Course 3: A focus on the music industry

Fiat Lux Course: The Economics of Superstars

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Outline

Presentations - List of Articles - May 31, 2018

Paper 1 - Alvaredo, Facundo, Anthony B. Atkinson, Thomas Piketty, and Emmanuel Saez. "The Top 1 Percent in International and Historical Perspective." Journal of Economic Perspectives 27, no. 3 (September 2013): 3–20. Link

- Mostly a "facts" and "data" paper. A progressive view of the increase in top income inequality.

Paper 2 - Kaplan, Steven N., and Joshua Rauh. "It's the Market: The Broad-Based Rise in the Return to Top Talent." Journal of Economic Perspectives 27, no. 3 (September 2013): 35–56. Link

- A conservative view of the increase in top income inequality.

Presentations - List of Articles - May 31, 2018

Paper 3 - Bivens, Josh, and Lawrence Mishel. "The Pay of Corporate Executives and Financial Professionals as Evidence of Rents in Top 1 Percent Incomes." Journal of Economic Perspectives 27, no. 3 (September 2013): 57–78. Link

- A view of the increase in inequality with a particular focus on corporate executives and finance professionals. Again, a progressive tone to the paper.

Paper 4 - Mankiw, N. Gregory. "Defending the One Percent." Journal of Economic Perspectives 27, no. 3 (September 2013): 21–34. Link

- Former chairman of the CEA under President George W. Bush's take on the increase in the top 1%.

Presentations - List of Articles - May 31, 2018

Paper 5 - Corak, Miles. "Income Inequality, Equality of Opportunity, and Intergenerational Mobility." Journal of Economic Perspectives 27, no. 3 (September 2013): 79–102. Link

- The "Great Gatsby" curve. Link between inequality and equality of opportunity.

Paper 6 - Bonica, Adam, Nolan McCarty, Keith T. Poole, and Howard Rosenthal. "Why Hasn't Democracy Slowed Rising Inequality?" Journal of Economic Perspectives 27, no. 3 (September 2013): 103–24. Link

- The majority should vote to expropriate the minority. Why don't they?

Presentations - List of Articles - May 31, 2018

Paper 7 - Philippon, Thomas, and Ariell Reshef. "An International Look at the Growth of Modern Finance." Journal of Economic Perspectives 27, no. 2 (May 2013): 73–96. Link

- Has the finance industry become less efficient?

Paper 8 - Haskel, Jonathan, Robert Z. Lawrence, Edward E. Leamer, and Matthew J. Slaughter. "Globalization and U.S. Wages: Modifying Classic Theory to Explain Recent Facts." Journal of Economic Perspectives 26, no. 2 (May 2012): 119–40. Link

- Mainstream trade models do not predict that inequality should increase in both developing and developed countries, following openness to trade. Yet, this is what appears to have happened. Why?

1. Presentations
2. Differences in talents – Hamlen (1991)
3. Music in Marshall (1890)
4. Krueger (2005): "Economics of real superstars"
5. Connolly and Krueger (2006)
6. Alan Krueger's speech (2015)

Abstract

This paper offers empirical evidence which counters two opposing but frequently expressed views concerning the market for popular music. The first view is that the **consumers of popular music** have no recognition of or appreciation for "quality" or "ability" in singing. The second is that the market is an example of the "Superstar Phenomenon," in the **Marshall-Rosen sense**, where in small differences in ability are magnified into disproportional levels of success. Using an external measure of "voice quality," provided by the literature on voice, the estimated elasticity of record sales to voice quality is found to be significantly greater than zero but less than one.

Variables in regression

$$\ln RS = \alpha + \beta_1 \ln P + \beta_2 \ln y + \beta_3 \ln A + \beta_4 F + \beta_5 \ln DUR.$$

- RS is the value of **total record sales**.
- P is the **vector of prices**, including the common "own" price of records.
- y is taken to be total **consumer income** or the total income allocated to record purchases.
- The vector A contains those attributes of the singer which have **quantitative measures**.
- Vector F contains those **attributes influencing demand** but represented by dummy variables.
- The variable Dur is the **number of years** that the singer has used in accumulating record sales.

Variables in regression

- explanatory variables of the singers' success consist of two quantitative variables
  - ln DUR (discussed above),
  - and the singers' voice quality, ln HAR (to be discussed below).
- In addition, there are several zero-one dummy variables representing attributes of the singers. Table 1 contains a summary of the variables used:
  - SX for a female singer.
  - SG: primarily wrote his/her songs
  - COUNTRY: crossover country singer
  - RG: wide voice range
  - MV: starred in at least one movie
  - BD: was recognized for instrumetal backing or a band
  - CS: premature death, publicized split of group.

HAR variable

- Measure of quality.
- Within the literature on professional singing this has come to represent a **specific, measurable attribute.**
- It is often described as the **"richness" or "depth" of the voice**.
- To some extent it can be improved through training and experience.
- but to a large extent it represents a **God-given unique gift**

Regression Results

$$
\begin{aligned}
\ln RS = {} & 0.63871 + \underset{(2.826)}{0.14246 \ln HAR} \\
& \underset{(2.137)}{} \\
& + \underset{(13.546)}{1.22282 \ln DUR} + \underset{(0.126)}{0.03183 SG} \\
& + \underset{(1.205)}{0.33482 BD} \quad \underset{(-0.525)}{-0.14114 RG} \\
& - \underset{(-2.295)}{0.74115 RC} + \underset{(3.797)}{1.00579 SX} \\
& + \underset{(0.794)}{0.20500 MV} + \underset{(0.203)}{0.04762 CS} \\
& + \underset{(1.622)}{0.49654 COUNTRY}
\end{aligned}
$$

$n = 107$; $F = 35.1$; $R^2 = 0.79$.

Voice quality

TABLE 2.—TOP 20 RANKINGS OF SAMPLE

Actual Record Sales ($ Millions)	Predicted Record Sales ($ millions)	Voice Quality
1. Barbara Streisand (80)	1. Barbara Streisand (78)	1. Barbara Streisand (10.8)
2. Billy Joel (68)	2. The Beatles (62)	2. Bing Crosby (8.3)
3. Elvis Presley (63)	3. Anne Murray (53)	3. Frank Sinatra (6.0)
4. Bee Gees (50)	4. Frank Sinatra (47)	4. George B. Shea (5.1)
5. Beatles (47)	5. The Beach Boys (43)	5. John Denver (5.0)
6. Barry Manilow (43)	6. Peter, Paul and Mary (42)	6. Billy Joel (4.9)
7. Alabama (41)	7. Elvis Presley (42)	7. Donna Summer (4.7)
8. Willie Nelson (34)	8. Paul McCartney (41)	8. The Beatles (4.6)
9. Whitney Houston (32)	9. Roy Orbison (38)	9. Dion (4.5)
10. Paul McCartney (31)	10. Crosby Stills & Nash (37)	10. Alabama (4.3)
11. Bob Dylan (28)	11. Hank Williams (31)	11. Peter, Paul and Mary (3.8)
12. Donna Summer (28)	12. Neil Diamond (30)	12. Gene Autry (3.7)
13. Neil Diamond (26)	13. Bob Dylan (30)	13. Elvis Presley (3.6)
14. John Denver (26)	14. Carole King (29)	14. Roy Orbison (3.2)
15. Linda Ronstadt (21)	15. John Denver (27)	15. Ricky Nelson (3.0)
16. Anne Murray (20)	16. Dionne Warwick (25)	16. The Supremes (2.8)
17. Beach Boys (18)	17. Judy Collins (24)	17. Pat Boone (2.8)
18. Frank Sinatra (18)	18. Alabama (22)	18. Whitney Houston (2.6)
19. Johnny Cash (18)	19. Ricky Nelson (19)	19. Debbie Boone (2.4)
20. The Carpenters (18)	20. Linda Ronstadt (19)	20. Neil Diamond (2.3)

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Quotation in Marshall (1890): Book VI, Chapter XII

It is the first cause, almost alone, that enables some barristers to command very high fees; **for a rich client whose reputation, or fortune, or both, are at stake will scarcely count any price too high to secure the services of the best man he can get**: and it is this again that enables jockeys and painters and musicians of exceptional ability to get very high prices. In all these occupations the highest incomes earned in our own generation are the highest that the world has yet seen. But **so long as the number of persons who can be reached by a human voice is strictly limited, it is not very likely that any singer will make an advance on the £10,000, said to have been earned in a season by Mrs Billington at the beginning of last century**, nearly as great as that which the business leaders of the present generation have made on those of the last.

Analysis

- In the days when there was no broadcasting, and no recording possibilities, you could only hear the top singers in person, so that they played in the largest venues in large cities.
- The top singers would attract those with the greatest willingness to pay.
- Those who were less willing to pay would hear lesser stars, or have to make do with the local talent.
- This means that the earnings of the second-best performer depend on the 'reach' of the top performer, and so on down the range of talent.

Quotation in Marshall (1890): Book VI, Chapter XII

The relative fall in the incomes to be earned by moderate ability, however carefully trained, is accentuated by the rise in those that are obtained by many men of extraordinary ability. There never was a time at which moderately good oil paintings sold more cheaply than now, and there never was a time at which first-rate paintings sold so dearly. A business man of average ability and average good fortune gets now a lower rate of profits on his capital than at any previous time; while yet the operations, in which a man exceptionally favoured by genius and good luck can take part, are so extensive as to enable him to amass a huge fortune with a rapidity hitherto unknown. The causes of this change are chiefly two; **firstly, the general growth of wealth**; and **secondly, the development of new facilities for communication, by which men, who have once attained a commanding position, are enabled to apply their constructive or speculative genius to undertakings vaster, and extending over a wider area, than ever before.**

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Average concert ticket price, selected artist

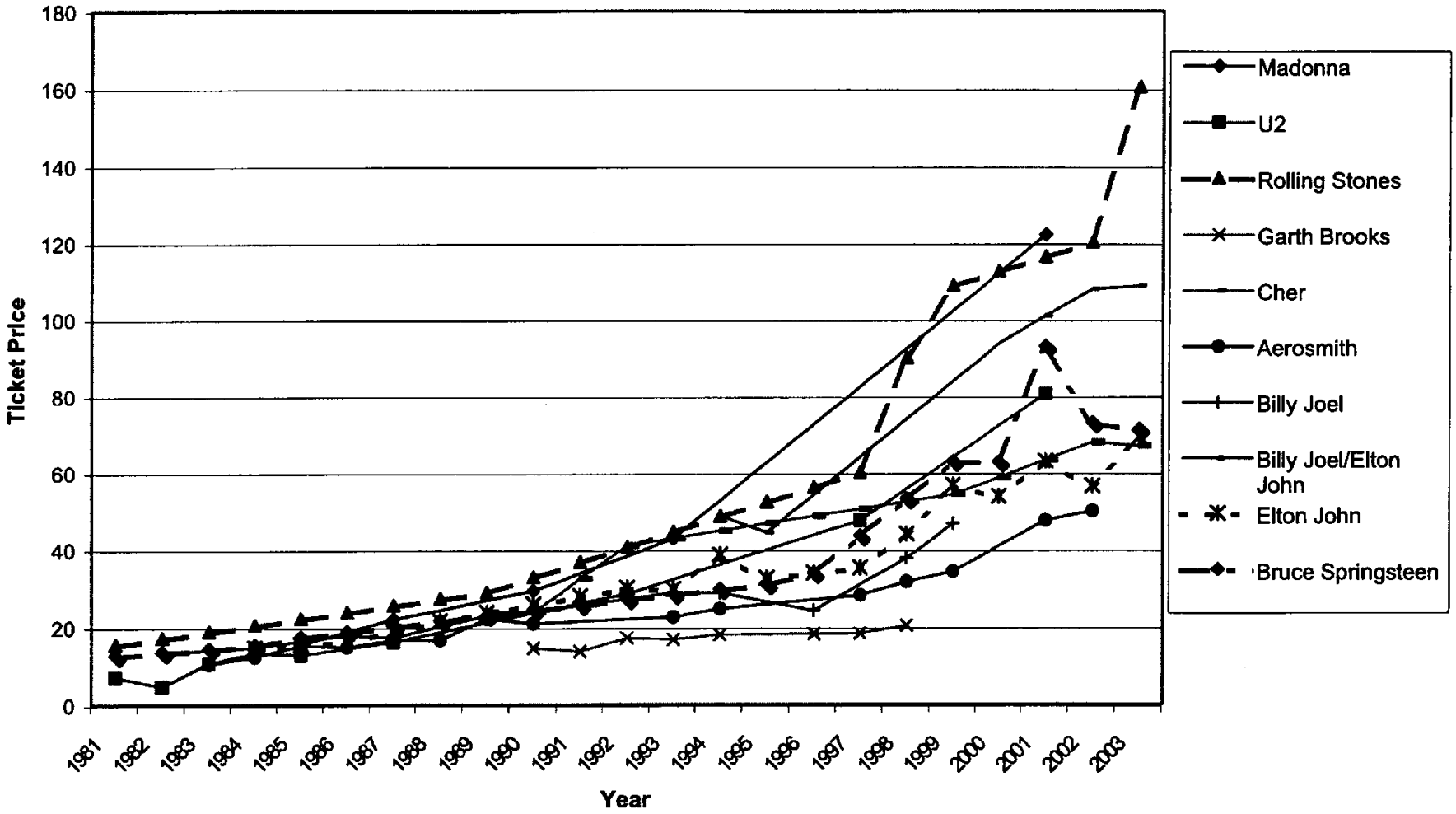


FIG. 2.—Average concert ticket price, selected artists

Concert Revenue and Prices

Table 1
Concert Revenue and Prices in 1994–95 and 2000–2001 for Artists with Highest Revenue per Show in 1996–99

	1994–95				2000–2001				Percentage Change			
Artist	Total Revenue ($1,000)	Number of Shows	Revenue per Show ($1,000)	Average Price	Total Revenue ($1,000)	Number of Shows	Revenue per Show ($1,000)	Average Price	Total Revenue	Number of Shows	Revenue per Show	Average Price
The Eagles	151,000	102	1,480	67.50	4,837	1	4,837	89.22	−96.8	−99.0	226.8	32.2
Barbra Streisand	54,200	20	2,710	201.65	27,700	4	6,925	483.61	−48.9	−80.0	155.5	139.8
Reba McEntire	50,200	147	341	29.49	11,800	43	274	42.76	−76.5	−70.7	−19.6	45.0
Jimmy Buffett	35,700	64	558	31.39	49,600	62	800	39.84	38.9	−3.1	43.4	26.9
George Strait	28,600	76	376	23.73	22,500	11	2,045	48.60	−21.3	−85.5	443.5	104.8
Aerosmith	24,200	54	448	29.64	45,900	59	778	47.34	89.7	9.3	73.6	59.7
Elton John	24,200	37	654	40.66	21,800	38	574	56.70	−9.9	2.7	−12.3	39.4
Phish	23,100	141	164	23.27	21,300	40	533	30.50	−7.8	−71.6	225.0	31.0
Eric Clapton	21,500	40	538	42.65	32,900	40	823	62.46	53.0	.0	53.0	46.4
Metallica	20,800	40	520	27.74	37,500	18	2,083	60.45	80.3	−55.0	300.6	117.9
Rod Stewart	18,500	35	529	39.46	23,900	58	412	46.12	29.2	65.7	−22.0	16.9
Janet Jackson	14,200	33	430	36.54	38,400	51	753	64.37	170.4	54.5	75.0	76.1
Dave Matthews Band	10,700	131	82	21.55	129,000	110	1,173	43.72	1,105.6	−16.0	1,335.8	102.8
Pearl Jam	9,264	33	281	23.32	8,454	18	470	28.91	−8.7	−45.5	67.3	24.0
Beastie Boys	6,196	28	221	22.99	338	2	169	50.00	−94.5	−92.9	−23.6	117.5
Luciano Pavarotti	5,410	4	1,352	88.19	10,300	9	1,144	105.78	90.4	125.0	−15.4	19.9
Bruce Springsteen & The E Street Band	1,652	16	103	35.45	47,000	48	979	65.20	2,745.3	200.0	848.4	83.9
Ozzy Osbourne	1,516	12	126	28.86	49,100	67	733	43.37	3,139.3	458.3	480.2	50.3
Paul Simon	368	1	368	82.14	5,989	25	240	34.35	1,529.4	2,400.0	−34.8	−58.2
Mariah Carey	325	1	325	27.51	6,687	8	836	59.70	1,960.5	700.0	157.6	117.0
KISS	141	1	141	11.94	60,100	118	509	50.07	42,436.8	11,700.0	260.5	319.3
Average	23,894	48.4	494	40.41	31,196	39.5	789	50.02	30.6	−18.3	59.8	23.8

SOURCE.—Computations are based on the *Pollstar* database. All dollar figures are converted to 2001 dollars based on CPI-U.

Price, Revenue

Table 2
Price, Revenue, and Revenue per Show Regressions for All Artists

Variable	Log Price (1)	Log Annual Revenue (2)	Log Revenue per Show (3)
Intercept	2.261**	9.493**	9.277**
	(.053)	(.121)	(.143)
Star quality × 1981–86	.234**	3.513**	2.413**
	(.058)	(.228)	(.175)
Star quality × 1987–91	.289**	4.555**	3.090**
	(.043)	(.220)	(.189)
Star quality × 1992–96	.523**	5.222**	3.495**
	(.065)	(.240)	(.240)
Star quality × 1997–2003	.700**	5.508**	3.571**
	(.066)	(.234)	(.240)
Number of support acts	.0003	.094**	.024**
	(.0003)	(.003)	(.001)
R-squared	.518	.366	.359
N	35,835	35,835	35,835

NOTE.—Robust standard errors are in parentheses. All equations include year dummies. Col. 1 is estimated by weighted least squares, where the weights are tickets sold; column 2 is estimated by ordinary least squares; and col. 3 is estimated by weighted least squares, where weights are the number of shows performed in the year. Star quality is millimeters of space devoted to the artist in the *Rolling Stone Encyclopedia*, divided by 1,000.

** $p < .01$

Price, Revenue

Table 3
Price, Revenue, and Revenue per Show Regressions for Artists Listed in *The Rolling Stone Encyclopedia of Rock & Roll*

Revenue Show Variable	Log Price (1)	Log Annual Revenue (2)	Log Revenue per Show (3)	Log Price (4)	Log Annual Revenue (5)	Log Revenue per Show (6)
Intercept	2.258**	9.572**	9.222**	2.241**	9.834**	9.519**
	(.063)	(.181)	(.236)	(.070)	(.302)	(.279)
Star quality × 1981–86	.248**	3.314**	2.592**	.237**	3.358**	2.468**
	(.068)	(.342)	(.327)	(.054)	(.361)	(.281)
Star quality × 1987–91	.264**	3.862*	2.790**	.260**	3.889**	2.662**
	(.050)	(.358)	(.258)	(.041)	(.374)	(.272)
Star quality × 1992–96	.478**	4.047**	2.822**	.455**	4.105**	2.646**
	(.077)	(.383)	(.325)	(.077)	(.393)	(.327)
Star quality × 1997+	.632**	3.542**	2.346*	.616**	3.637**	2.206**
	(.097)	(.341)	(.307)	(.10)	(.350)	(.305)
Number of support acts	.0002	.084**	.022**	.001*	.084**	.022**
	(.0003)	(.004)	(.002)	(.000)	(.005)	(.002)
Male				.084	.344	.220
				(.048)	(.238)	(.185)
Female				.213**	.627*	.475*
				(.057)	(.259)	(.197)
Experience				.003	−.008	.003
				(.002)	(.005)	(.005)
Foreign				.065*	.240*	.194
				(.026)	(.112)	(.103)
Genre:						
Other				−.307**	−.985**	−1.178**
				(.113)	(.255)	(.270)
Blues				−.236**	−.955*	−1.593*
				(.054)	(.342)	(.437)
Country/western				−.189**	−.267	−.289
				(.047)	(.215)	(.184)
Folk				−.222*	−1.199**	−1.298**
				(.091)	(.251)	(.210)
Jazz				.044	−.380	−.504
				(.083)	(.298)	(.294)
Rock & roll				−.169**	−.785**	−.587**
				(.030)	(.144)	(.141)
R&B				−.105	−.550**	−.462*
				(.076)	(.197)	(.222)
Rap				−.180**	−1.155**	−.761**
				(.041)	(.191)	(.182)
Reggae				−.320**	−.949**	−1.278**
				(.060)	(.271)	(.264)
R-squared	.668	.382	.338	.715	.416	.406

NOTE.—Robust standard errors are in parentheses. All equations include year dummies. Cols. 1 and 4 are estimated by weighted least squares, where the weights are tickets sold; cols. 2 and 5 are estimated by ordinary least squares; and cols. 3 and 6 are estimated by weighted least squares, where weights are the number of shows performed in the year. The baseline genre dummy is pop music. The baseline gender is both men and women. Star quality is millimeters of space devoted to the artist in the *Rolling Stone Encyclopedia*, divided by 1,000. Sample size is 10,043 artist/year observations.

* $p < .05$.

** $p < .01$.

Market, Top

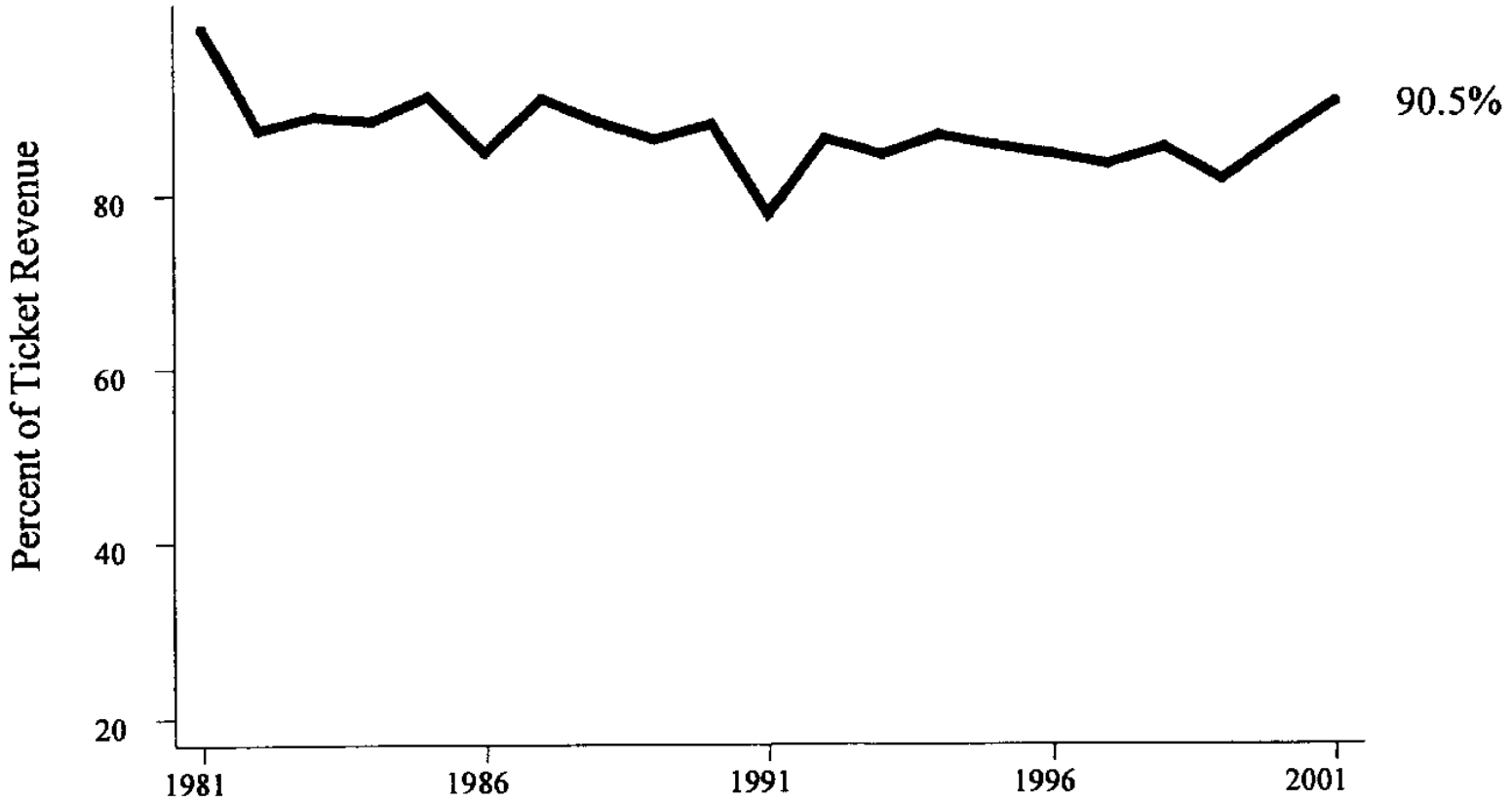


FIG. 8.—Average within-market percent of revenue handled by the biggest four promoters in each city. Information calculated by the author based on *Pollstar* data. Sample consists of artists listed in *The Rolling Stone Encyclopedia*. Figures show average of percent in each of the top 24 cities.

Tom Petty

My top price is about sixty-five dollars, and I turn a very healthy profit on that; I make millions on the road. I **see no reason to bring the price up**, even though I have heard many an anxious promoter say, **"We could charge 150 bucks for this."** I would like to do this again and maybe come through and not leave a bad taste in people's mouths. . . . It's so wrong to say, "OK, we've got them on the ticket and we've got them on the beer and we've got on everything else, let's get them on the damn parking." **You got to care about the person you're dealing with**. (Quoted from Wild [2002, 34], em- phasis added)

Estimated pre-tax gross income by source for 35 top artists who toured in 2002 (millions of US dollars)

Table 1
Estimated pre-tax gross income by source for 35 top artists who toured in 2002 (millions of US dollars)

Rank	Artist	Live concerts	Recordings	Publishing	Total income
1	Paul McCartney	64.9	2.2	2.2	72.1
2	The Rolling Stones	39.6	0.9	2.2	44.0
3	Dave Matthews Band	27.9	0.0	2.5	31.3
4	Celine Dion	22.4	3.1	0.9	31.1
5	Eminem	5.5	10.4	3.8	28.9
6	Cher	26.2	0.5	0.0	26.7
7	Bruce Springsteen	17.9	2.2	4.5	24.8
8	Jay-Z	0.7	12.7	0.7	22.7
9	Ozzy Osbourne/The Osbournes	3.8	0.2	0.5	22.5
10	Elton John	20.2	0.9	1.3	22.4
11	The Eagles	15.1	0.7	1.4	17.6
12	Jimmy Buffett	13.7	0.2	0.5	17.6
13	Billy Joel	16.0	0.0	1.0	17.0
14	Neil Diamond	16.5	0.0	0.3	16.8
15	Aerosmith	11.6	1.0	0.8	16.5
16	Crosby, Stills, Nash & Young	15.7	0.0	0.3	16.0
17	Creed	10.9	1.1	1.6	13.4
18	Rush	13.4	0.0	0.0	13.4

Organization of the popular music industry

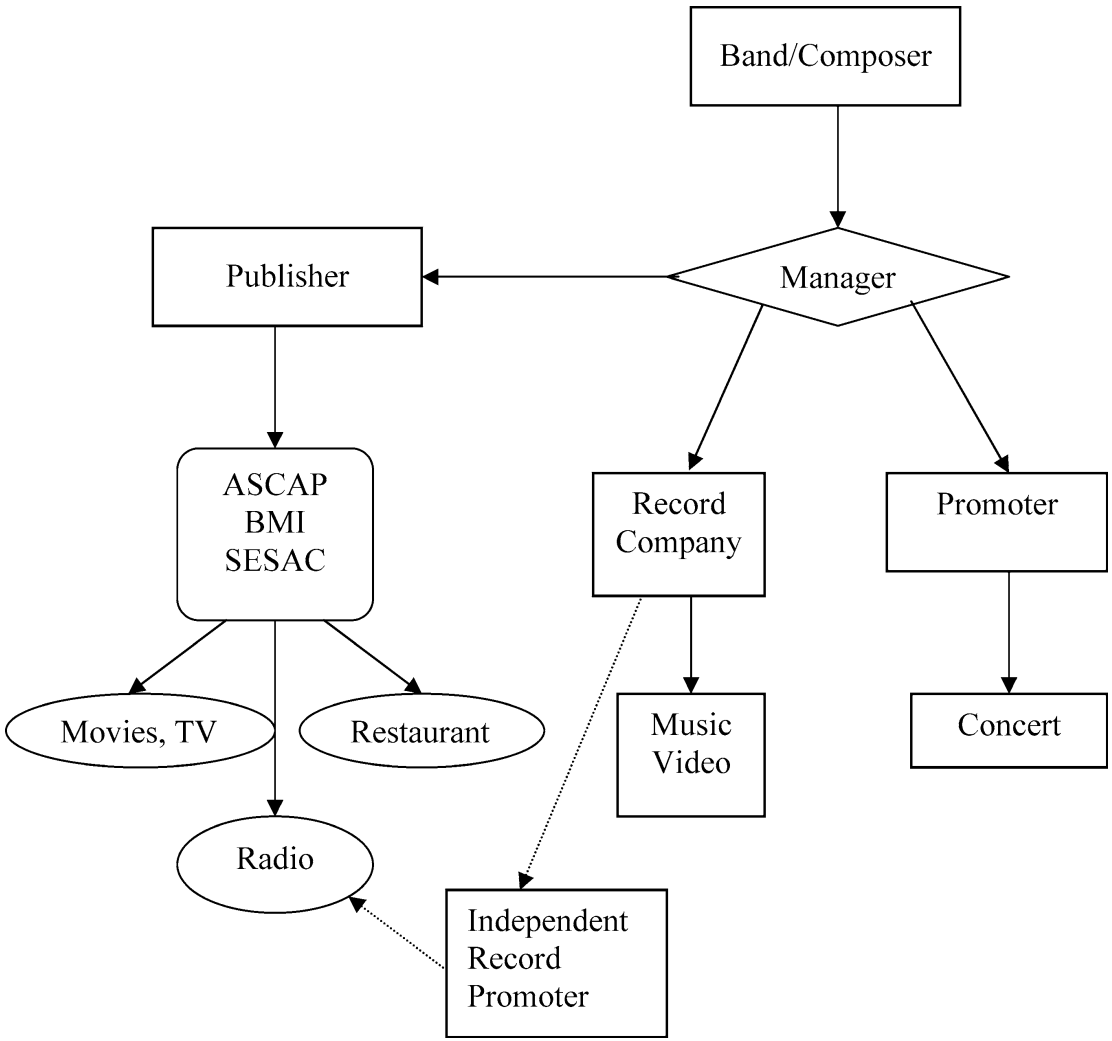


Figure 1. Organization of the popular music industry.

Average price per ticket, high and low price tickets, and overall inflation rate, 1981–2003

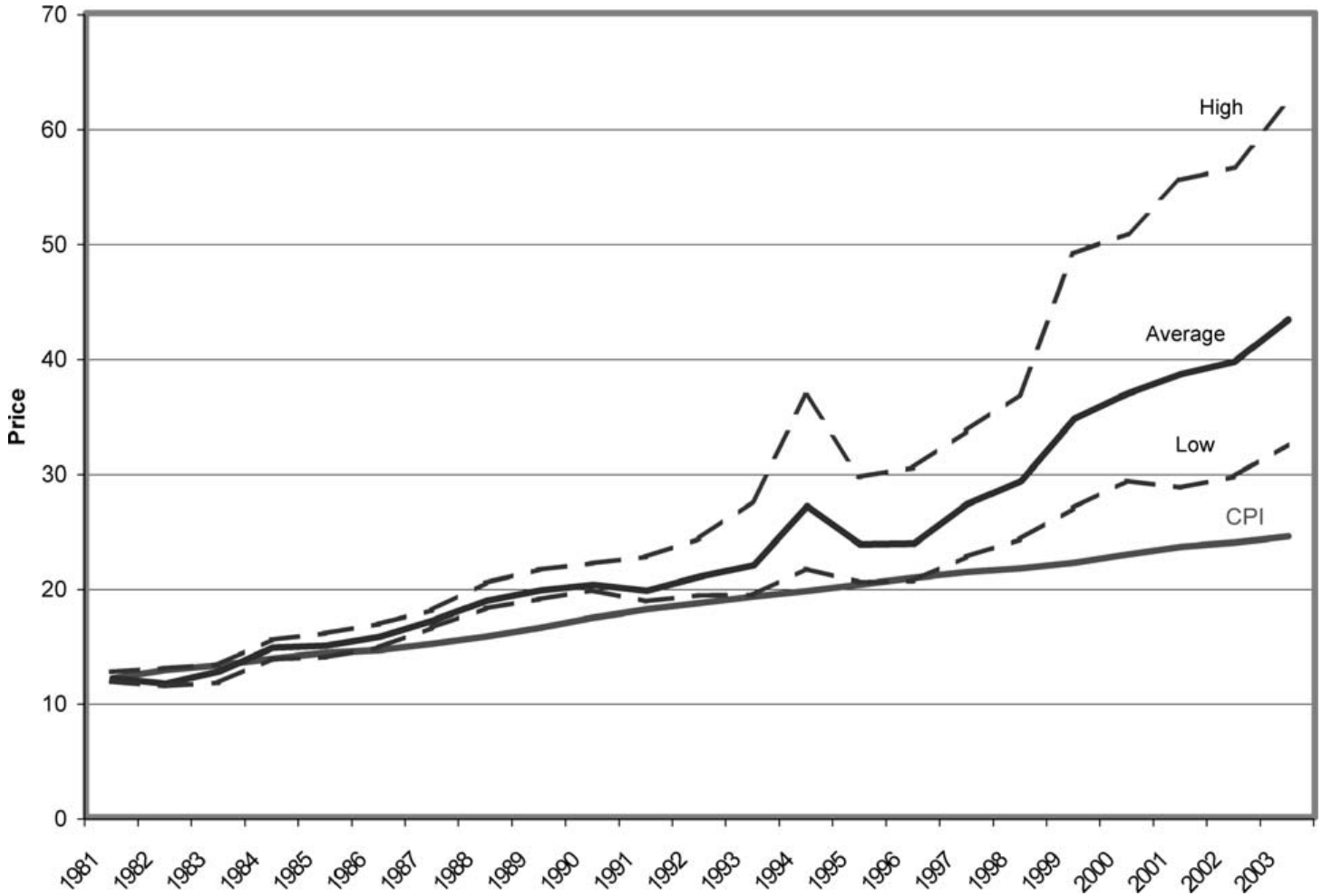


Figure 2. Average price per ticket, high and low price tickets, and overall inflation rate, 1981–2003. Source: Krueger (2005).

Concert prices tracked prices of movies, theater and sports tickets well until 1997

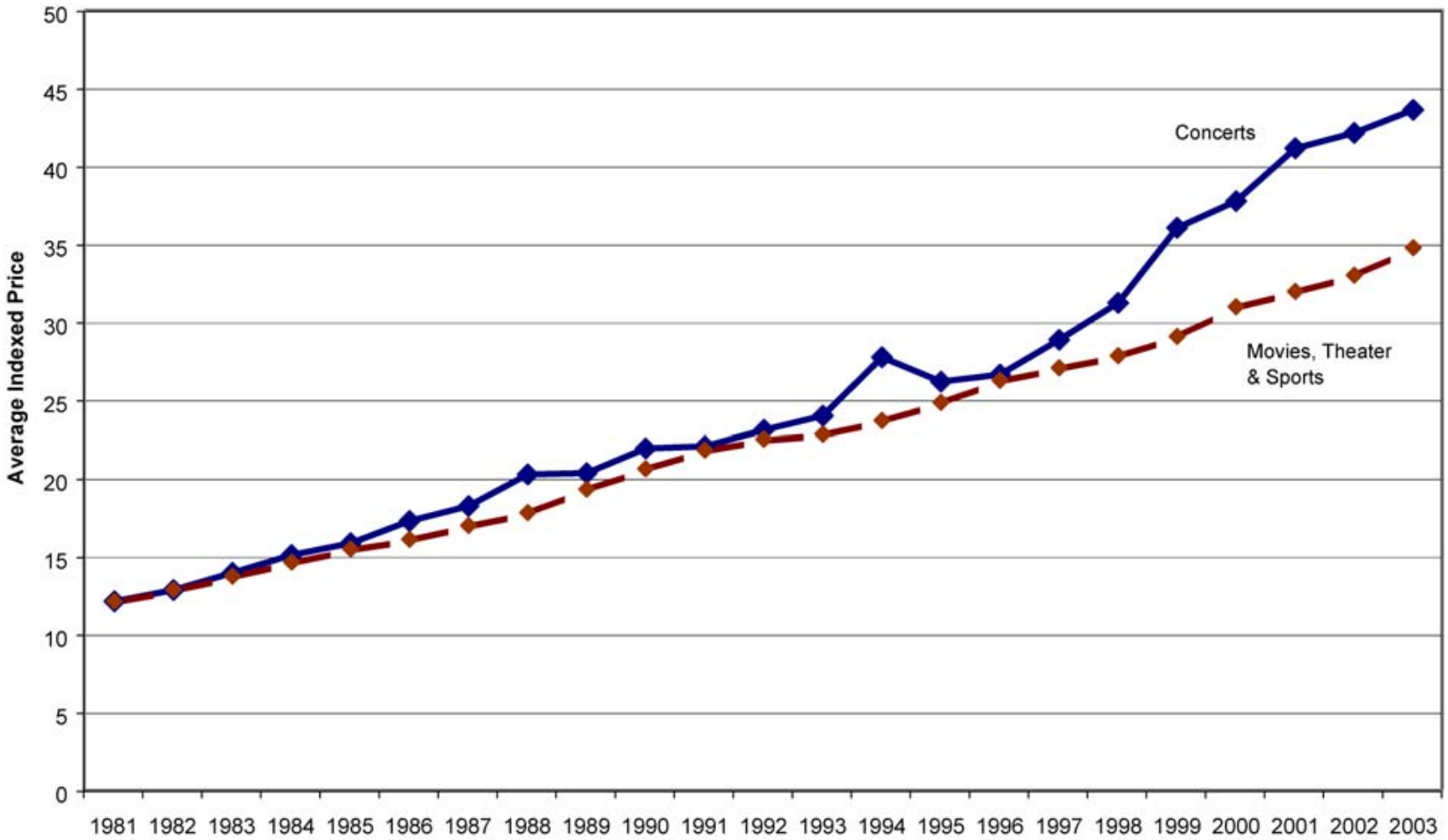


Figure 3. Concert prices tracked prices of movies, theater and sports tickets well until 1997. Laspeyres price index for concerts versus CPI-U for movies, theater and sports events. Source: Krueger (2005).

Various price indices for concert tickets and other entertainment events

Table 2
Various price indices for concert tickets and other entertainment events, using either the headline artist or venue as the unit of observation

Year	Artist			Venue			
	Laspeyres (1)	Paasche (2)	Fisher (3)	Laspeyres (4)	Paasche (5)	Fisher (6)	Movies, sports and theater (CPI) (7)
1981	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1982	112.8	108.9	110.8	106.0	106.3	106.2	106.1
1983	129.6	118.0	123.6	115.2	115.7	115.5	113.4
1984	143.8	126.0	134.6	124.7	127.0	125.8	120.8
1985	157.2	136.5	146.5	130.8	132.8	131.8	127.8
1986	166.5	144.9	155.4	142.7	142.1	142.4	133.0
1987	179.1	155.0	166.6	150.7	148.4	149.5	140.3
1988	199.6	171.6	185.0	167.4	165.2	166.3	147.1
1989	215.3	187.6	201.0	168.1	169.3	168.7	159.6
1990	236.0	200.3	217.5	181.2	185.1	183.1	170.5
1991	254.0	207.7	229.7	182.3	188.6	185.4	180.3
1992	273.9	214.3	242.3	190.8	198.8	194.7	186.0
1993	286.6	225.8	254.4	198.3	207.0	202.6	188.7
1994	310.0	209.5	254.9	229.3	235.1	232.2	195.7
1995	340.5	219.5	273.4	216.4	227.7	222.0	205.4
1996	398.5	234.6	305.8	220.1	225.2	222.6	217.1
1997	426.2	238.6	318.9	238.6	230.9	234.7	223.7
1998	518.0	273.9	376.7	258.2	251.5	254.8	230.1
1999	606.0	273.0	406.7	298.0	288.5	293.2	240.4
2000	671.7	300.9	449.6	312.2	304.7	308.4	256.1
2001	750.1	324.7	493.5	340.3	326.9	333.5	264.3
2002	802.1	334.9	518.3	348.5	336.1	342.2	272.9
2003	877.1	365.1	565.9	360.7	347.3	353.9	287.5
	Per annum percentage growth rate						
1981–1989	10.1	8.2	9.1	6.7	6.8	6.8	6.0
1989–1996	9.2	3.2	6.2	3.9	4.2	4.0	4.5
1996–1903	11.9	6.5	9.2	7.3	6.4	6.8	4.1

Notes: Authors' calculations based on Pollstar data and data from BLS. Index sets 1981 to 100. Weights are updated each year for columns 1–6.

Rolling Stone Encyclopedia Artists

(a) number of shows each year; (b) number of tickets sold each year; (c) total ticket revenue in 2003 dollars

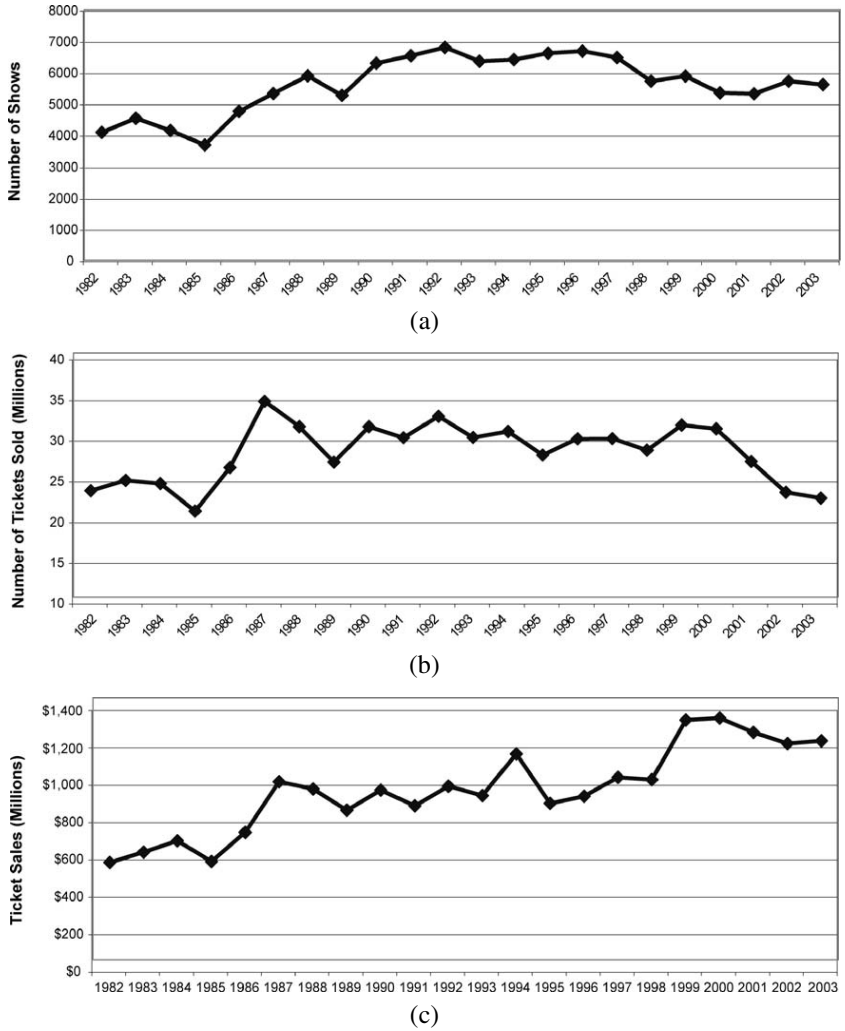


Figure 4. *Rolling Stone Encyclopedia* Artists: (a) number of shows each year; (b) number of tickets sold each year; (c) total ticket revenue in 2003 dollars. Source: Krueger (2005).

What could have happened?

- A trend worth noting is that the **capacity utilization rate**, or the fraction of available seats that are sold, has **fallen** over the last two decades.
- The fraction of tickets sold fell from around **90 percent** in the late 1980s to just over **75 percent** in 2003.
- It could be that the music industry just has a hard time selling tickets. But what should we then see for prices?
- More likely, the music industry is engaging in **monopoly pricing.**

Monopoly Pricing?

- The firm's problem is:

$$\max_p \quad \underbrace{pq(p)}_{\text{Total Revenue}} - \underbrace{c\left(q(p)\right)}_{\text{Total Cost}}$$

- First order condition for this problem is:

$$pq'(p) + q(p) - c'(q(p))q'(p) = 0$$

$$\Rightarrow \quad \underbrace{p + \frac{q(p)}{q'(p)}}_{\text{Marginal Revenue}} = \underbrace{c'\left(q(p)\right)}_{\text{Marginal Cost}}$$

- Rearranging:

$$p - c'(q(p)) = -\frac{q(p)}{q'(p)p}p$$

$$= \frac{1}{\eta}p$$

Monopoly Pricing?

- Thus, the price if a markup over marginal cost:

$$\boxed{p = c'(q(p))\frac{\eta}{\eta - 1}}$$

- Where, by $\eta \equiv -\frac{q'(p)p}{q(p)}$ is, by definition, the elasticity of demand.
- Two polar cases:
  - If demand is very elastic, then the markup $\eta/(\eta - 1)$ is close to 1
  - If demand is inelastic, then the markup can become arbitrarily large.

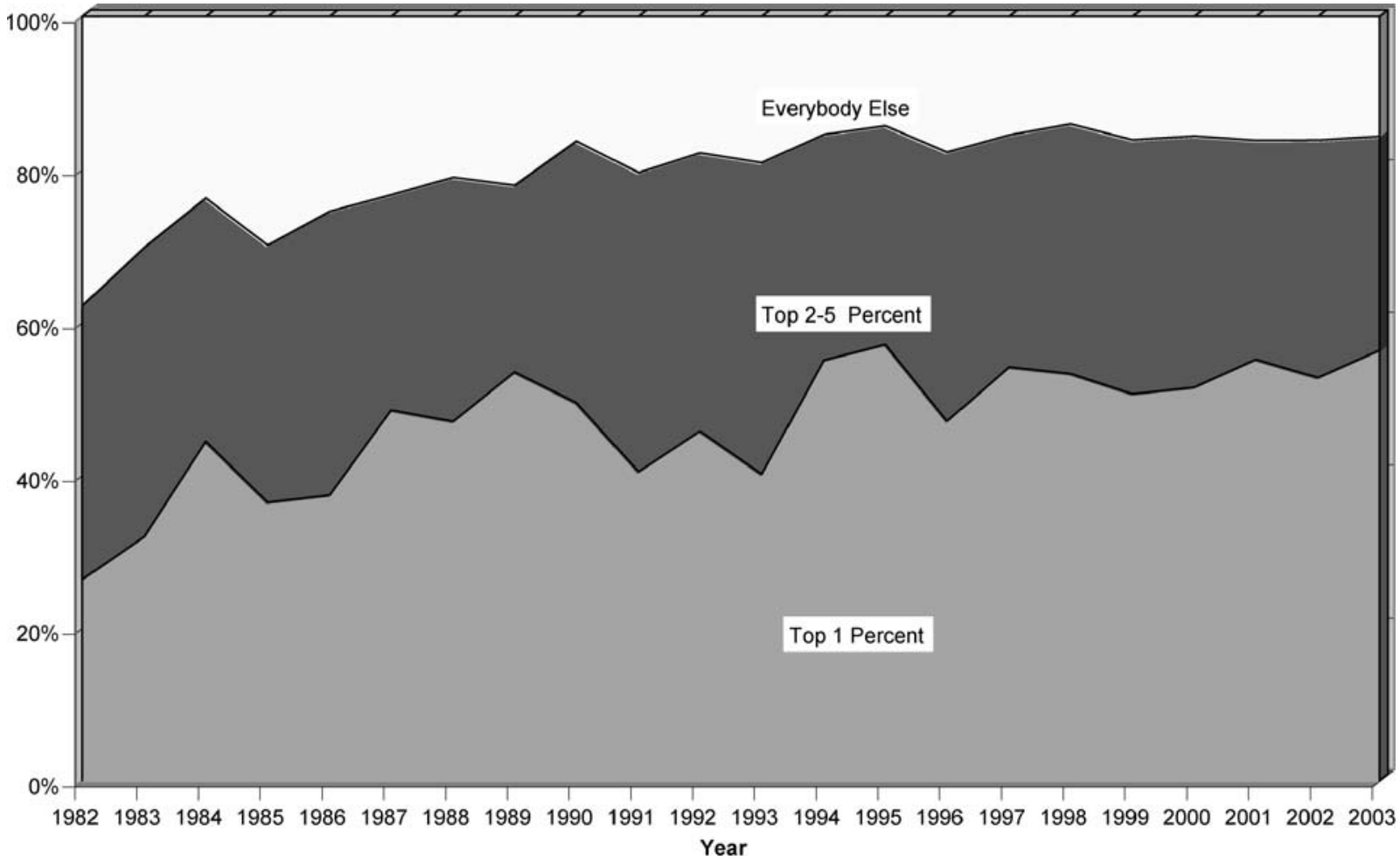


Figure 5. Share of total ticket revenue accruing to top performers, 1982–2003. Source: Krueger (2005).

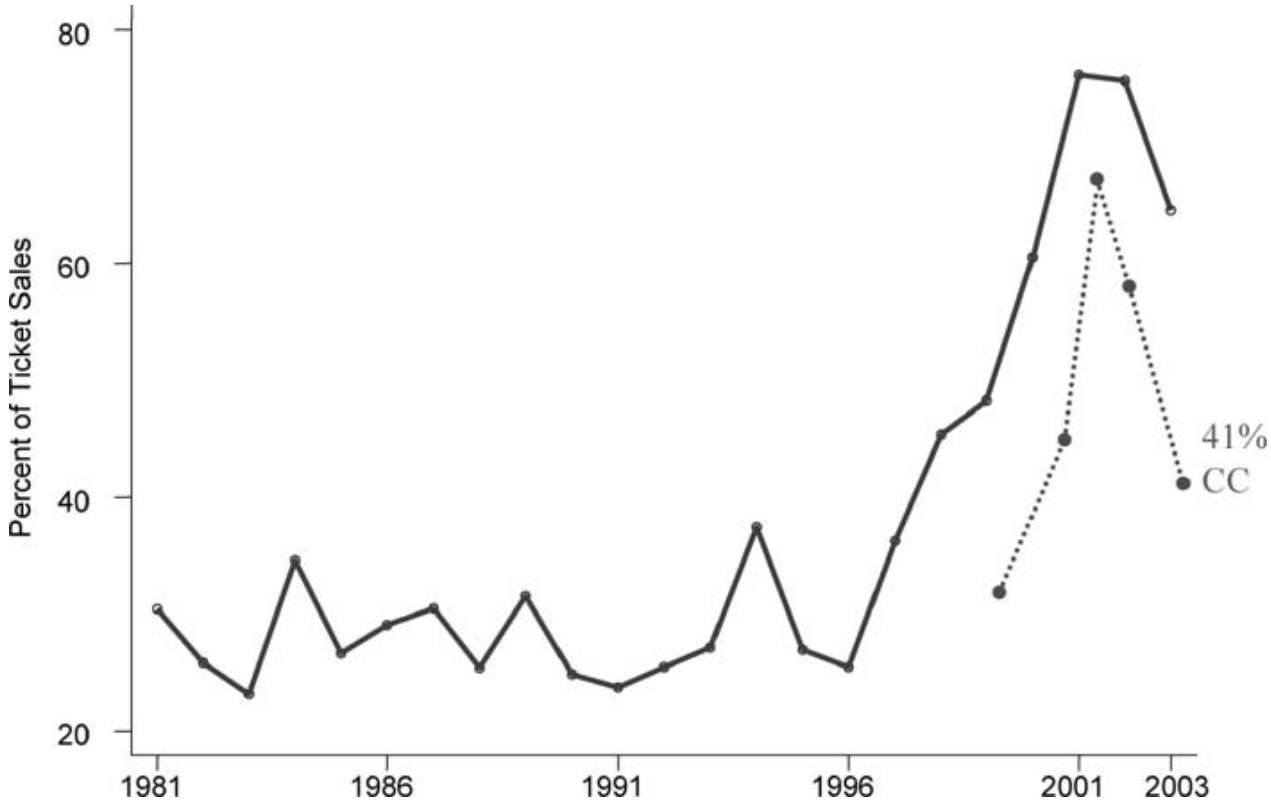


Figure 6. Percent of total revenue handled by biggest four promoters, nationwide and by Clear Channel Communications. Source: Krueger (2005) based on Pollstar data. Only concerts performed in the US are included in the analysis. Sample consists of artists listed in *Rolling Stone Encyclopedia*.

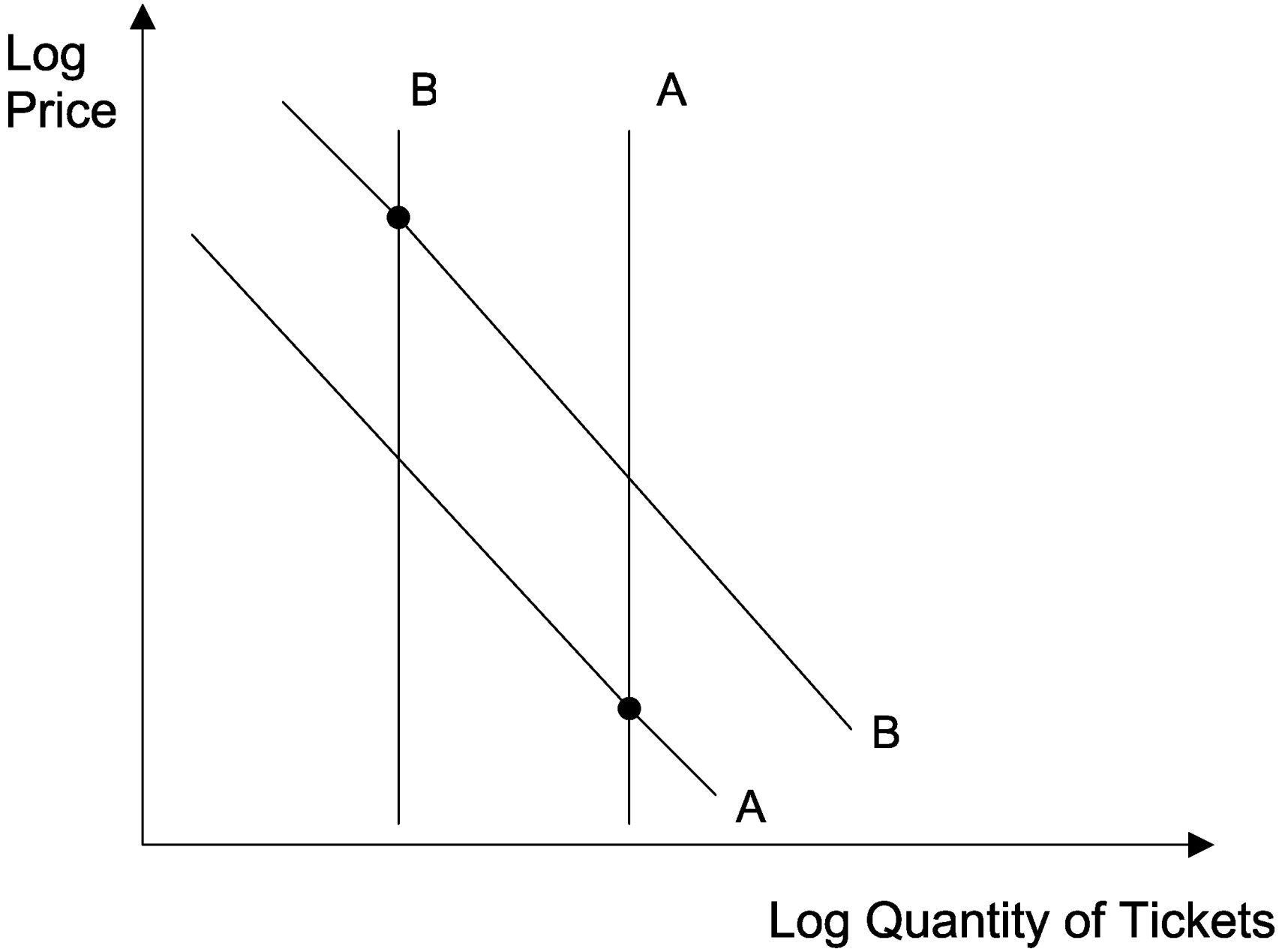
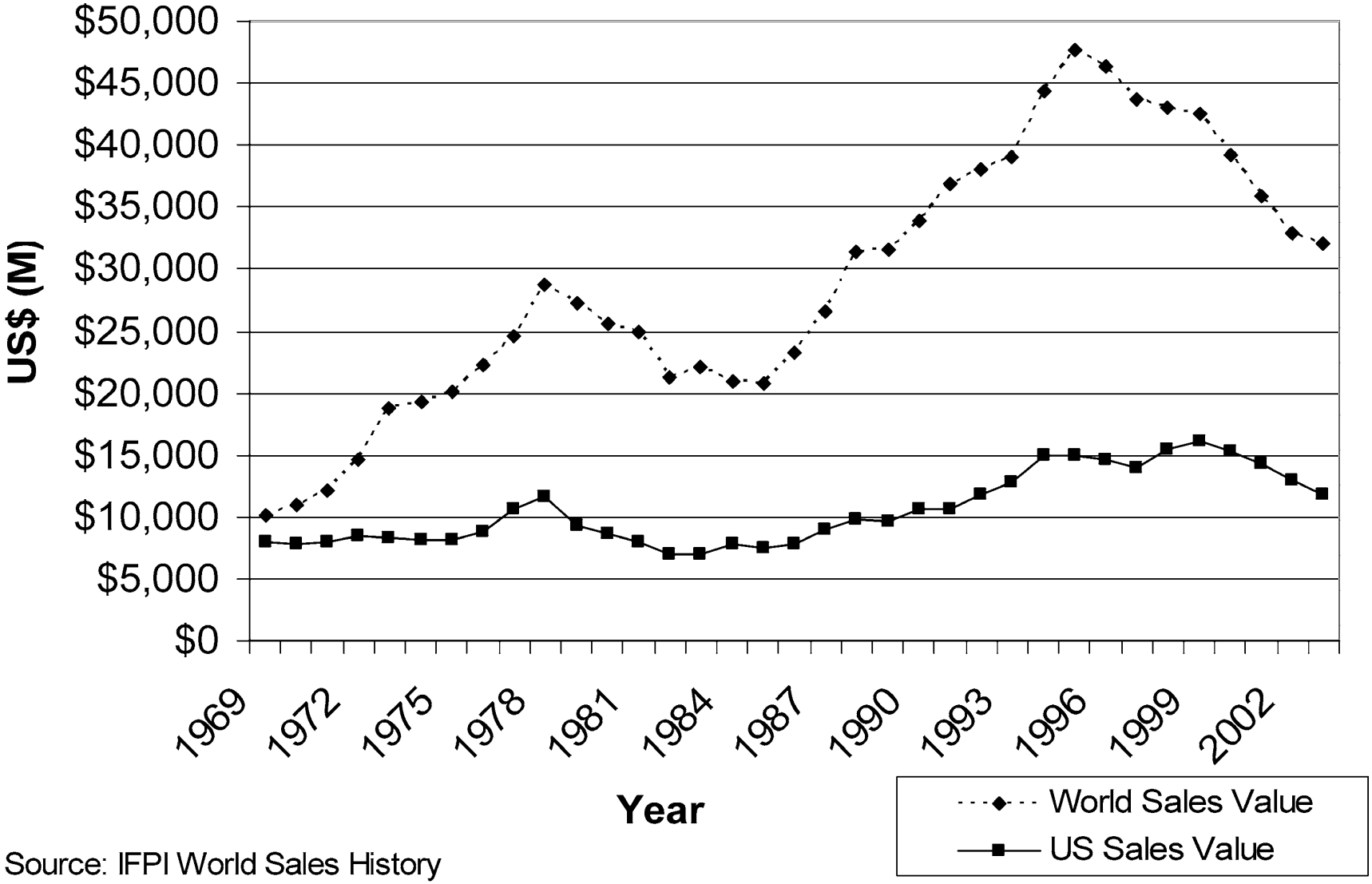


Figure 7. Hypothetical demand and supply curves for 2 bands.



Source: IFPI World Sales History
Notes: All values in millions of 2003 constant US dollars.
Turkey and China are excluded as they do not comply with IFPI standards and definitions.
Other audio formats (MiniDisc, DVD-A, SACD) included in totals from 1997 onwards.
Music video figures included in totals from 2001 onwards. Digital download sales excluded.

Table 5
Revenues from music publishing in the US in 2001 (millions of US dollars)

Performance-based income	
Radio	317.17
TV/Cable/Satellite	381.09
Live performance & recorded	216.40
	914.66
Reproduction-based income	
Phono-mechanical	552.70
Synchronization	102.31
	655.01
Distribution-based income	331.85
Interest investment income	37.10
Misc.	1.80
TOTAL	1940.42

Source: *NMPA International Survey of Music Publishing Revenues*, twelfth ed., Table 6, Master Survey Data [National Music Publishers' Association, Inc. and The Harry Fox Agency, Inc.].

Table 6
List of performing rights organizations

Country	Organization	Acronym
Unites States of America	American Society of Composers, Authors, and Publishers; Broadcast Music Incorporated; Society of European Stage Authors and Composers	ASCAP; BMI; SESAC
Germany	Gesellschaft für musikalische Aufführungs- und mechanische Vervielfältigungsrechte	GEMA
Japan	Japanese Society for Rights of Authors, Composers and Publishers	JASRAC
United Kingdom	Performing Rights Society	PRS
France	Société des Auteurs, Compositeurs et Éditeurs de Musique	SACEM
Italy	Società Italiana degli Autori ed Editori	SIAE
Spain	Sociedad General de Autores y Editores	SGAE
The Netherlands	BUMA-STEMRA	BUMA-STEMRA-CEDAR
Canada	The Society of Composers, Authors, and Music Publishers of Canada	SOCAN
Switzerland	Société Suisse des Auteurs, Suisse Auteurs	SSA, SUISA

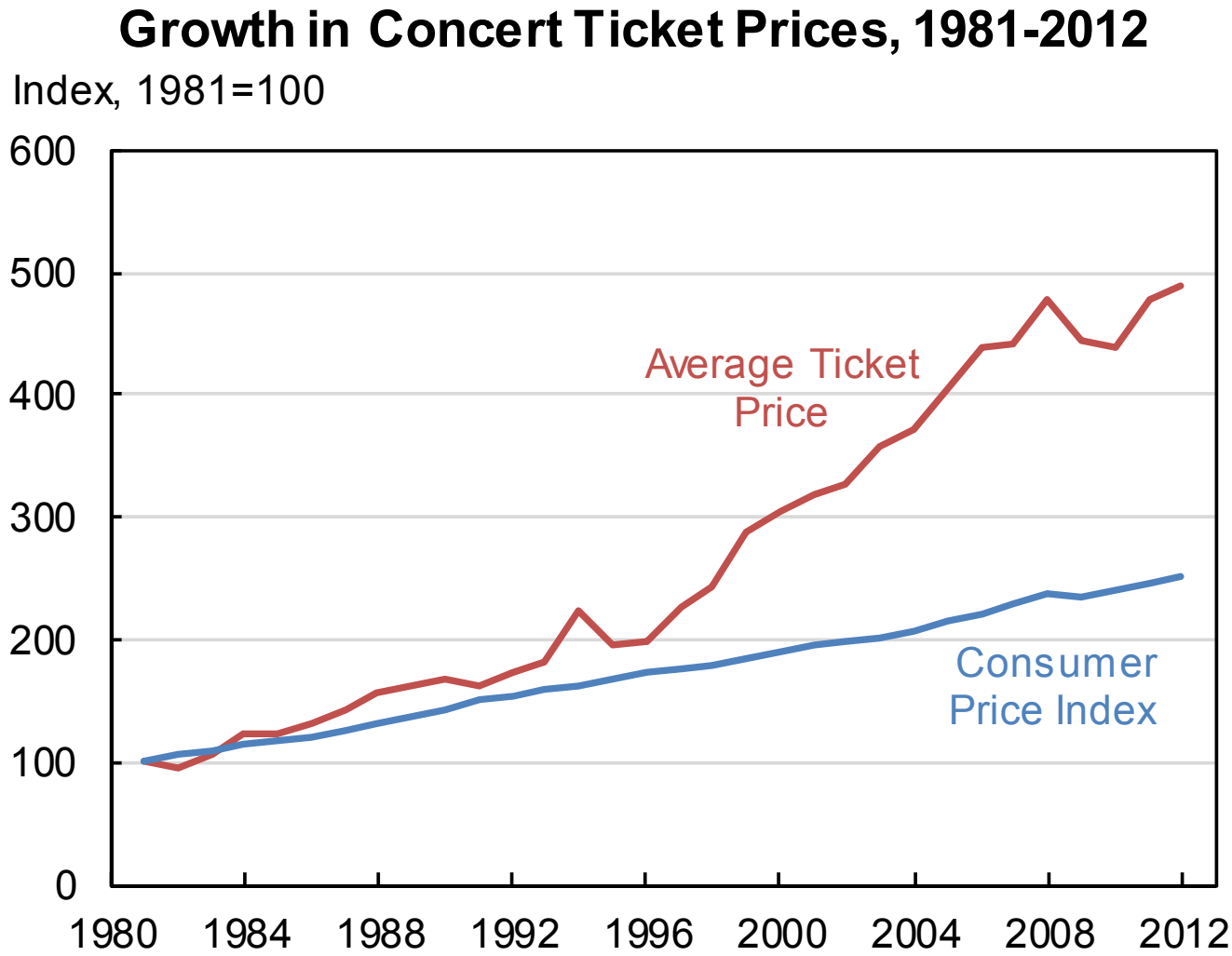
Table 7
Publishing income in the top ten countries in 2001 (millions of US dollars)

Country	Performance-based income	Reproduction-based income	Distribution-based income	Interest investment income	Misc.	*2001 Grand total*	Total world income (%)	Cumulative (%)
USA	914.66	655.01	331.85	37.10	1.80	*1940.42*	29.3	29.3
Germany	305.28	318.81	153.72	30.55	0.00	*808.36*	12.2	41.5
Japan	291.17	350.74	49.64	0.50	67.60	*759.64*	11.5	52.9
United Kingdom	260.11	321.75	72.65	8.05	7.17	*669.73*	10.1	63.0
France	320.80	166.58	61.17	0.00	0.00	*548.55*	8.3	71.3
Italy	257.01	73.93	22.90	0.00	0.00	*353.83*	5.3	76.7
Spain	70.51	114.43	2.15	9.68	0.00	*196.77*	3.0	79.6
The Nether-lands	78.03	53.21	29.22	16.12	0.00	*176.57*	2.7	82.3
Canada	71.40	44.39	18.84	4.53	0.00	*139.17*	2.1	84.4
Switzerland	50.08	24.71	25.83	5.01	0.00	*105.63*	1.6	86.0
Top ten total	*2619.05*	*2123.56*	*767.97*	*111.54*	*76.57*	*5698.67*	*86.0*	

Source: *NMPA International Survey of Music Publishing Revenues*, twelfth ed., Table 6, Master Survey Data [National Music Publishers' Association, Inc. and The Harry Fox Agency, Inc.].

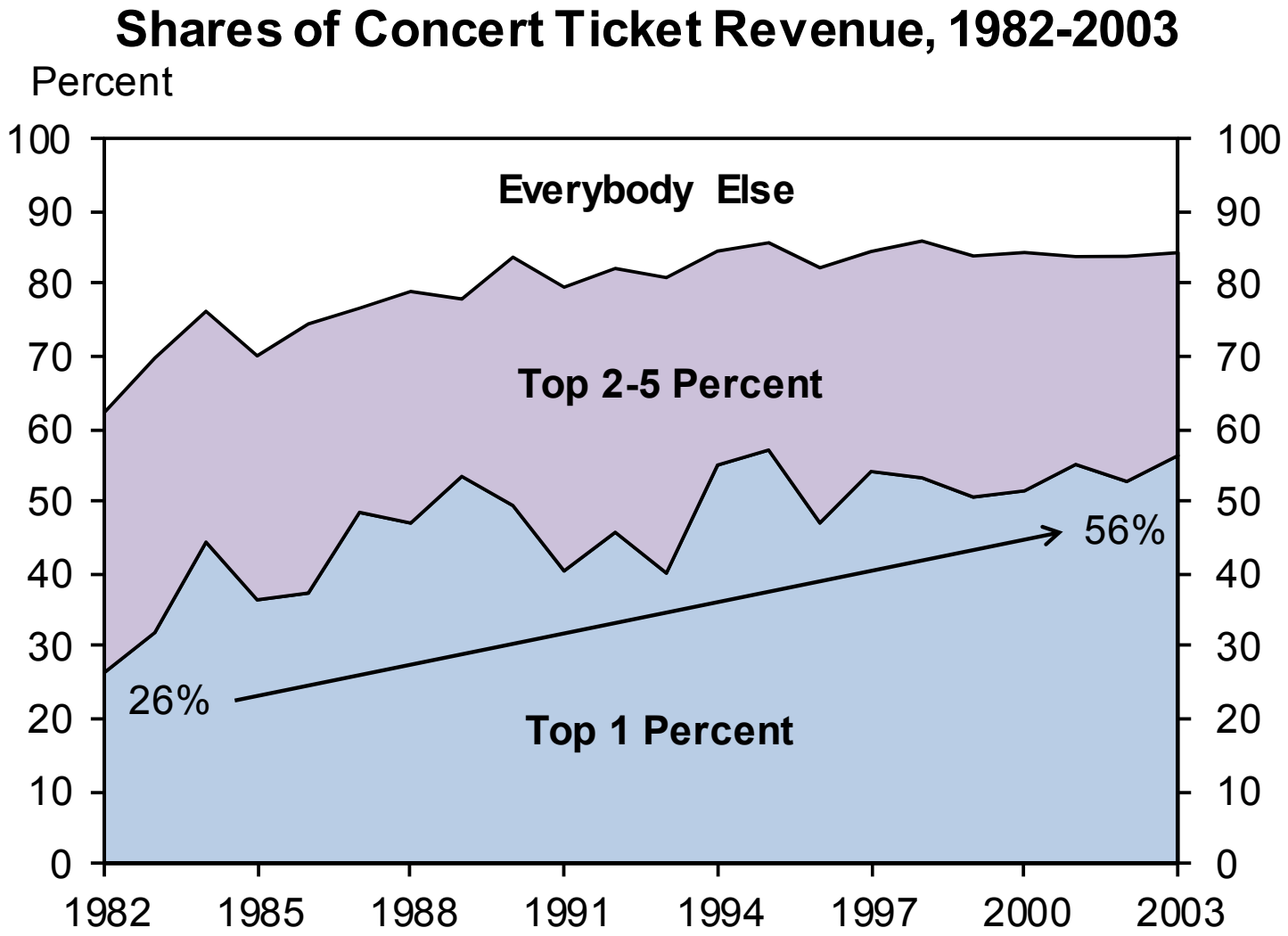
1. Presentations
2. Differences in talents – Hamlen (1991)
3. Music in Marshall (1890)
4. Krueger (2005): "Economics of real superstars"
5. Connolly and Krueger (2006)
6. Alan Krueger's speech (2015)

Concert Ticket Prices Have Risen Much Faster Than Overall Consumer Price Inflation



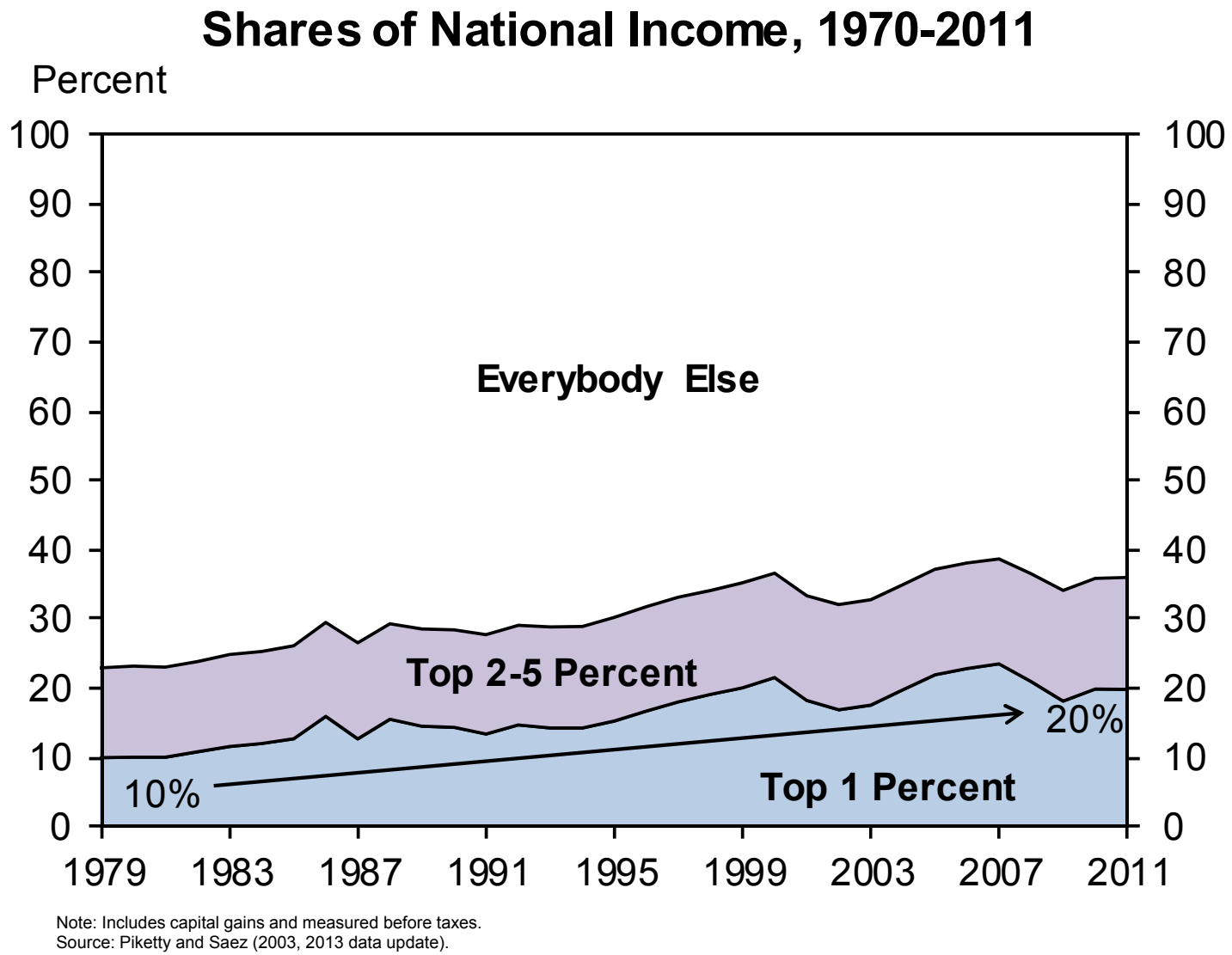
Note: Data for 2003-2012 provided by Pollstar for top 100 North America tours by revenue. Earlier data from Krueger (2005). The average ticket price after 2003 is assumed to grow at the same rate as the average for the top 100 tours.
Source: Pollstar; Krueger (2005); Bureau of Labor Statistics; CEA calculations.

The Top Artists are Getting a Larger Share of Total Ticket Revenue...



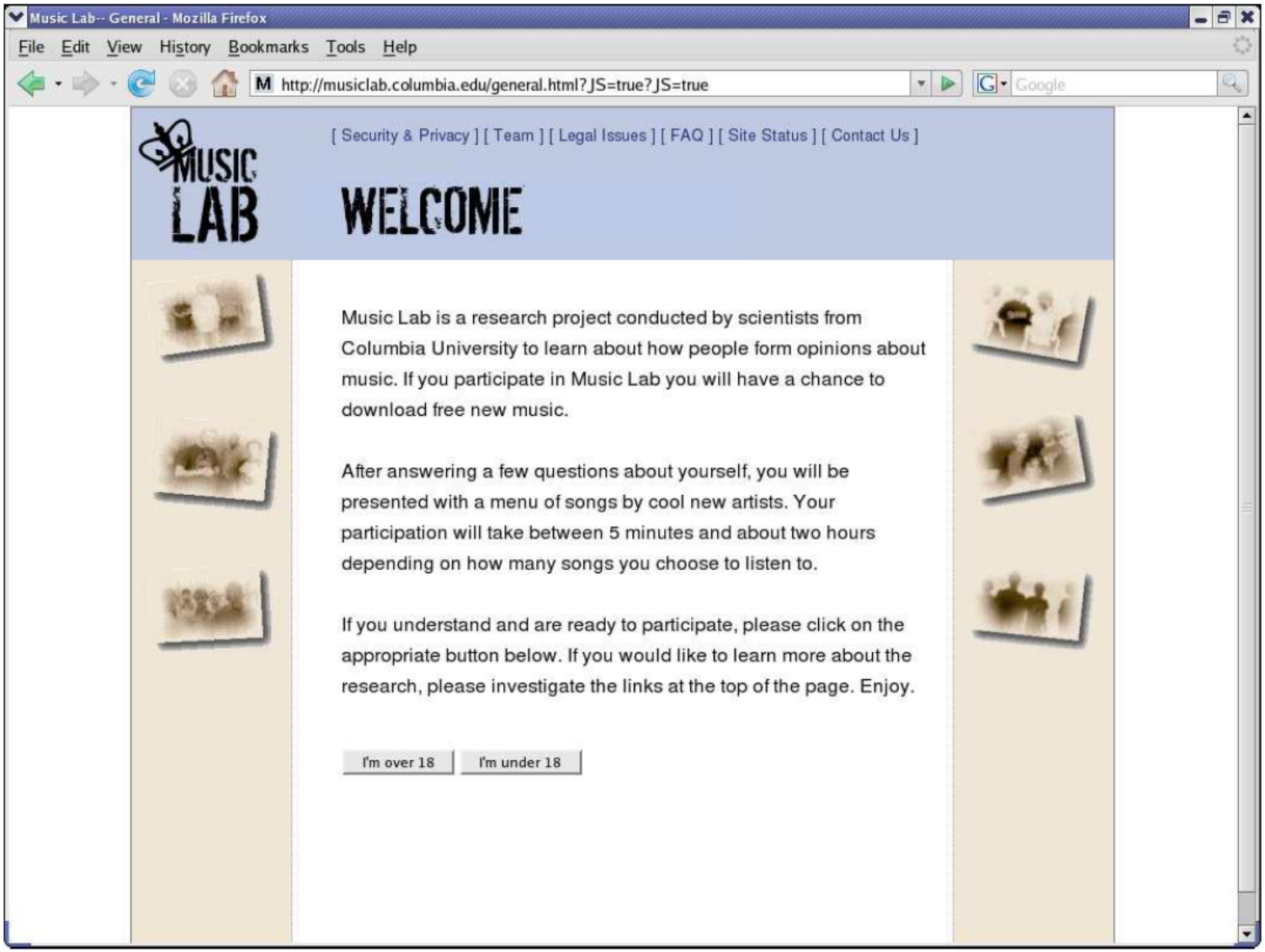
Source: Krueger (2005).

...as the Top Earners are Getting a Larger Share of National Income

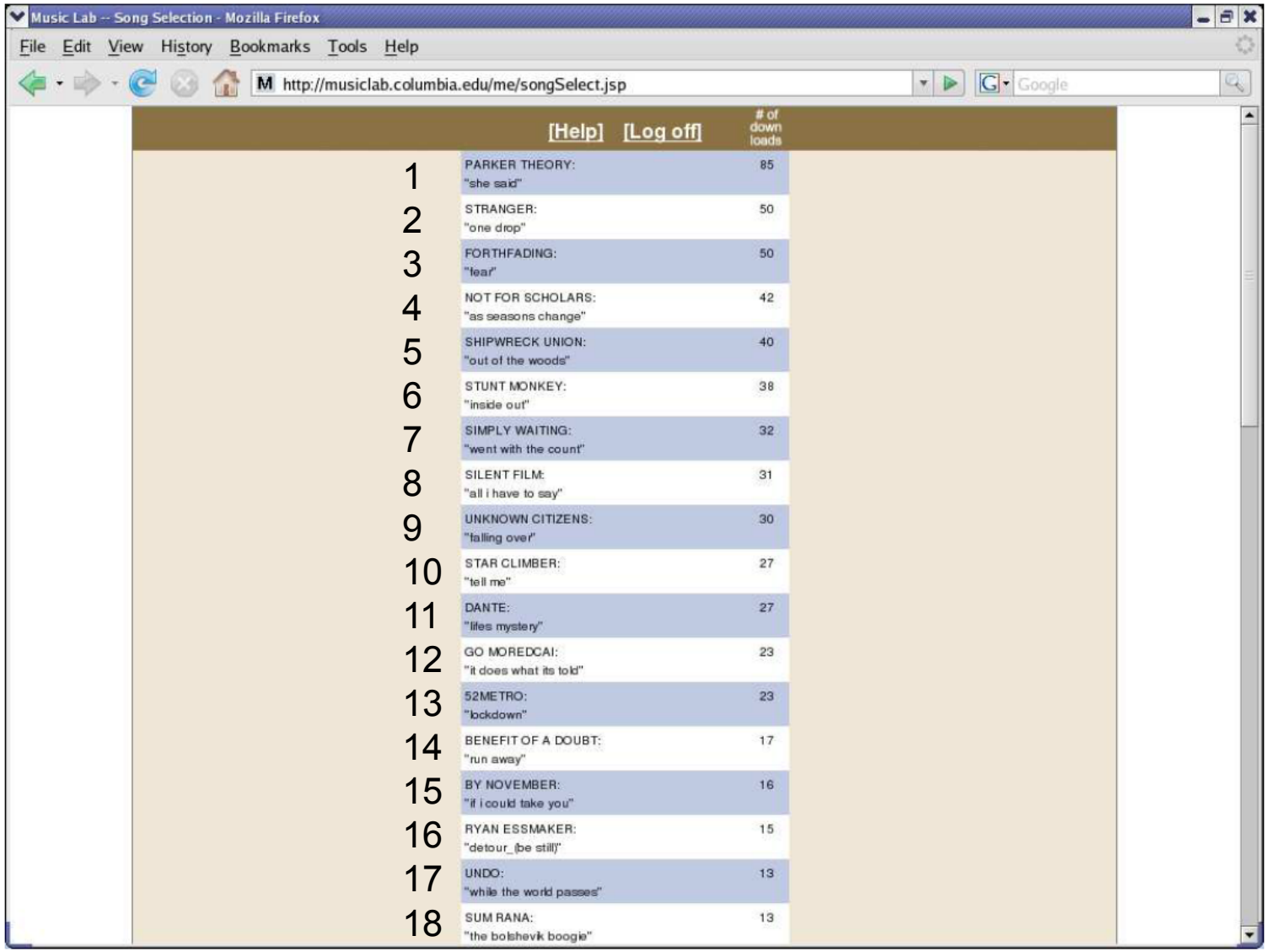


Note: Includes capital gains and measured before taxes.
Source: Piketty and Saez (2003, 2013 data update).

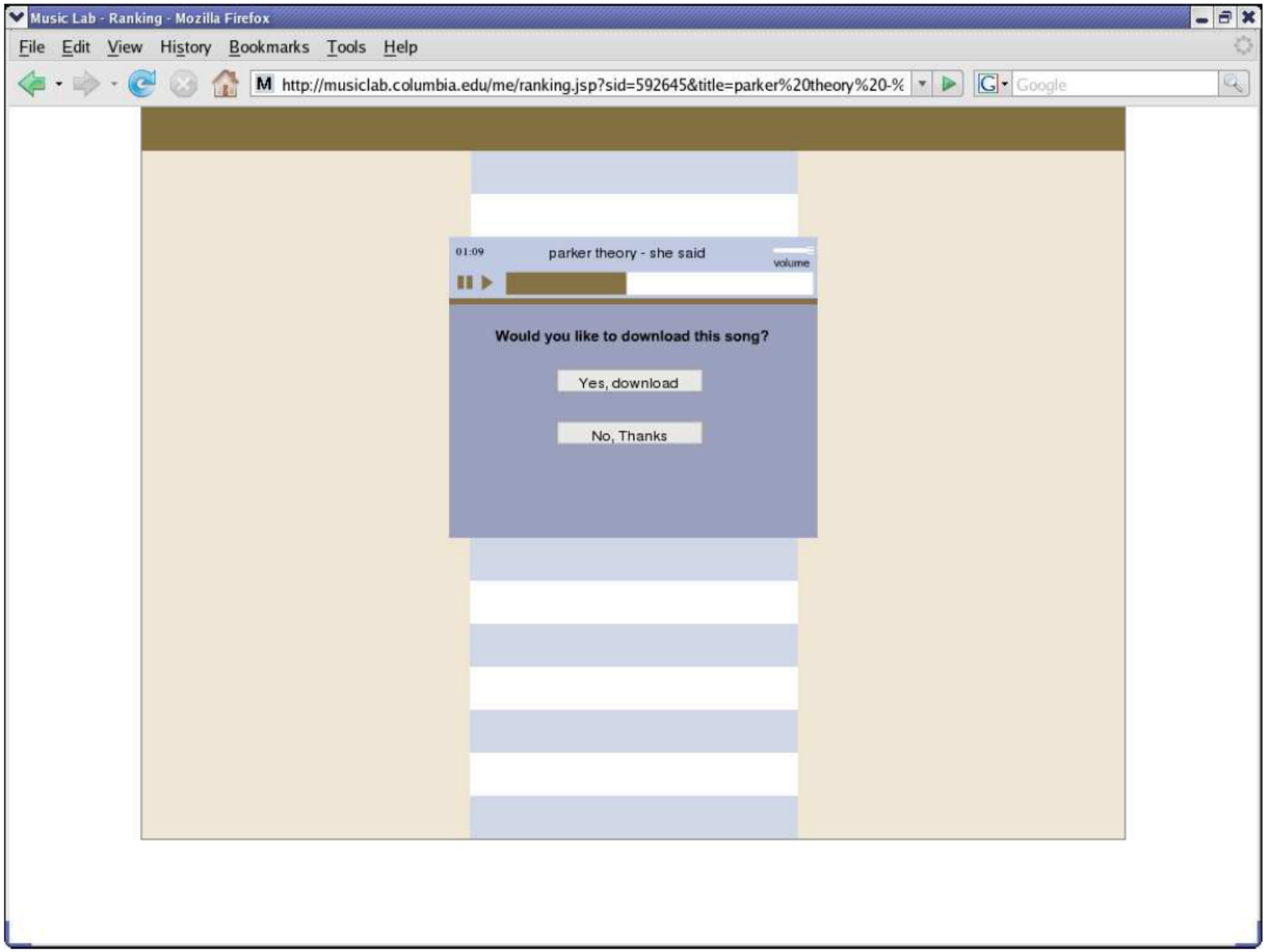
Role of Luck in Popular Music: Design of Music Market Experiment



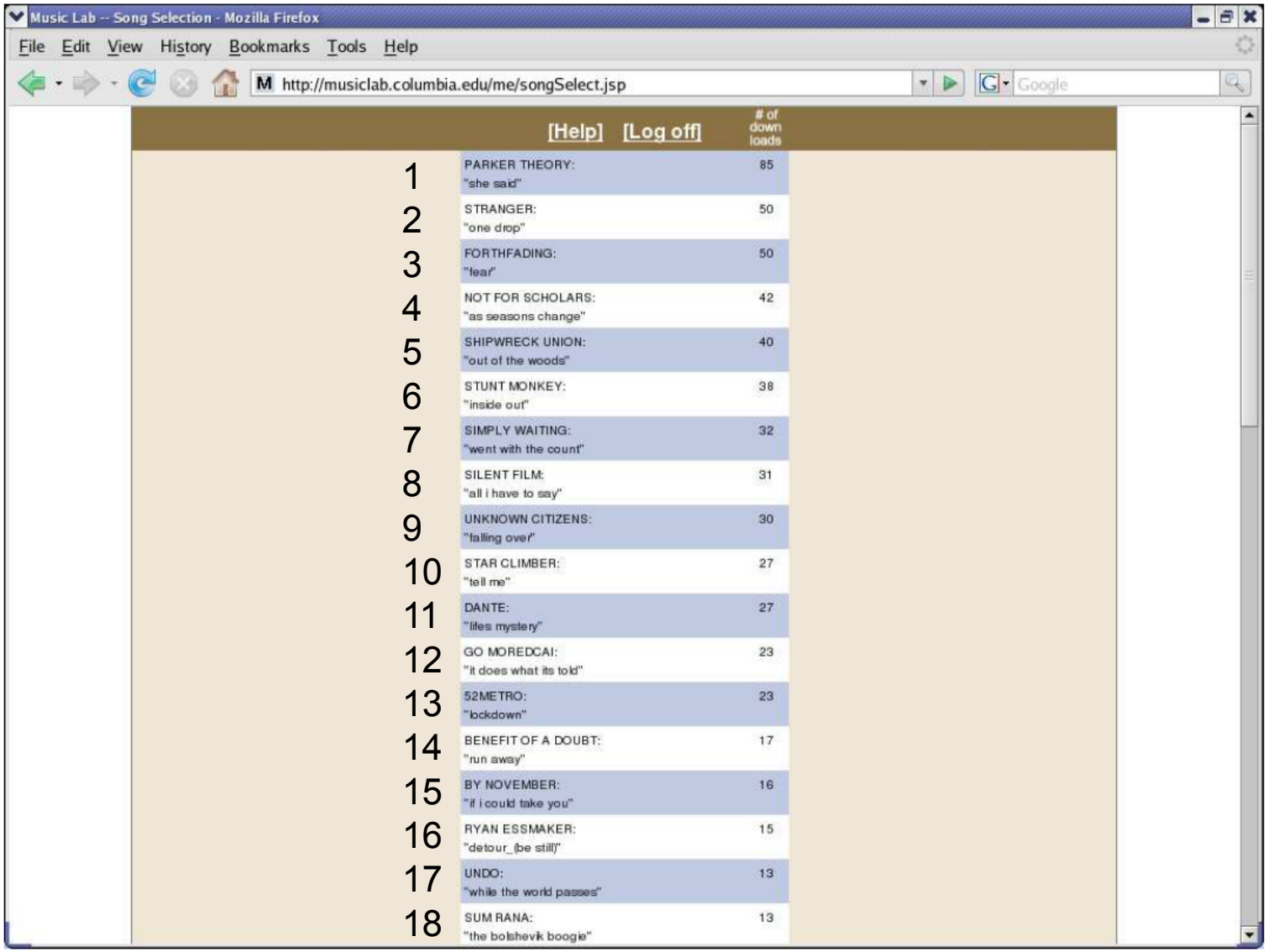
Role of Luck in Popular Music: Can Listen To and Download Songs



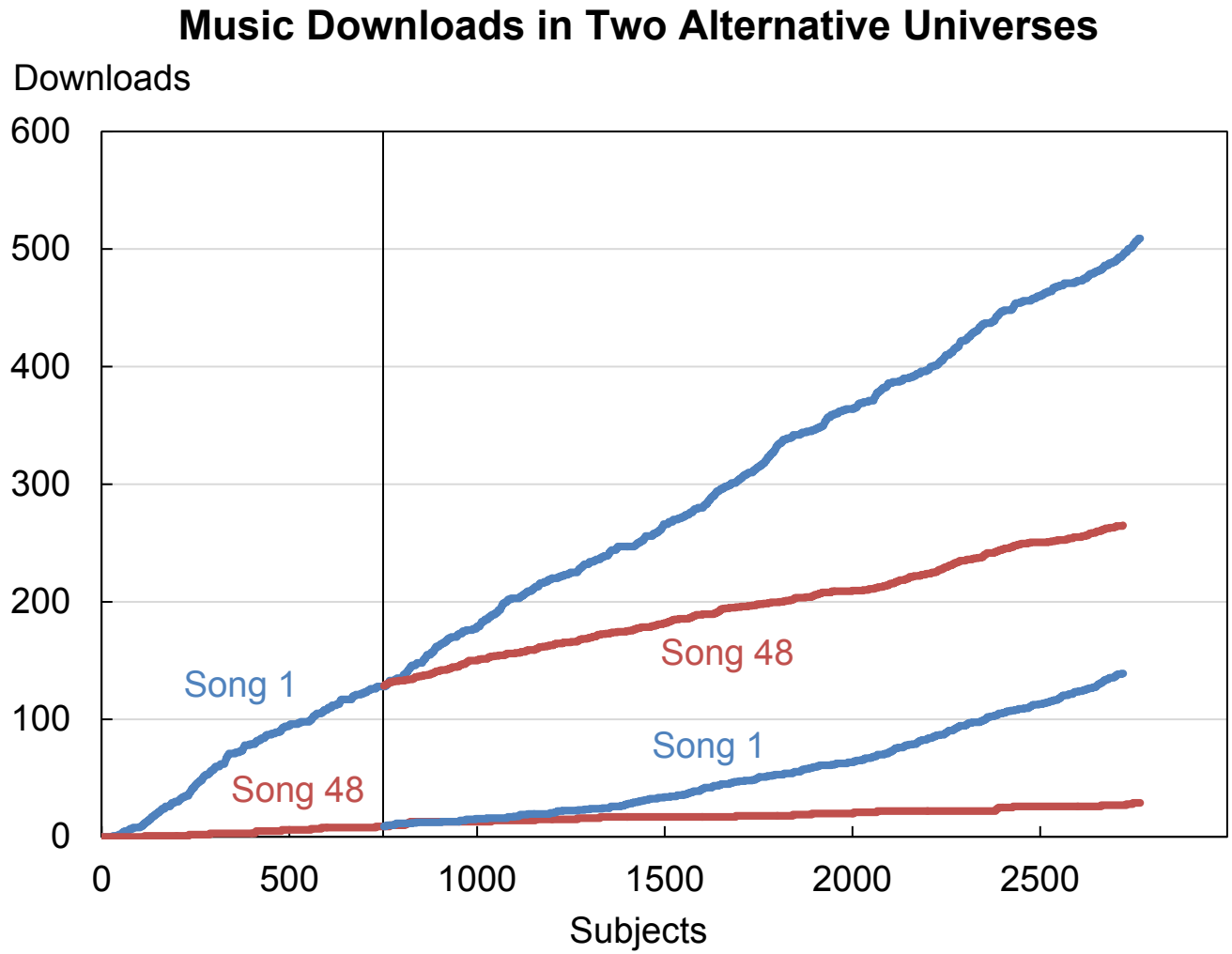
Role of Luck in Popular Music: Can Listen To and Download Songs



Role of Luck in Popular Music: "Alternative Universe" With Flipped Rankings



The Belief that a Song is Popular has a Profound Effect on its Popularity, Even if it Wasn't Truly Popular to Begin With



Note: The experiment included two "inverted" worlds with approximately 2,000 subjects in each. The download counts from the two alternative worlds are averaged here.
Source: Salganik and Watts (2008).

Bibliography I

Connolly, Marie and Alan B. Krueger, "Chapter 20 Rockonomics: The Economics of Popular Music," in Victor A. Ginsburg and David Throsby, eds., *Handbook of the Economics of Art and Culture*, Vol. 1, Elsevier, January 2006, pp. 667–719.

Hamlen, William A., "Superstardom in Popular Music: Empirical Evidence," *The Review of Economics and Statistics*, 1991, *73* (4), 729–733.

Krueger, Alan B., "The Economics of Real Superstars: The Market for Rock Concerts in the Material World," *Journal of Labor Economics*, January 2005, *23* (1), 1–30.

Marshall, Alfred, *Principles of Economics*, Palgrave Macmillan, 1890.