06	\$0.06	\$0.47	\$1.20
Into the Night (feat. Chad Kroeger) - Santana	\$1.49	\$0.09	\$0.71	\$1.53
Kiss Kiss (feat. T-Pain) - Chris Brown	\$1.45	\$0.12	\$0.85	\$1.70
Love Like This - Natasha Bedingfield	\$1.04	\$0.06	\$0.43	\$1.06
Love Song - Sara Bareilles	\$1.02	\$0.05	\$0.37	\$1.07
Low (feat. T-Pain) - Flo Rida	\$1.60	\$0.11	\$0.88	\$1.93

variation



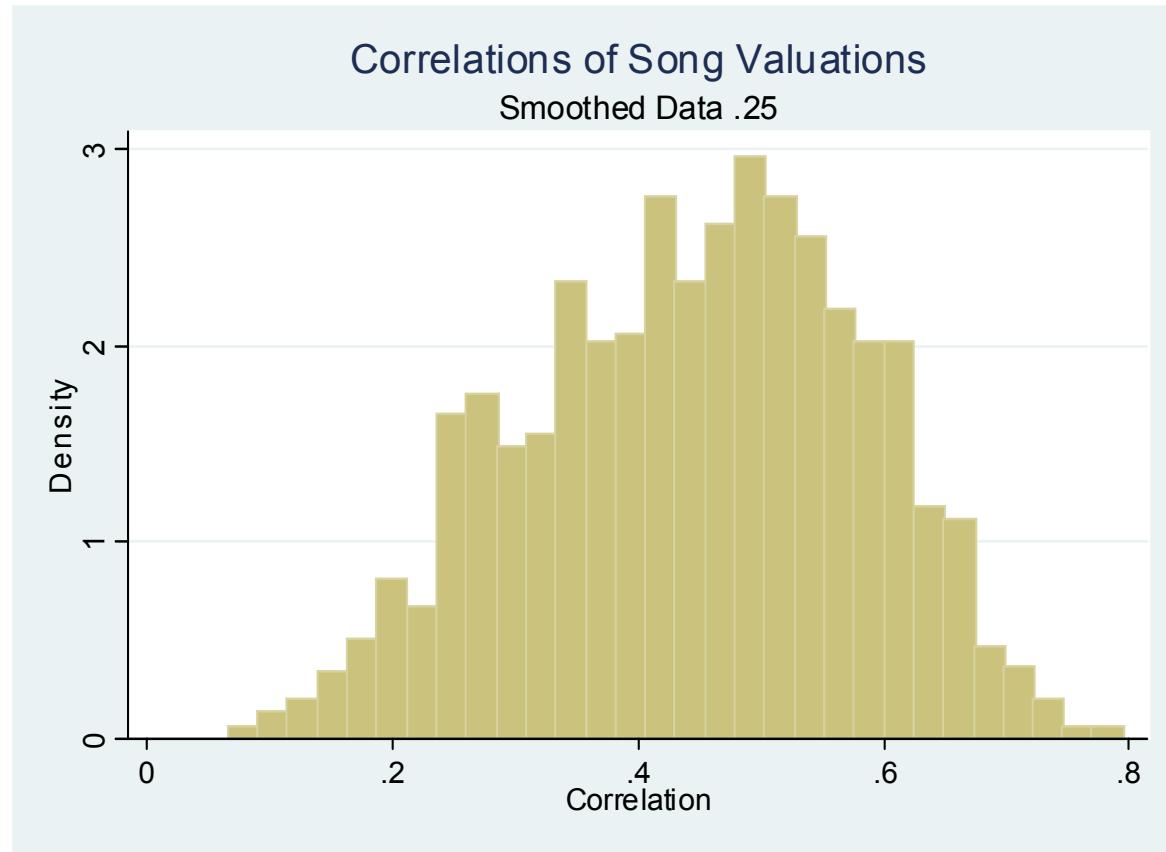
Variation across songs and respondents



Median respondent is willing to pay \$20 for his/her top 10 songs. vs \$40 for 75th p'ctile, and \$12 for 25th p'ctile

Related fact: songs explain 4 percent of variation, individuals explain 40 percent

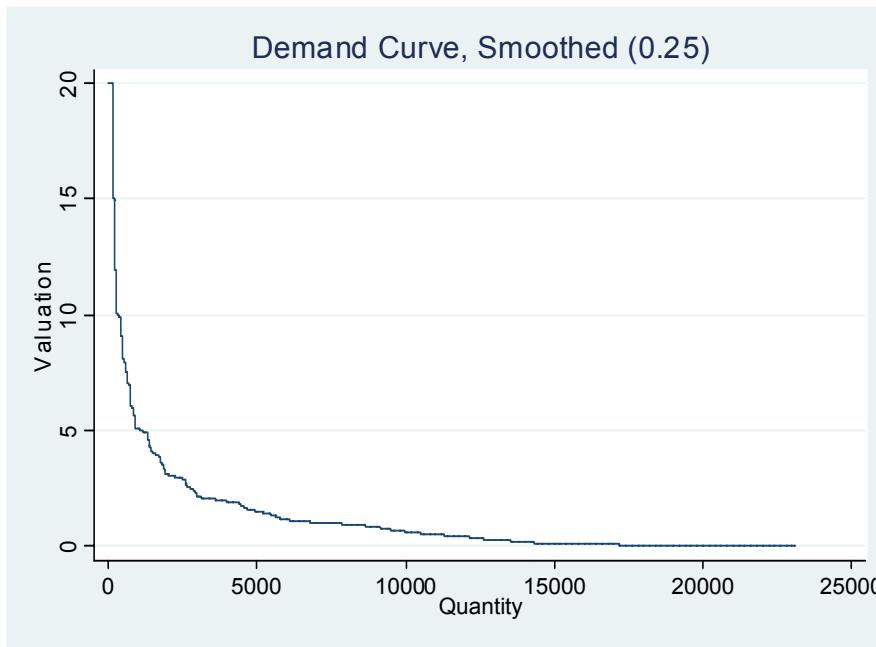
Correlation of Valuations



Relevant to whether bundling will enhance revenue:
Less so as song valuations are more positively correlated

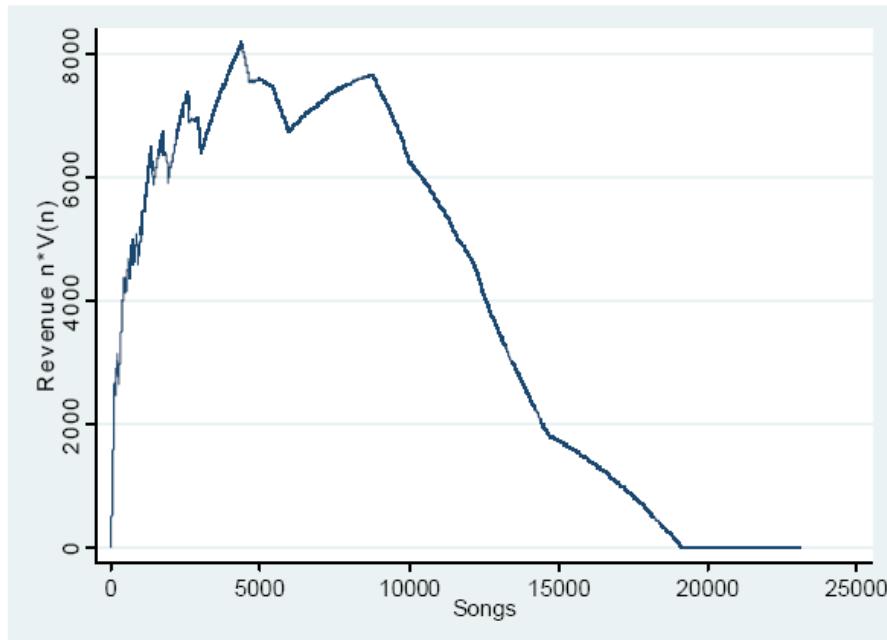
Resulting demand curve

- ...ordering valuations from highest to lowest



Revenue Function

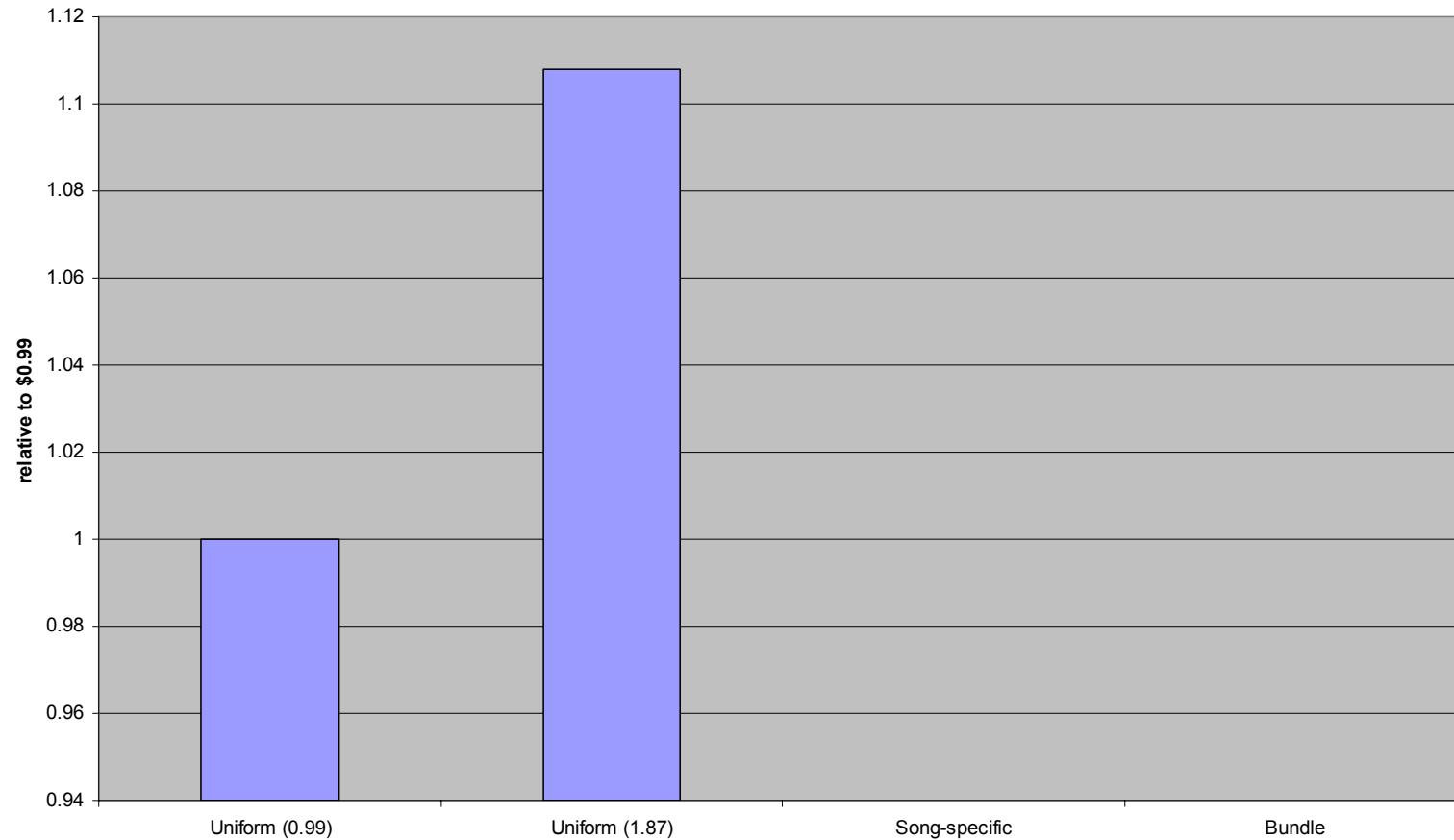
- Find revenue-maximum, associated price, etc. ($MC=0$)



Revenue Maximizing Uniform Pricing

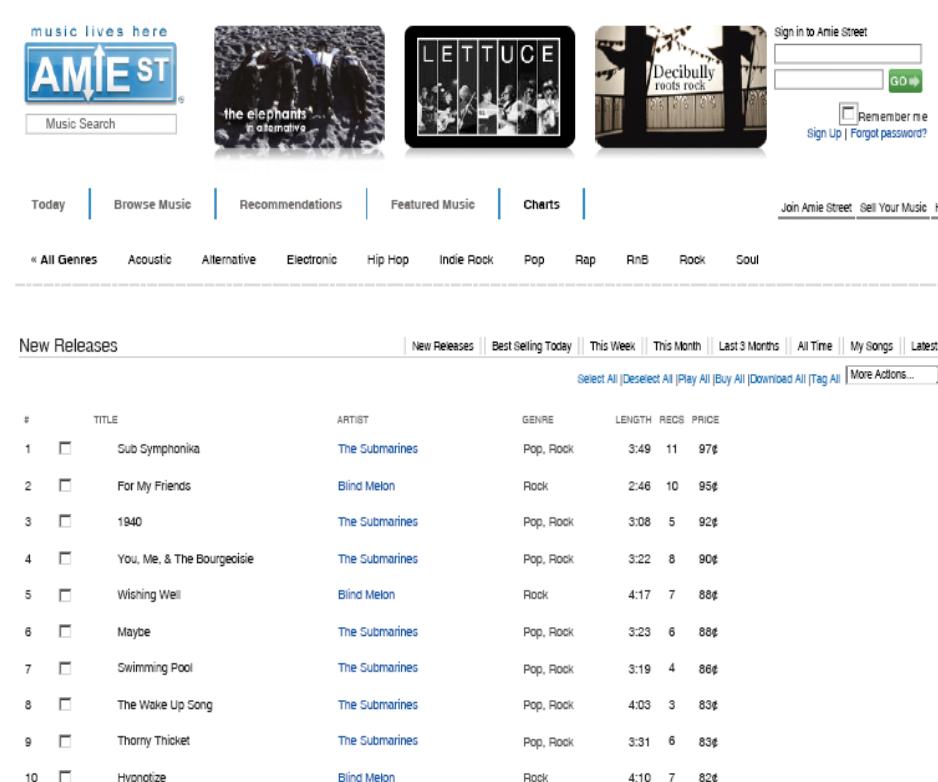
- Current: 99 cents
 - (revenue = \$7,364 in sample)
- Revenue maximizing: \$1.87
 - (revenue = \$8,158)
 - 12 percent increase

Revenue relative to current pricing



Song-Specific (Component) Pricing

- Calculate demand curve for each song
- Currently in use at
 - Amazon (a little)
 - Amie Street



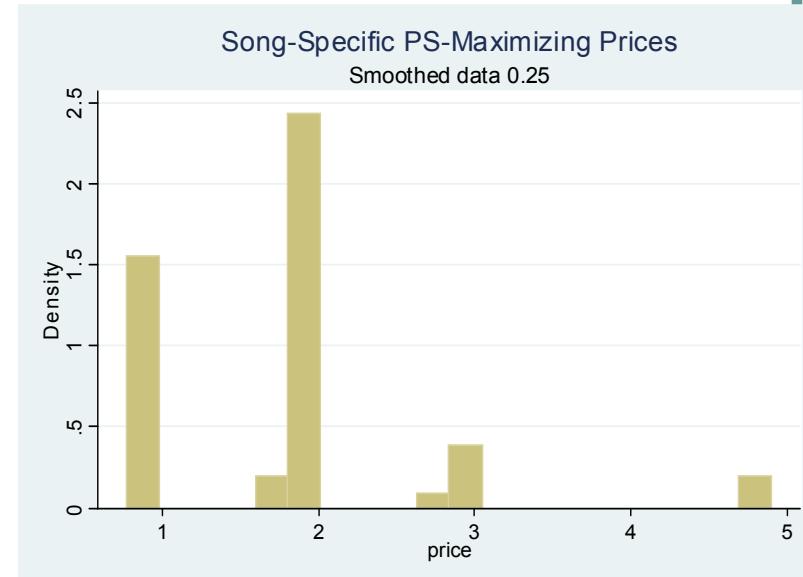
The screenshot shows the Amie Street website interface. At the top, there is a navigation bar with links for 'Today', 'Browse Music', 'Recommendations', 'Featured Music', and 'Charts'. Below this is a genre navigation bar with links for 'All Genres', 'Acoustic', 'Alternative', 'Electronic', 'Hip Hop', 'Indie Rock', 'Pop', 'Rap', 'RnB', 'Rock', and 'Soul'. The main content area is titled 'New Releases' and displays a list of 10 songs. Each song entry includes a checkbox, the title, the artist, the genre, length, number of recommendations, and price. The songs listed are: 1. Sub Symphonika by The Submarines (Pop, Rock, 3:49, 11, 97¢), 2. For My Friends by Blind Melon (Rock, 2:46, 10, 95¢), 3. 1940 by The Submarines (Pop, Rock, 3:08, 5, 92¢), 4. You, Me, & The Bourgeoisie by The Submarines (Pop, Rock, 3:22, 8, 90¢), 5. Wishing Well by Blind Melon (Rock, 4:17, 7, 88¢), 6. Maybe by The Submarines (Pop, Rock, 3:23, 6, 88¢), 7. Swimming Pool by The Submarines (Pop, Rock, 3:19, 4, 86¢), 8. The Wake Up Song by The Submarines (Pop, Rock, 4:03, 3, 83¢), 9. Thorny Thicket by The Submarines (Pop, Rock, 3:31, 6, 83¢), and 10. Hypnotize by Blind Melon (Rock, 4:10, 7, 82¢). At the bottom of the list, there are buttons for 'Select All', 'Deselect All', 'Play All', 'Buy All', 'Download All', 'Tag All', and 'More Actions...'. The right side of the page features a sidebar with links for 'Sign in to Amie Street', 'Remember me', 'Sign Up', and 'Forgot password?'. There is also a 'Join Amie Street' and 'Sell Your Music' button.

#	TITLE	ARTIST	GENRE	LENGTH	RECS	PRICE
1	Sub Symphonika	The Submarines	Pop, Rock	3:49	11	97¢
2	For My Friends	Blind Melon	Rock	2:46	10	95¢
3	1940	The Submarines	Pop, Rock	3:08	5	92¢
4	You, Me, & The Bourgeoisie	The Submarines	Pop, Rock	3:22	8	90¢
5	Wishing Well	Blind Melon	Rock	4:17	7	88¢
6	Maybe	The Submarines	Pop, Rock	3:23	6	88¢
7	Swimming Pool	The Submarines	Pop, Rock	3:19	4	86¢
8	The Wake Up Song	The Submarines	Pop, Rock	4:03	3	83¢
9	Thorny Thicket	The Submarines	Pop, Rock	3:31	6	83¢
10	Hypnotize	Blind Melon	Rock	4:10	7	82¢

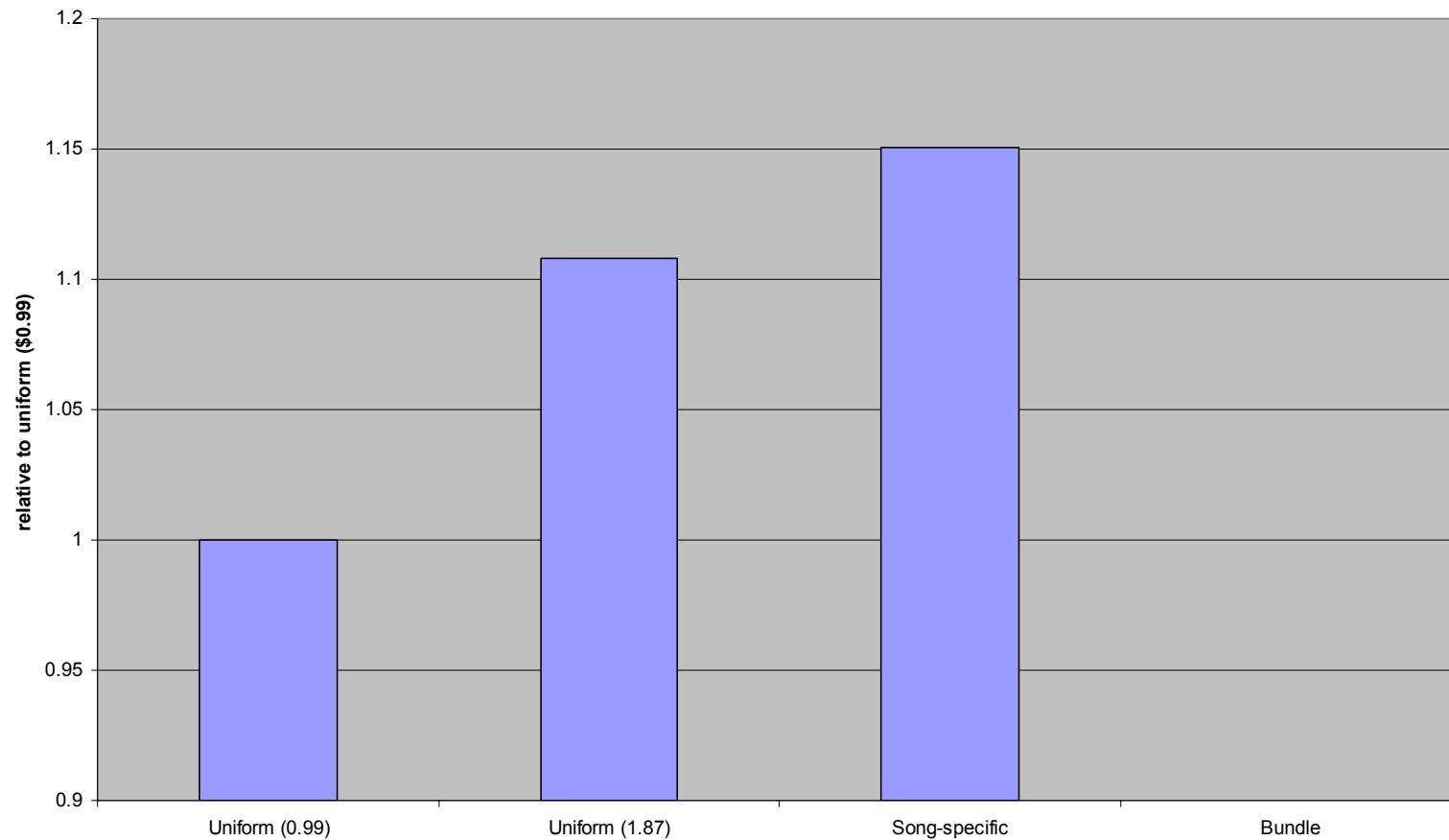
Song-Specific Pricing

Table 2: Song-Specific Revenue Maximizing Prices

<i>song</i>	<i>Price</i> (smoothed Data)
Apologize (feat. OneRepublic) - Timbaland	\$1.88
Big Girls Don't Cry (Personal) - Fergie	\$1.84
Bubbly - Colbie Caillat	\$1.72
Clumsy - Fergie	\$0.90
Crank That (Soulja Boy) - Soulja Boy Tell 'Em	\$1.88
Crushcrushcrush - Paramore	\$0.85
Cyclone (feat. T-Pain) - Baby Bash	\$1.93
Don't Stop the Music - Rihanna	\$2.88
Feedback - Janet	\$1.90
Hate That I Love You (feat. Ne-Yo) - Rihanna	\$1.82
Hero/Heroine (Tom Lord-Alge Mix) - Boys Like Girls	\$0.93
Hey There Delilah - Plain White T's	\$4.88
How Far We've Come - Matchbox Twenty	\$0.88
Hypnotized (feat. Akon) - Plies	\$0.88
I Don't Wanna Be In Love (Dance Floor Anthem) - Good Charlotte	\$0.87
Into the Night (feat. Chad Kroeger) - Santana	\$2.86
Kiss Kiss (feat. T-Pain) - Chris Brown	\$1.83
Love Like This - Natasha Bedingfield	\$1.88
Love Song - Sara Bareilles	\$0.88
Low (feat. T-Pain) - Flo Rida	\$1.86
Misery Business - Paramore	\$0.86



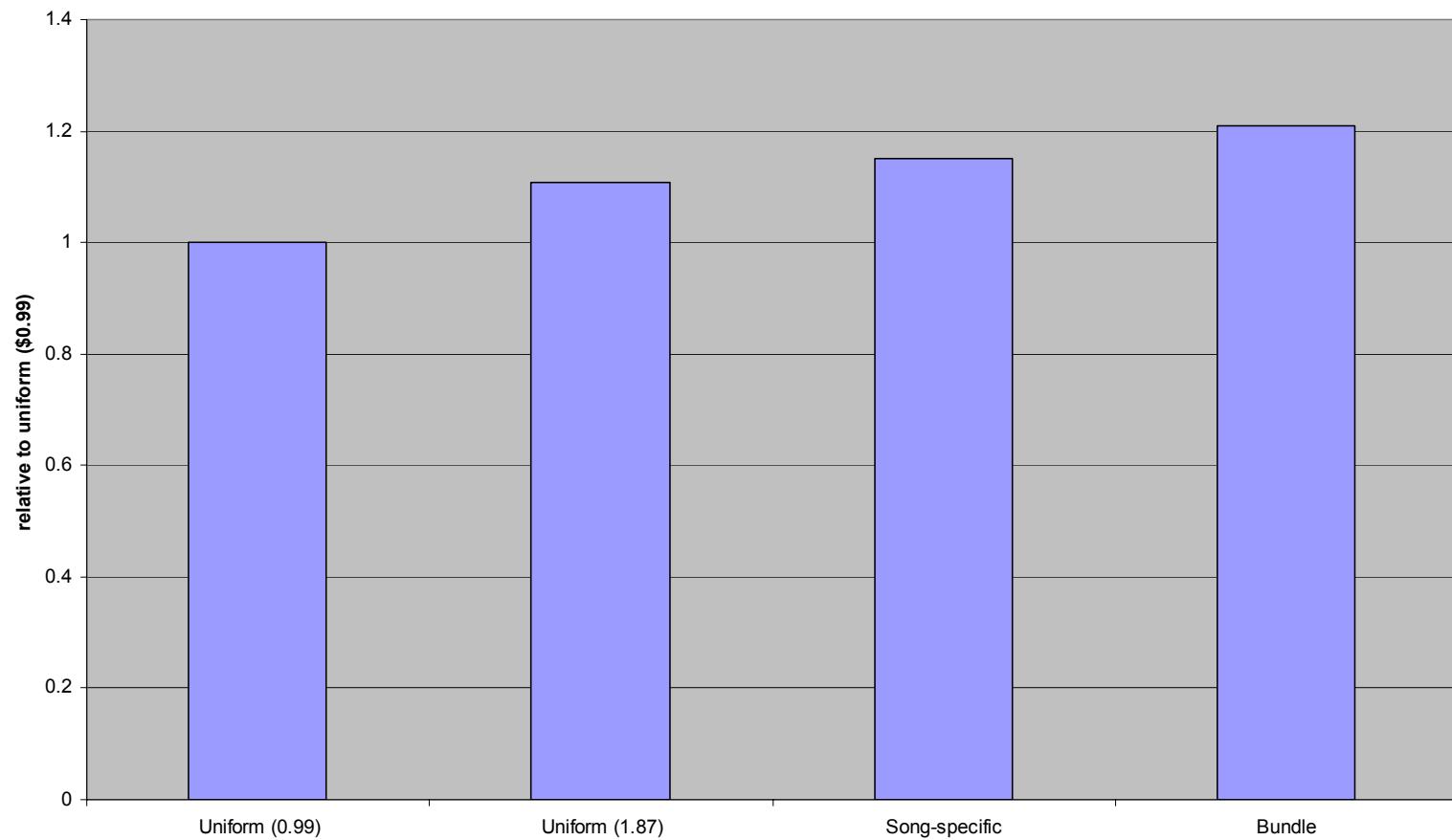
Revenue relative to current pricing



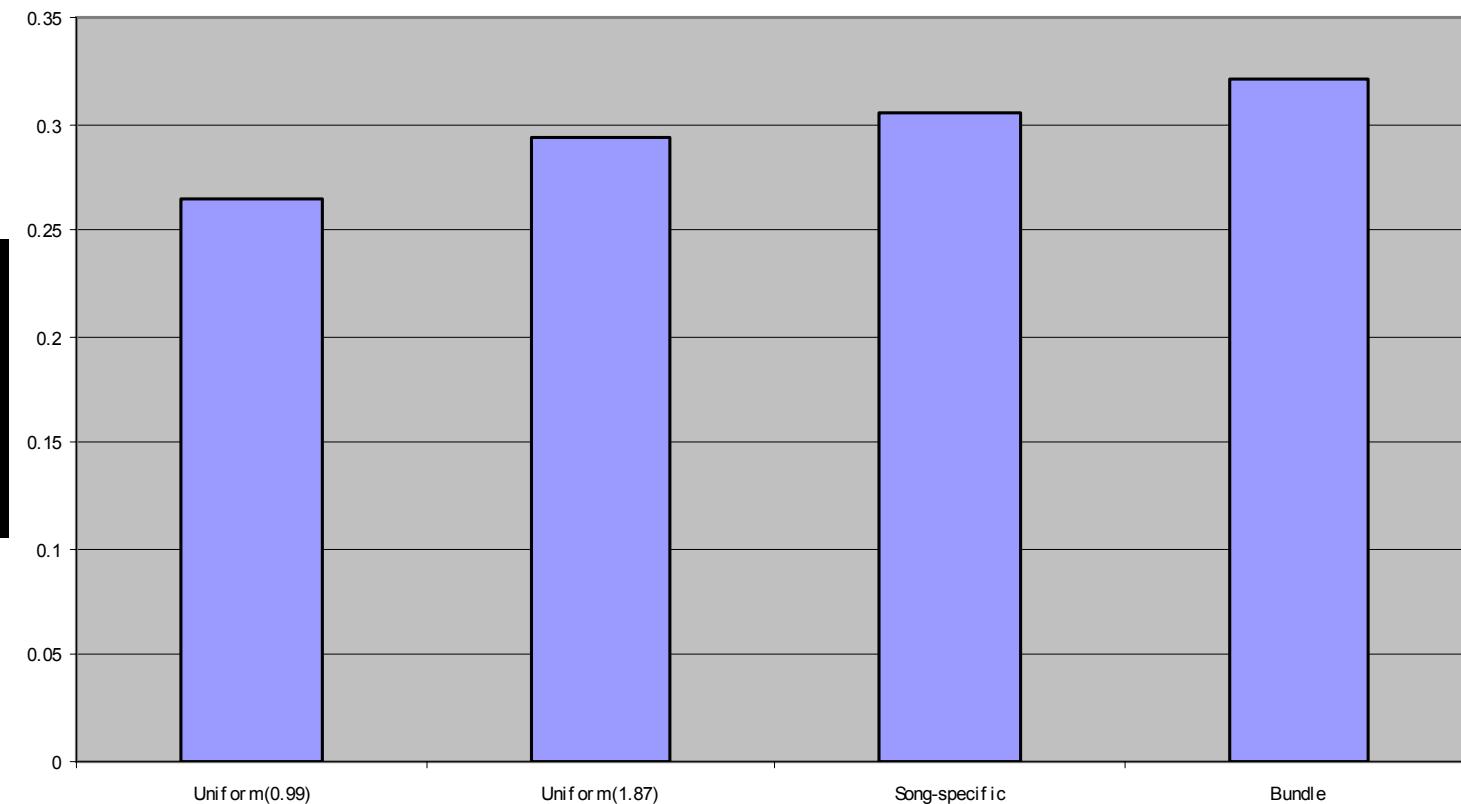
Selling songs as a bundle

- Can increase revenue even when correlations are positive
- Should increase revenue more as bundle size increases
- Optimal price for these 50 songs is \$36.08.

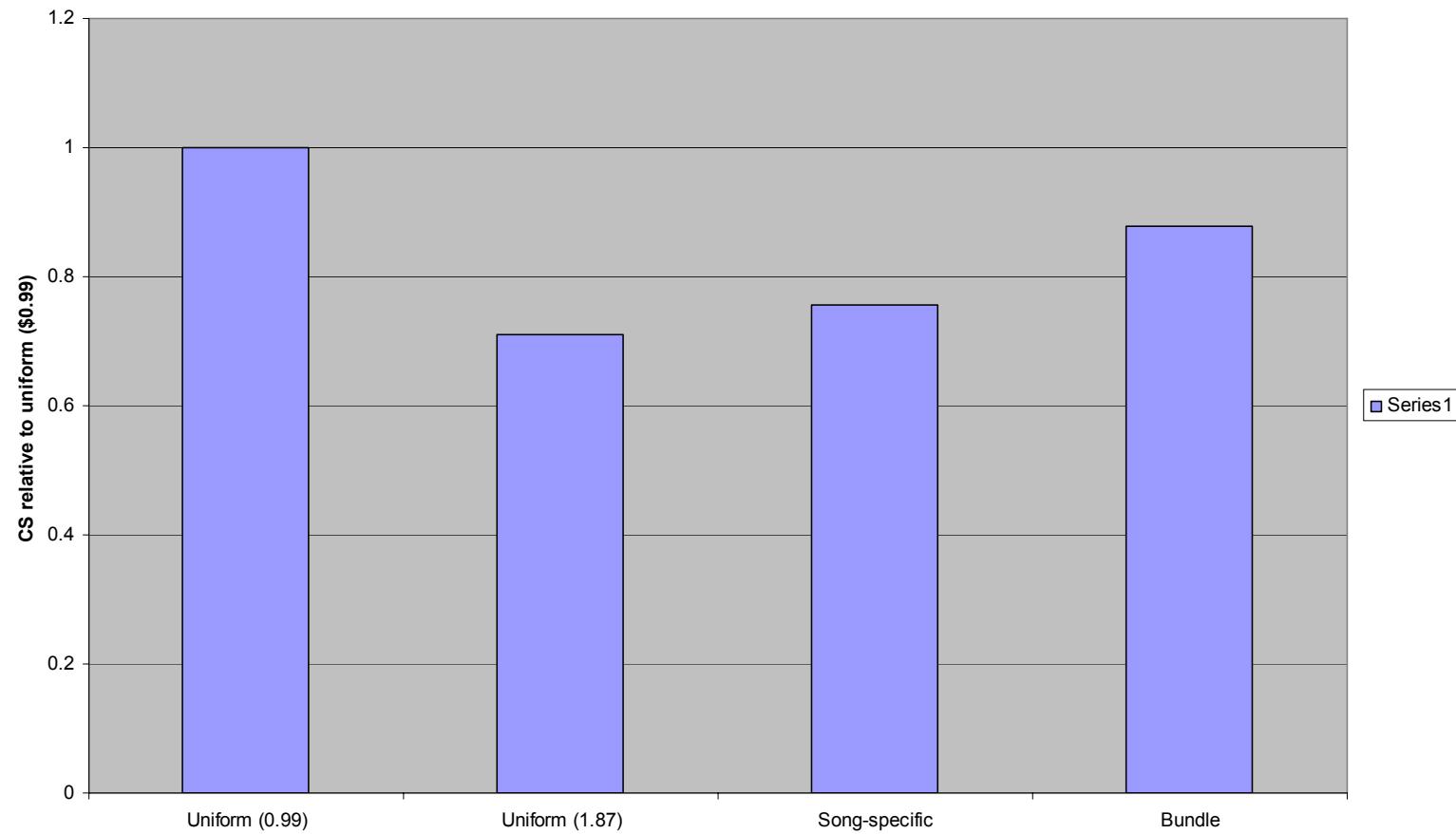
Revenue relative to current pricing



...and little surplus is appropriated



Consumers Fare Worse under Alternatives to Uniform 99



But it's possible

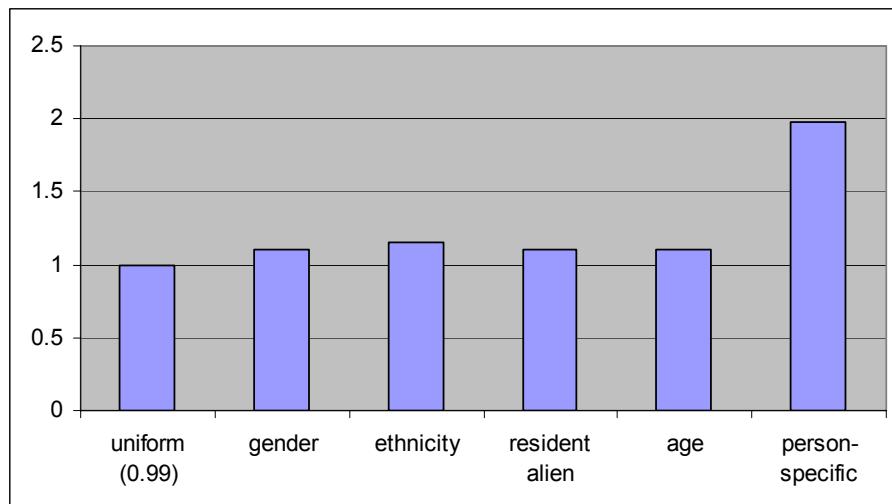
- ...to raise revenue, holding consumers harmless
- Can keep CS at its 99 cent level, raise revenue by 10 percent
- (Keep the hardware valuable)

So Far...

- We've raised revenue by nearly 10 percent
 - ...but not above 1/3 of surplus
- We haven't tried the heavy artillery – mixed bundling – yet
- MB does better, but still delivers only a third of surplus as revenue

Discriminatory Pricing

- So far, we've gotten PS only up to 1/3.
- How about 3rd degree?



Person-specific pricing raises revenue substantially

But more feasible discrimination does little.

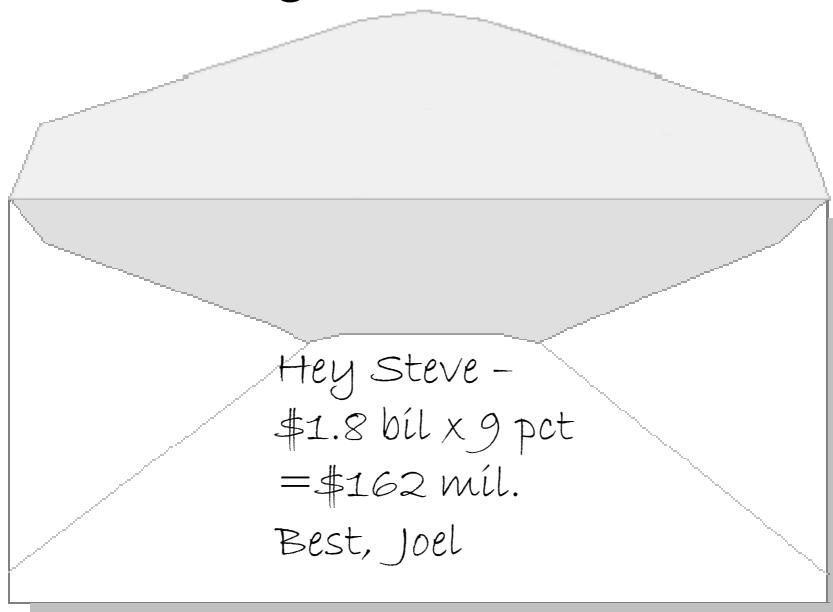
Summing up fancy pricing

- Is the glass half empty or half full?



Summing up fancy pricing

- Glass half full:
 - More revenue is available
 - Even holding consumers harmless



Summing up fancy pricing

- Glass half full:
 - More revenue is available (10 percent)
 - Even holding consumers harmless
- Glass half empty:
 - Relatively small share of surplus available as revenue, even with feasible fancy pricing schemes

Finally

- Music industry hurting from piracy even as service stream historically high
 - need clever ways to appropriate value
- It's happening
 - Nokia and Apple (reportedly) currently contemplating bundling
- Additional challenge:
 - How to share revenue with bundle pricing

I'd love to hear from you

- Email me at

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