

Projected Gaming Revenues at New Casinos in Prince George's County, Maryland

Presentation to the Maryland Video
Lottery Facility Location Commission

December 6, 2013

Will E. Cummings
Cummings Associates

Questions Please!
-- at any time –
(but . . .)

Overview 1

- Cummings re Model(s) & Results
- Custom re " " & Comparisons
- Joint Q & A

Overview / Cummings

- About Cummings
- Projections in General
- Gravity Modeling
 - “Reilly’s Law of Retail Gravitation”
 - Extensions by Huff et al.
- ◆ Projections for Prince George’s County

Will E. Cummings

- Sloan School / MIT
- Racing, Sports, Lotteries ... Gaming
- 60+ Studies of New / Improved Casinos
 - Private Sector
 - Regulatory Agencies
- Public Policy, Financial, Other Analyses

The Effects of Gaming Tax / Retention Rate on Casino Performance

Presentation to the
15th International Conference on
Gambling and Risk Taking

May 31, 2013

Market Analysis and Projected Performance of New Casinos

Methodology for Projections

- Gravity Model
 - Year-Round Residents
 - “Near” Neighbors
- Traffic Intercept?
- Seasonal Residents?
- Hotel Guests?

Gravity Models – Overview

- Location
- Location
- Size
- Everything Else

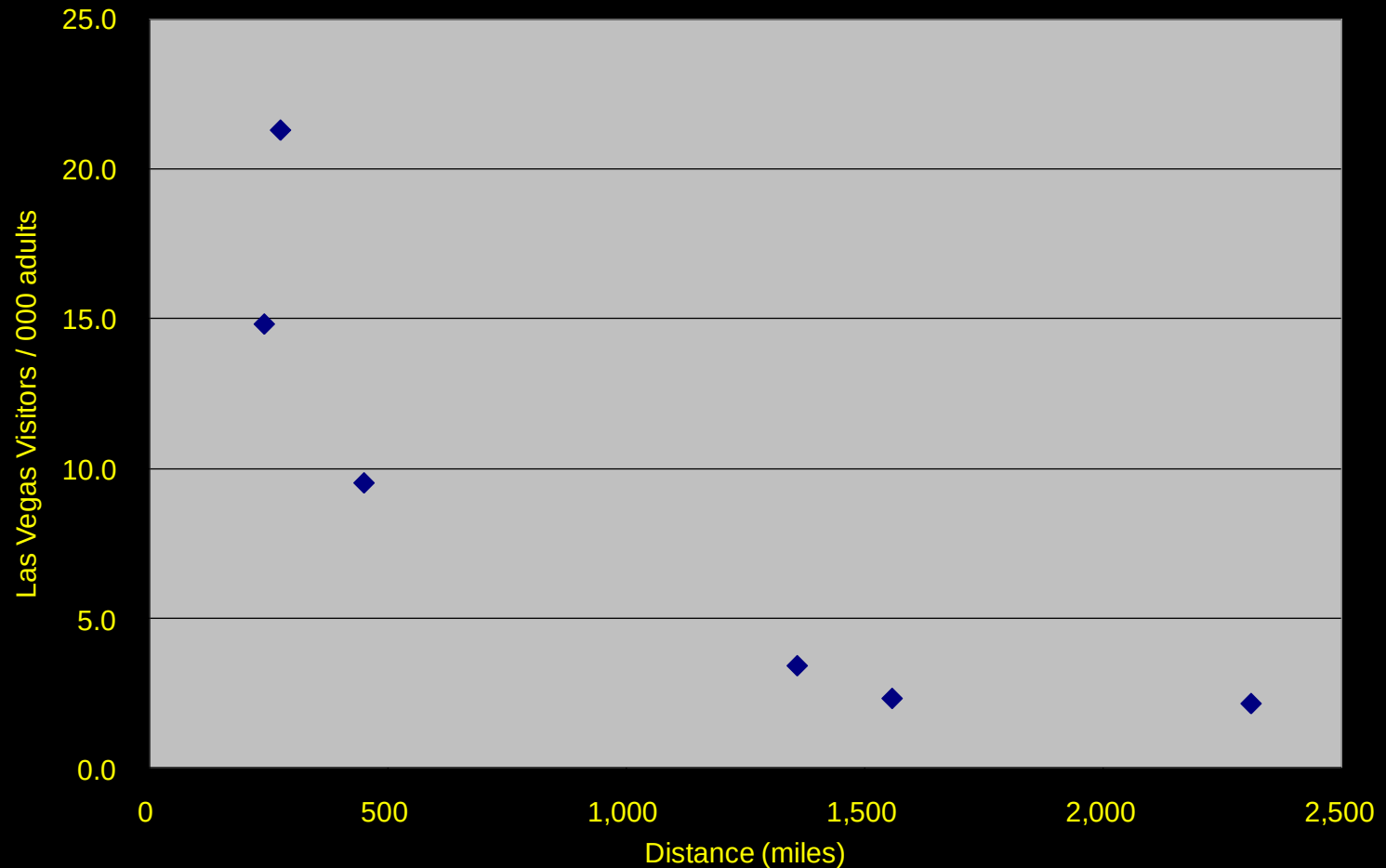
Gravity Models – Overview

- **Location I**
- Location II
- Size
- Everything Else

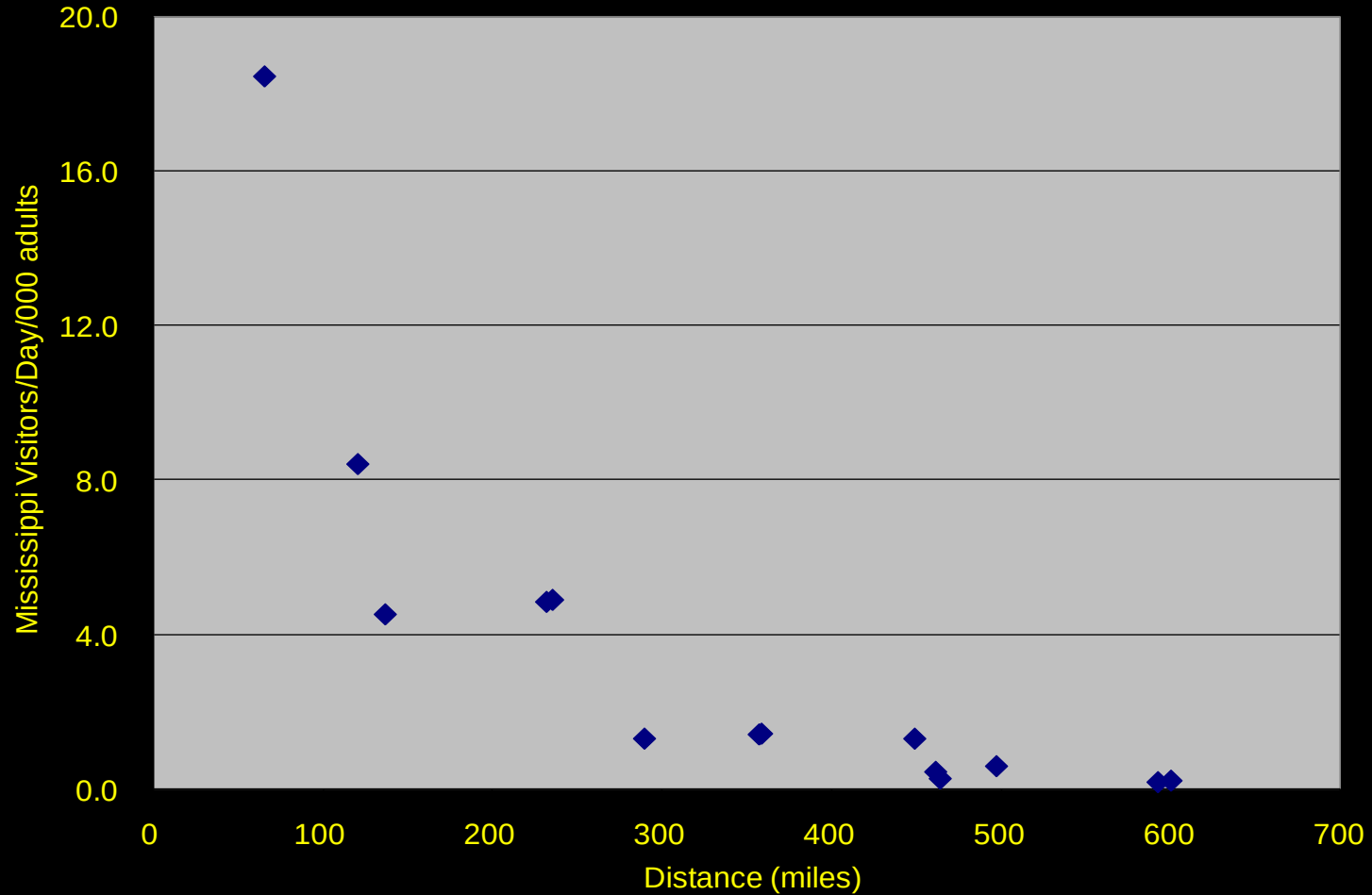
*Location I:
The Closer, the Better*

*Location I:
The Closer, the Better
=“Friction”*

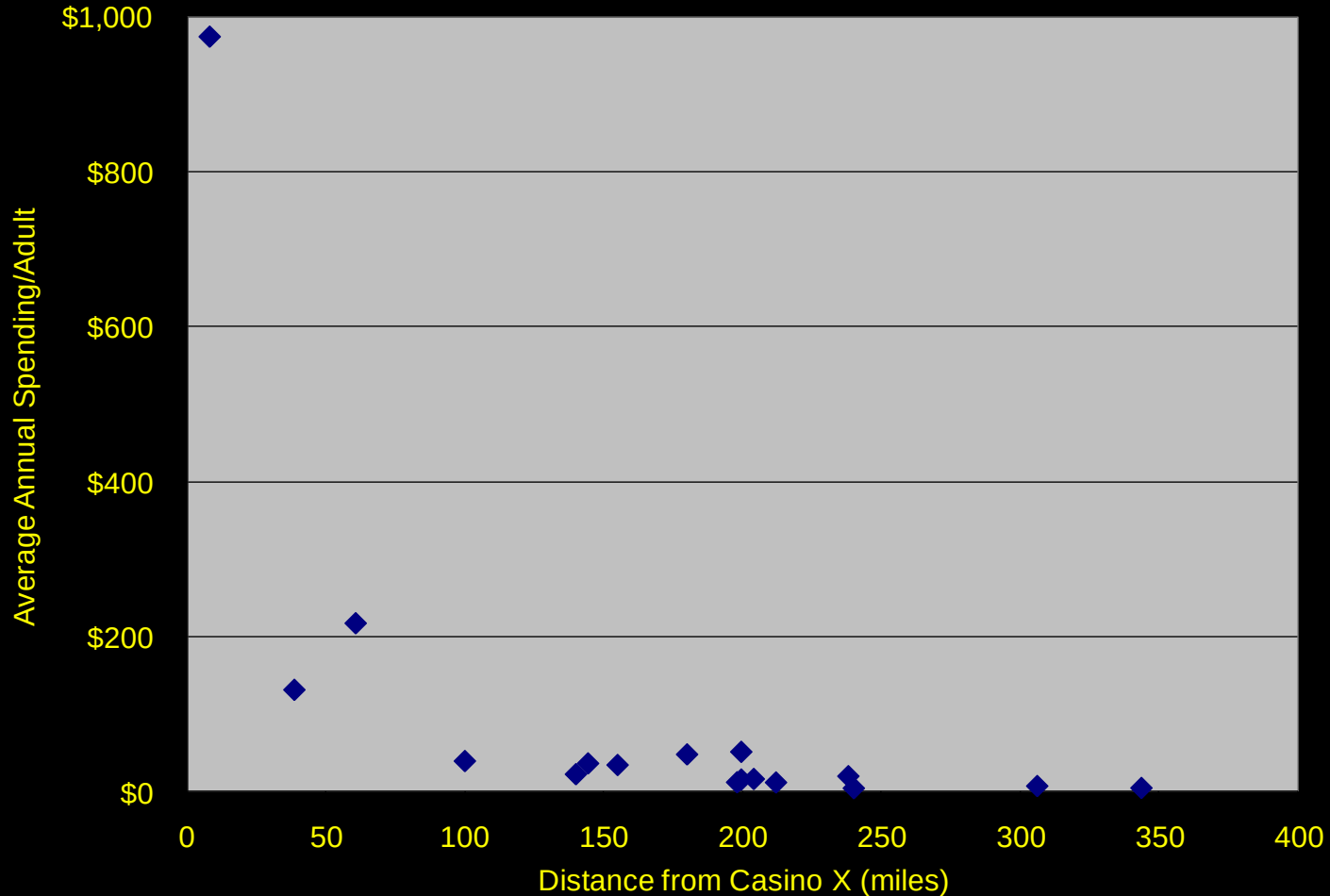
Las Vegas Visitation/Distance



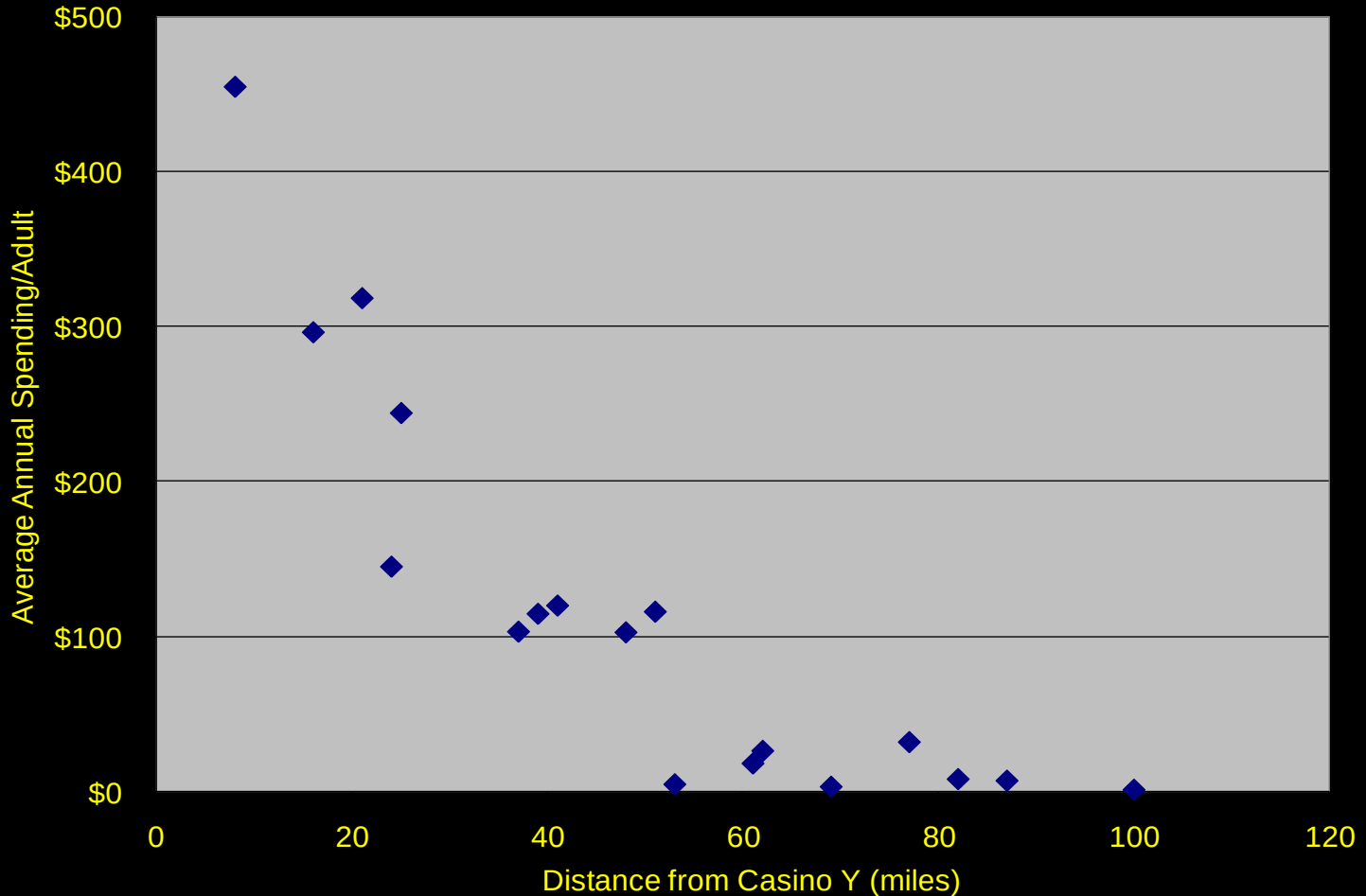
Mississippi Visitors/Day/000



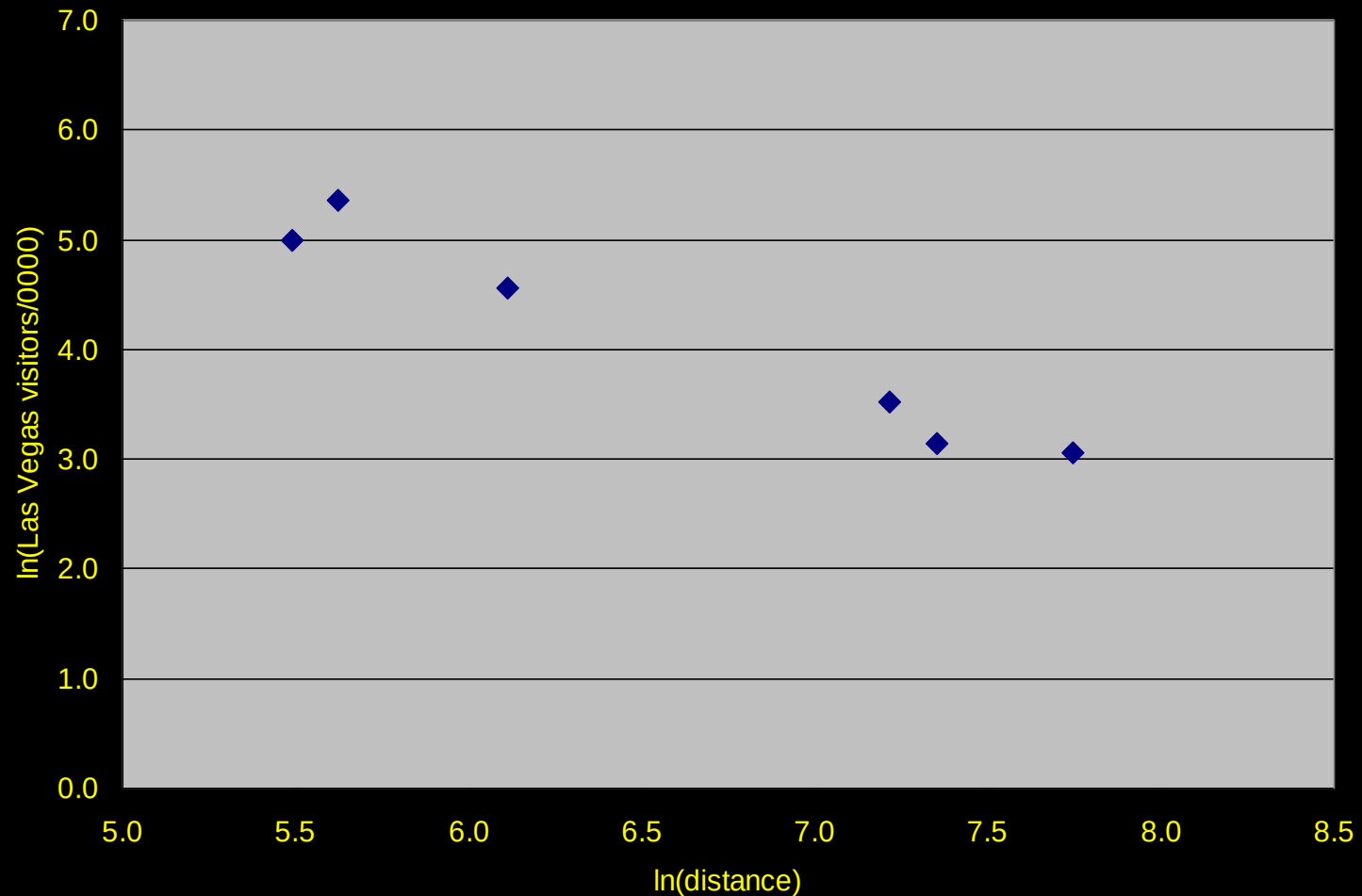
Casino X / players' club data



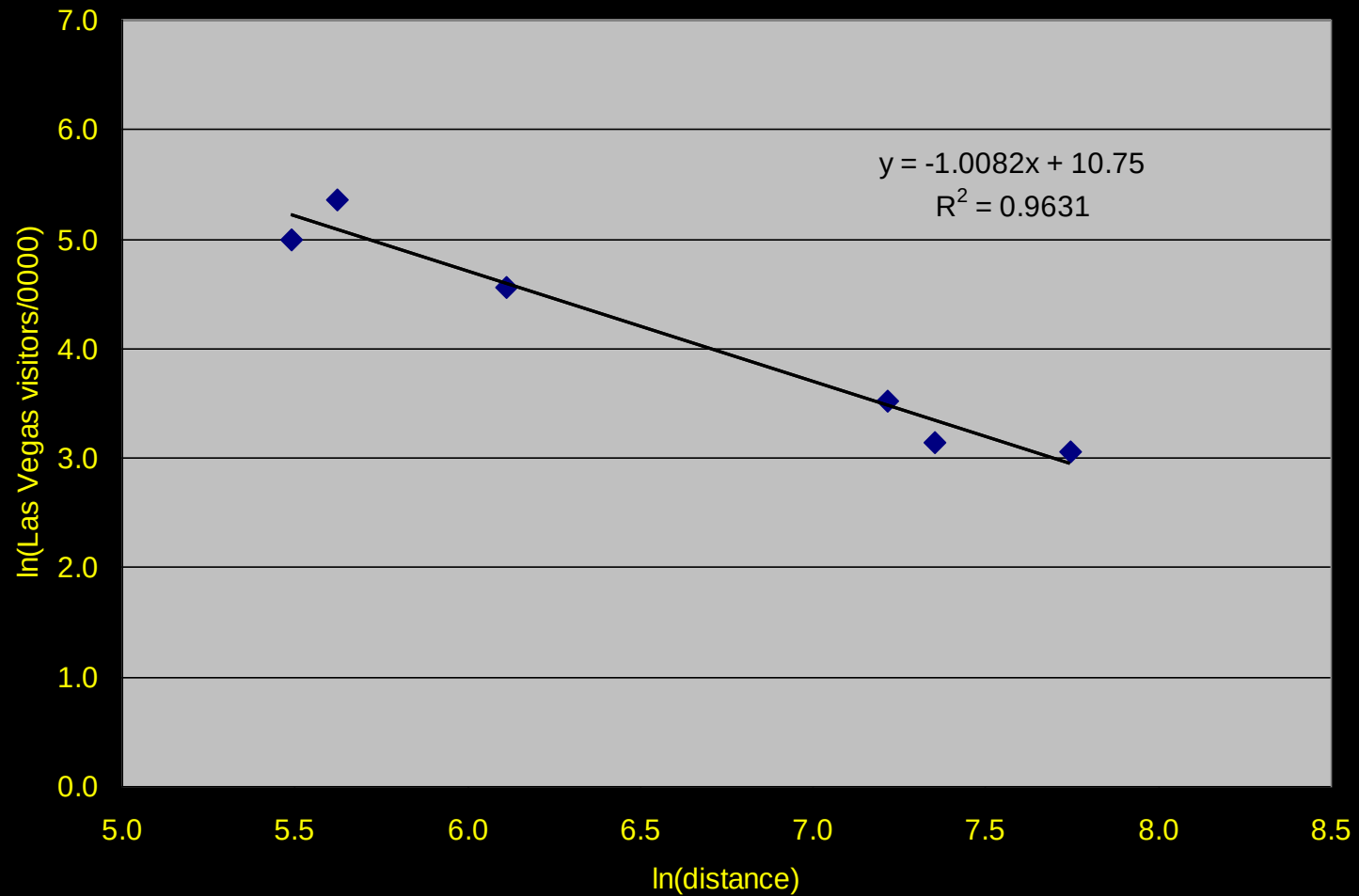
Casino Y: players' club data



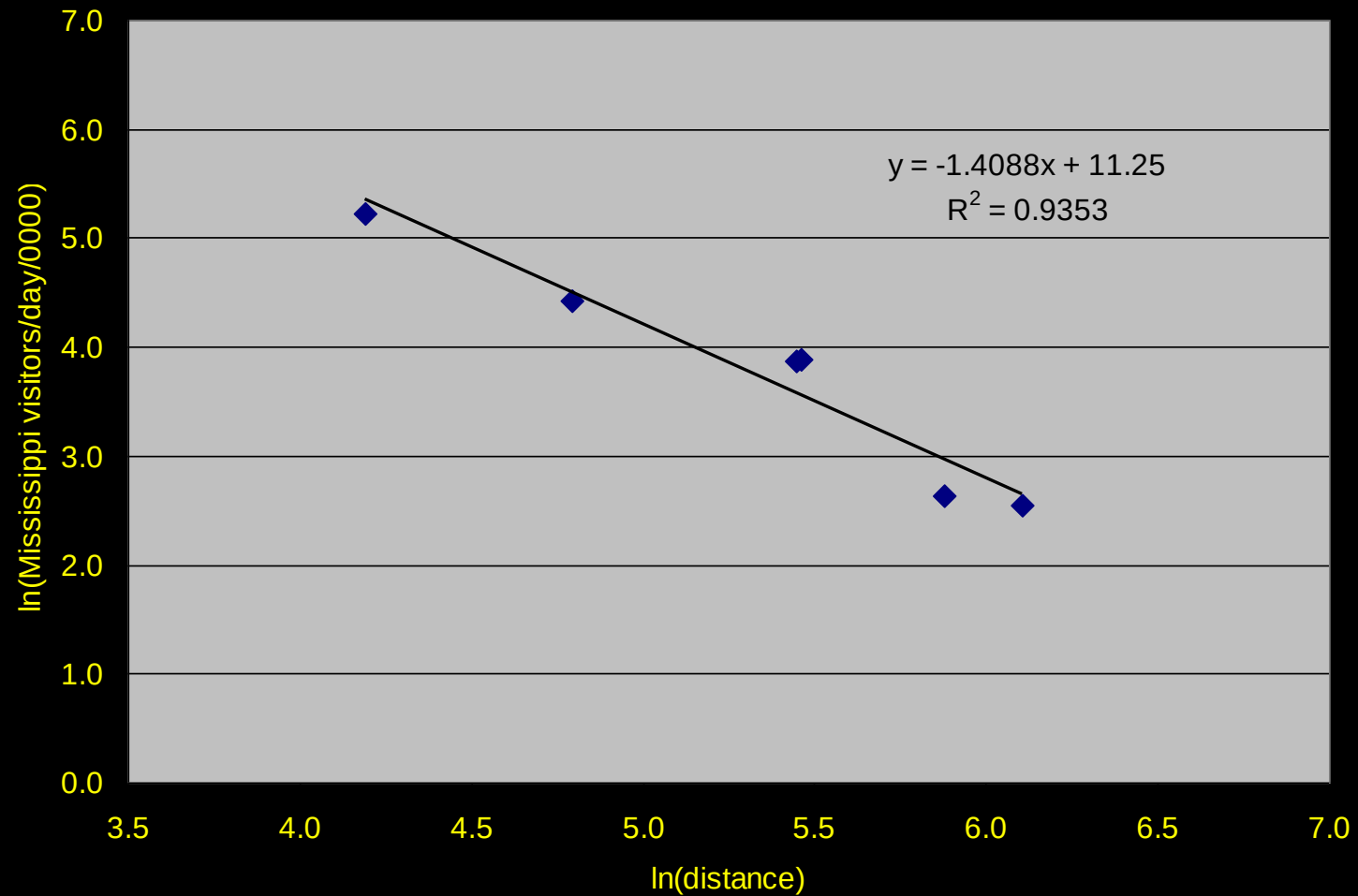
Las Vegas Visitation [log-log]



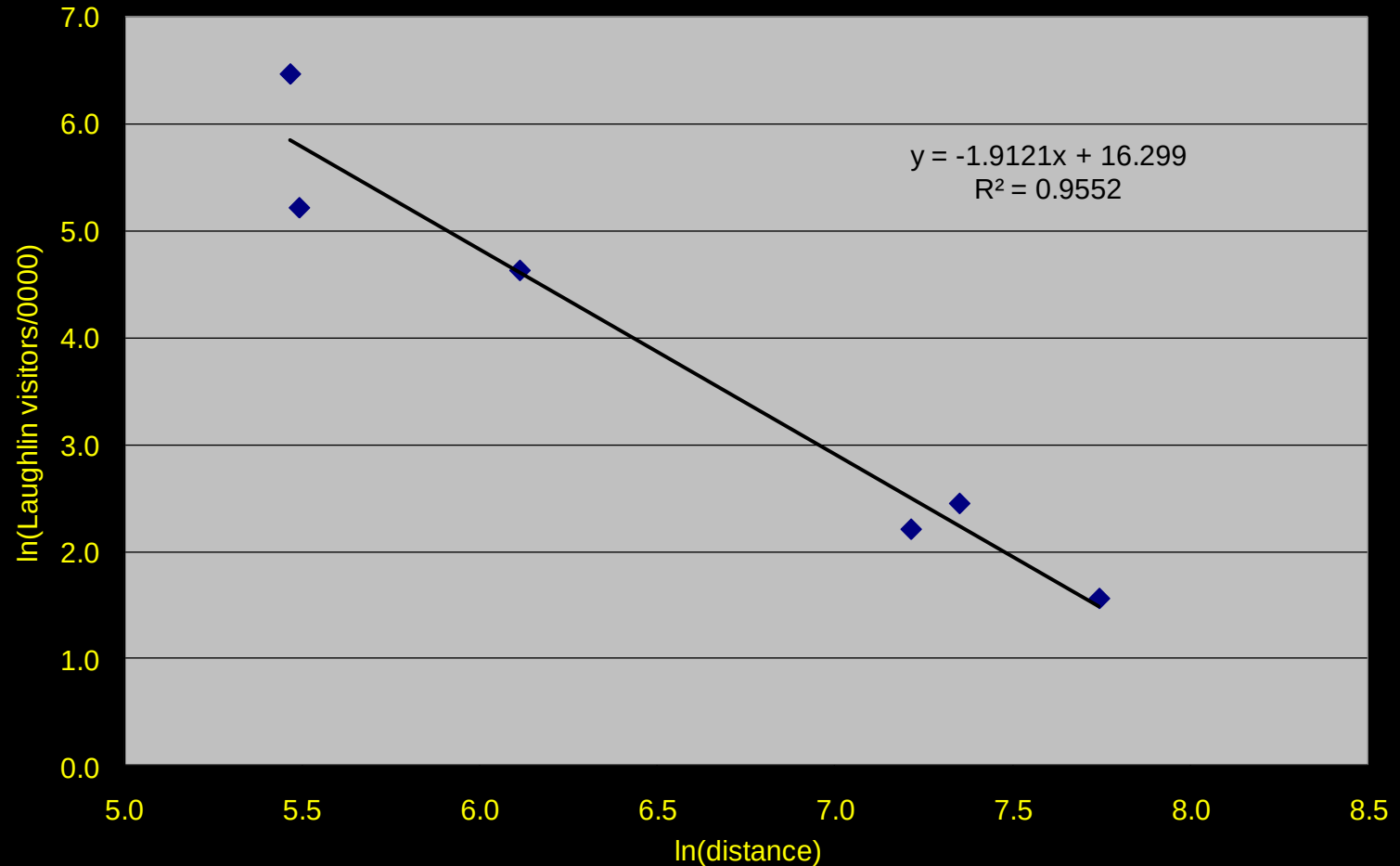
Las Vegas: linear slope



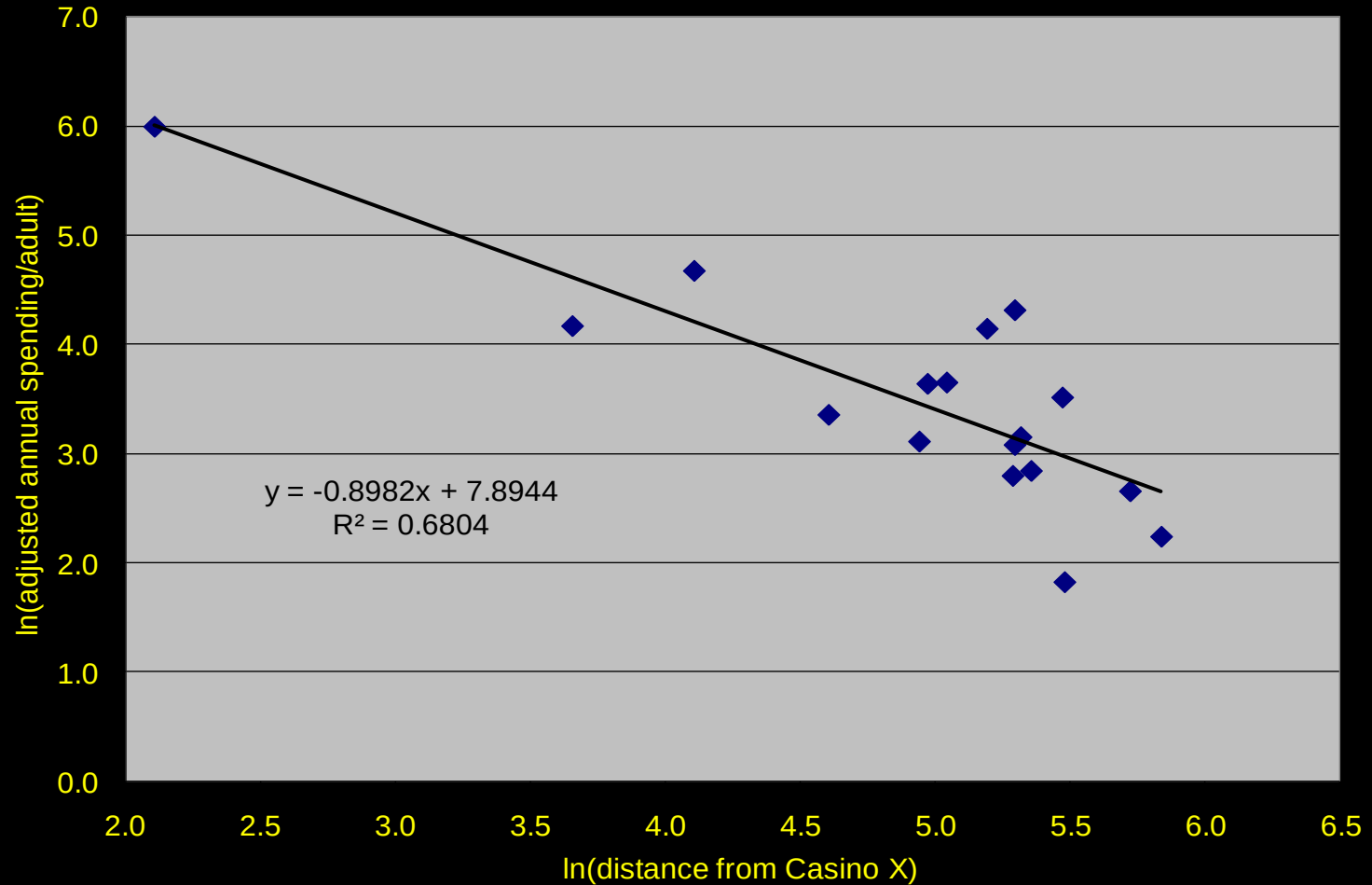
Mississippi: steeper slope



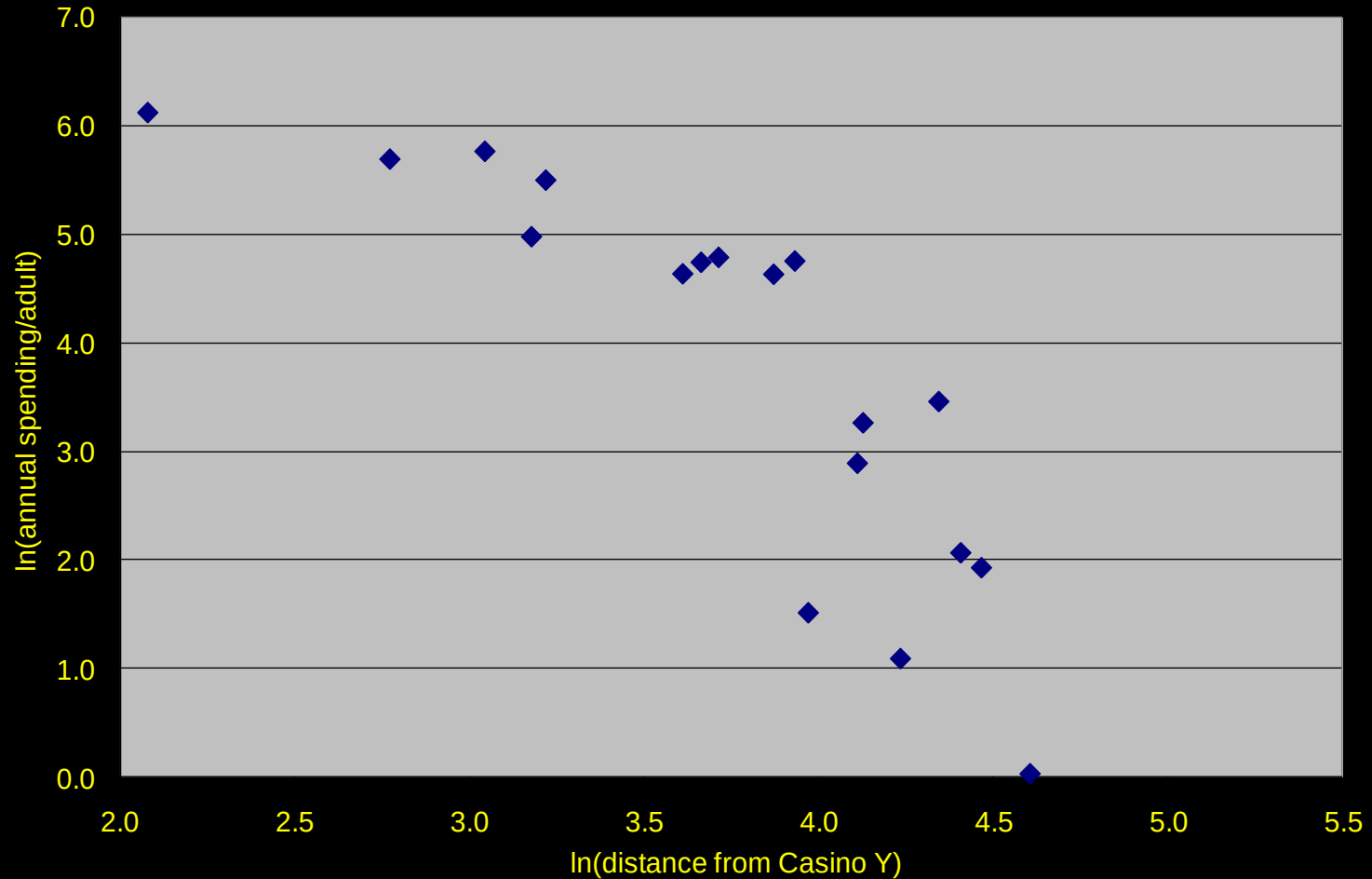
Laughlin: even steeper slope



Casino X: isolated market



Casino Y: competitors afar



Casino Y: cleaner close

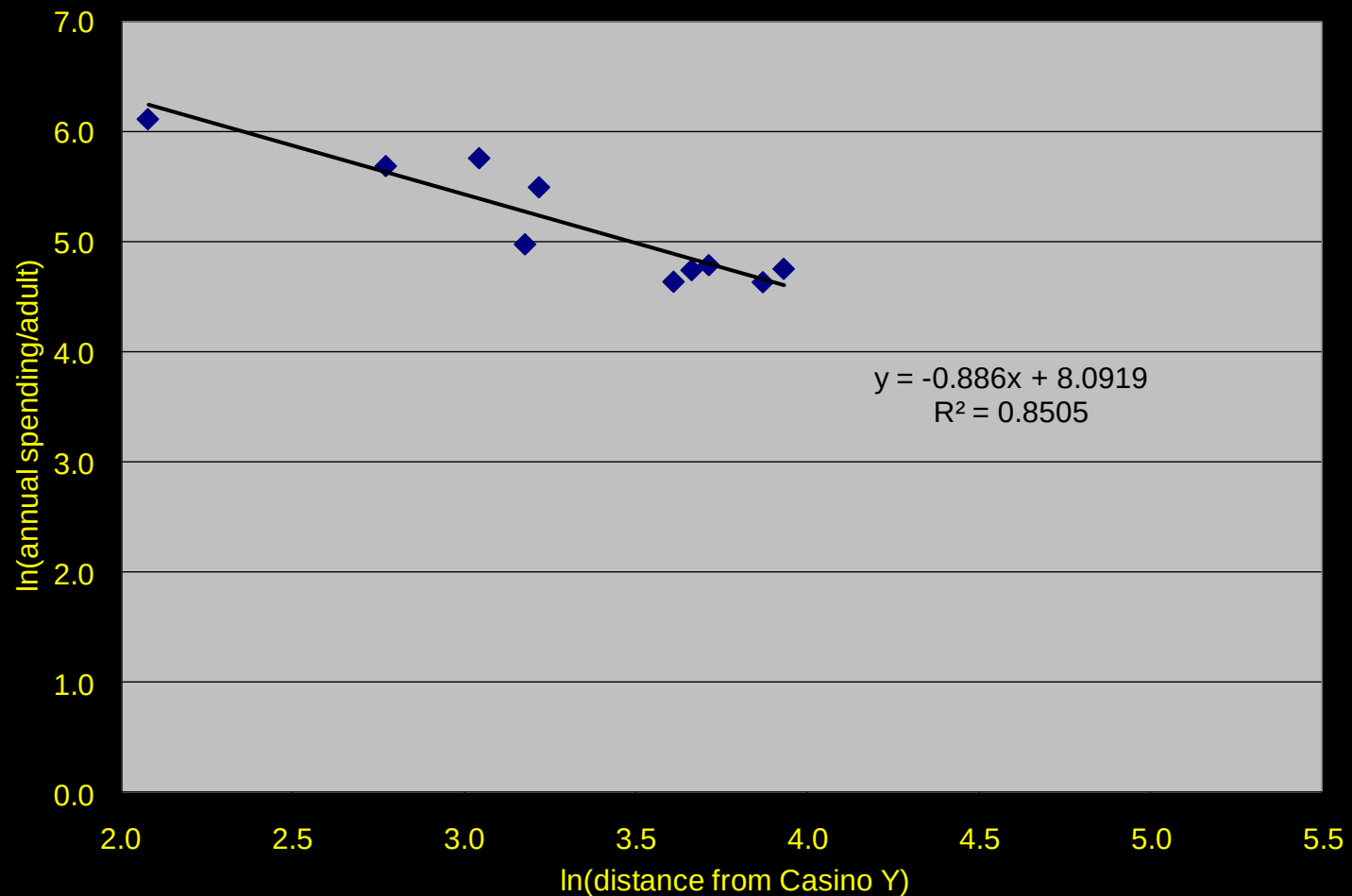


Exhibit A-9: Slot Spending Declines With Distance at Casino Z

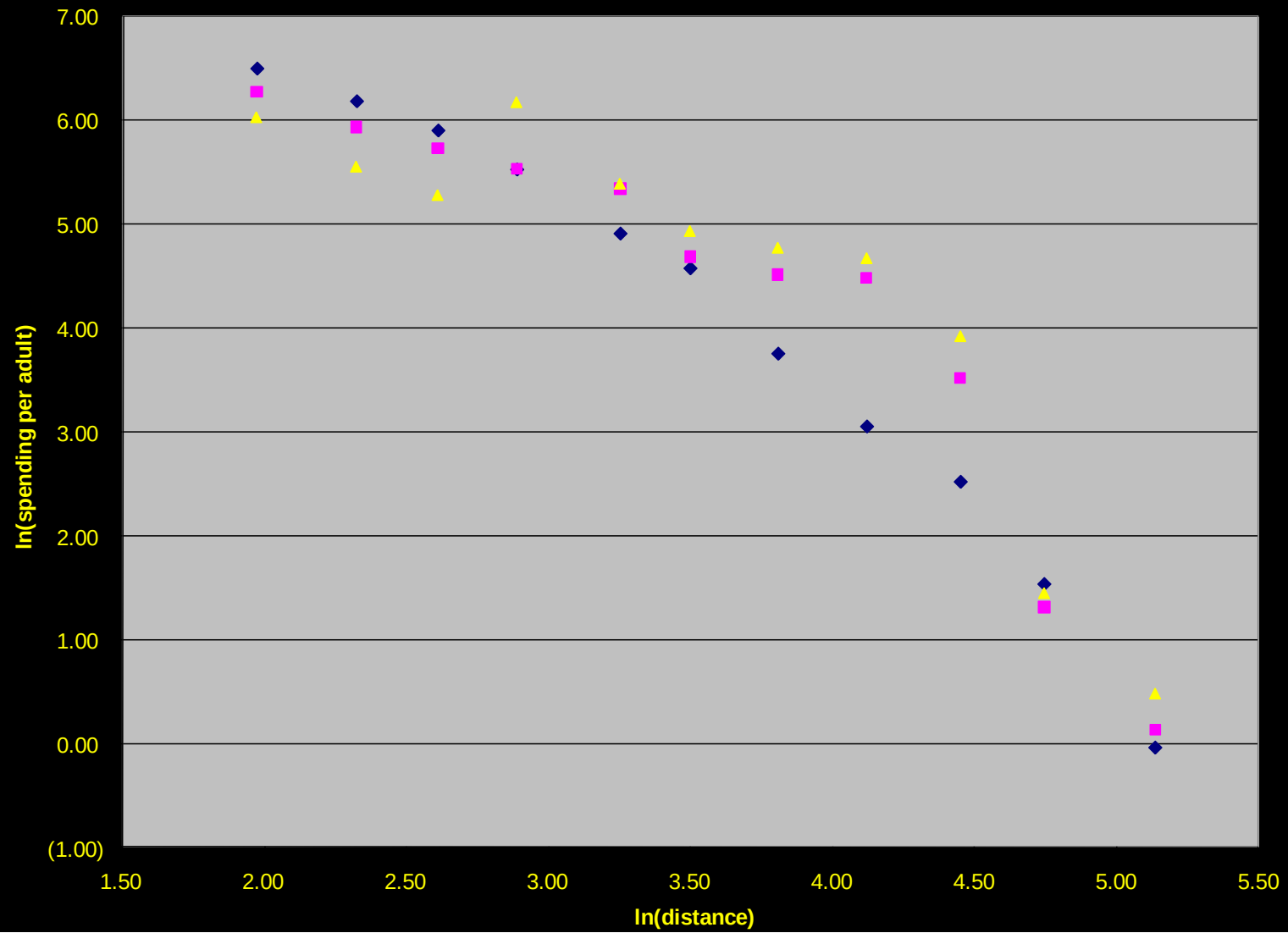


Exhibit A-10: Slot Spending Declines With Travel Time at Casino Z

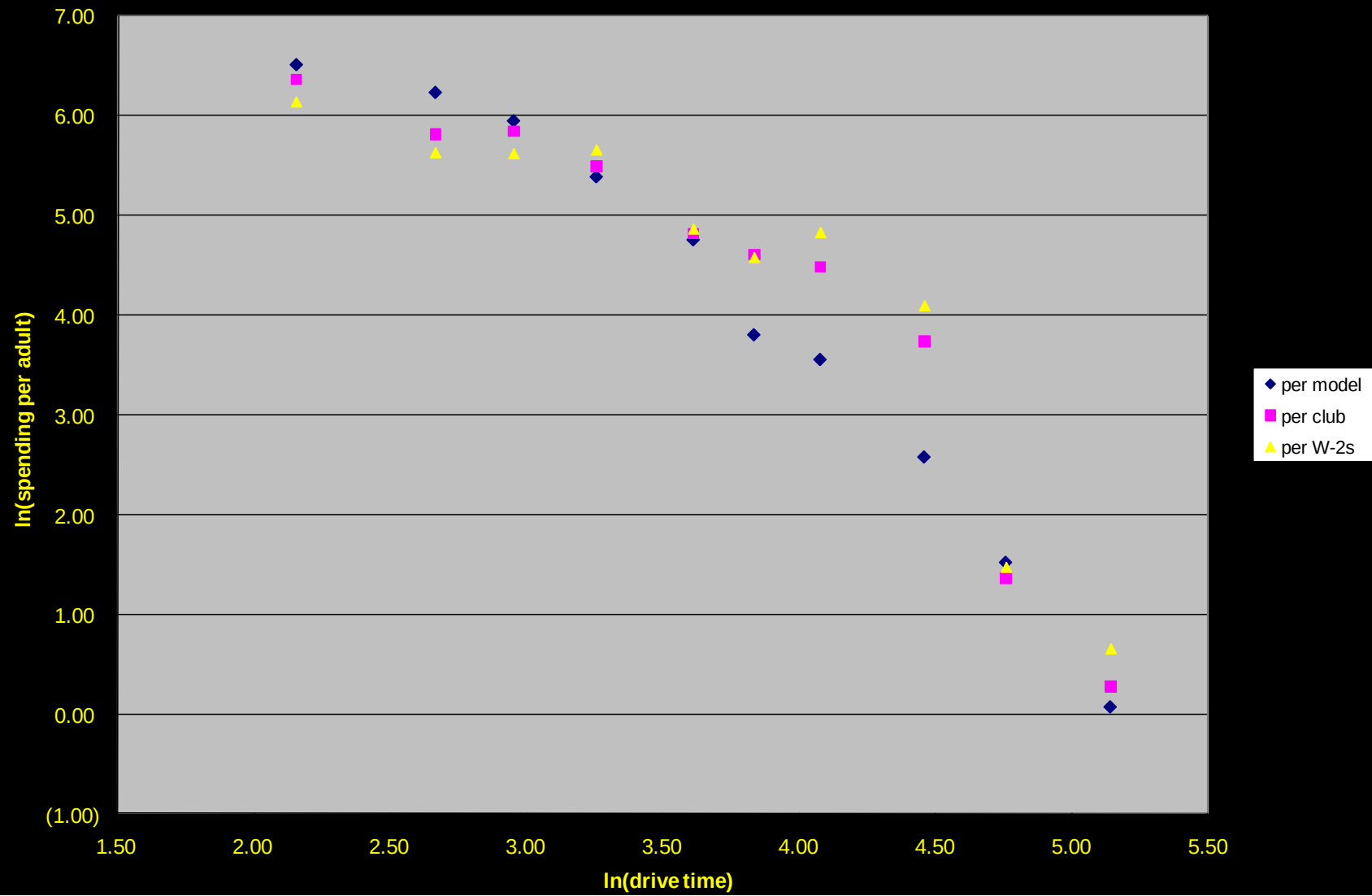
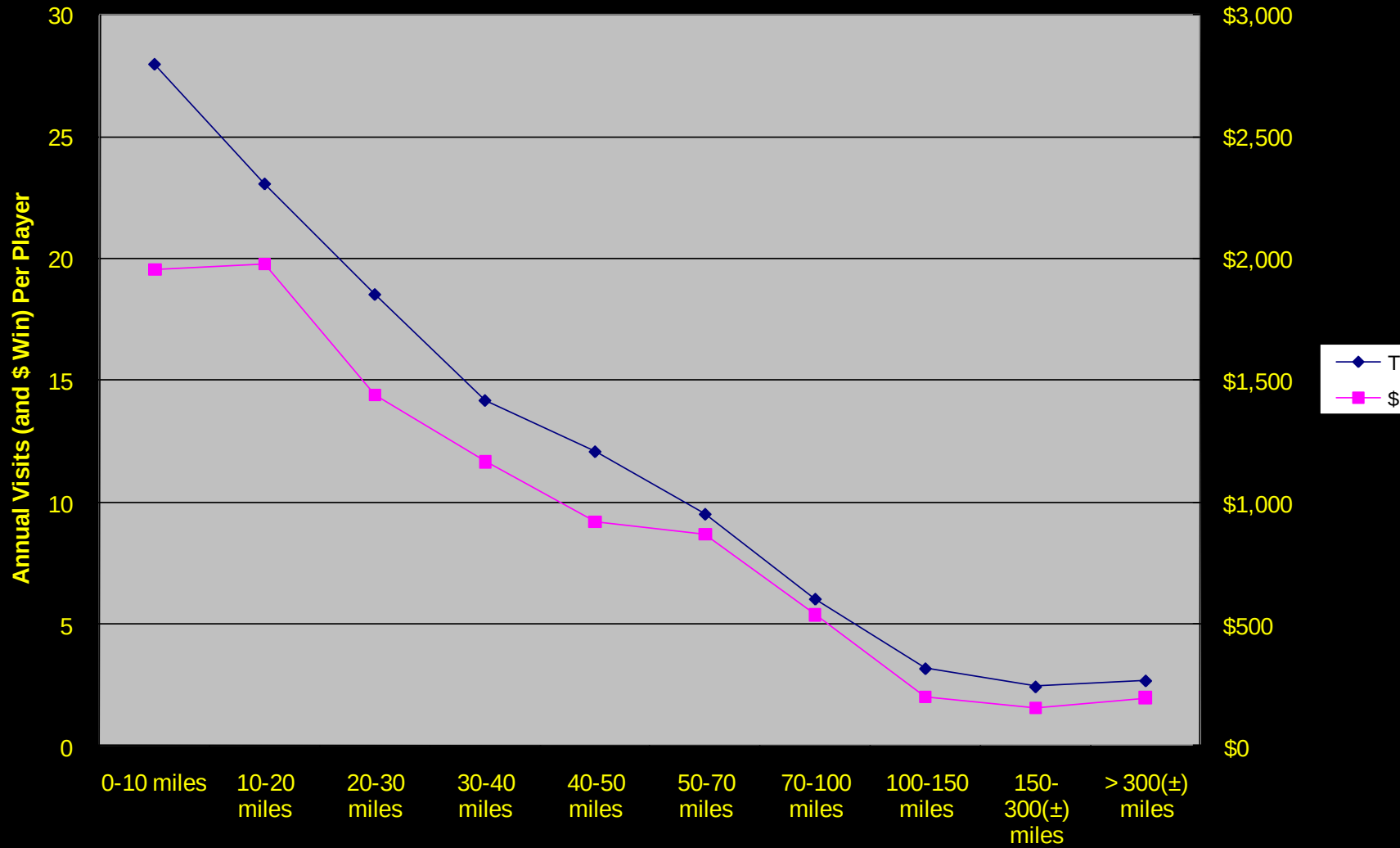


Exhibit A-11: Rates of Visitation (and Win) vs. Distance at Casino Z



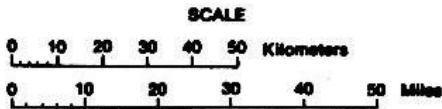
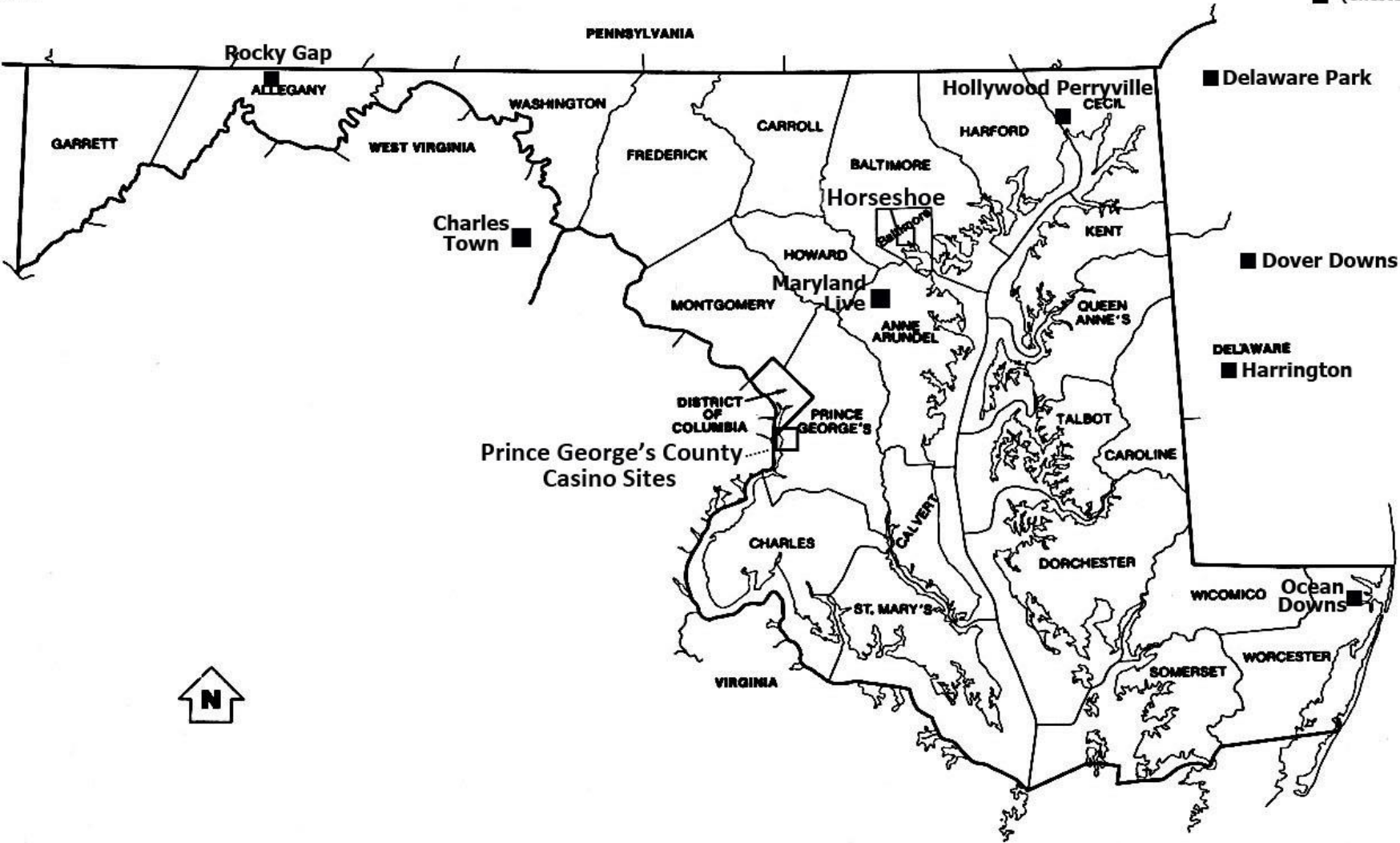
Gravity Models – Overview

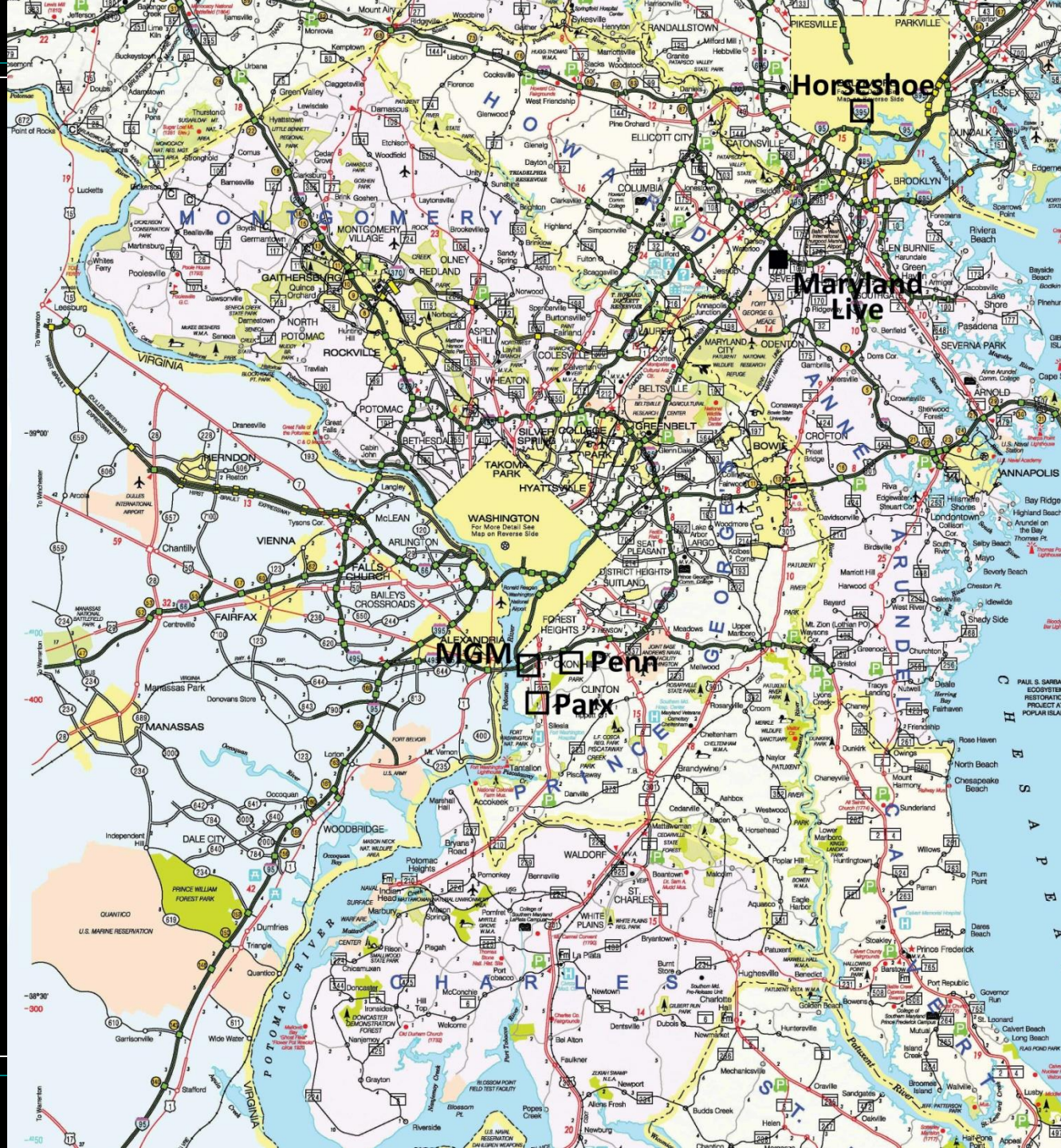
- Location I
- Location II
- Size
- Everything Else

Location II: Competition

Harrah's
Philadelphia
■ (Chester)

Nemacolin
■





Horseshoe

Maryland
Live

MGM Penn
Park

*Location II:
Reilly's Law*

Reilly's Law:

$$ms \sim S/d^2$$

Where

ms : market share

S : outlet size (capacity)

d : distance

Newton's Law:

$$F = m / d^2$$

Where

F : gravitational force

m : mass (conjoined)

d : distance

Reilly's Law:

$$ms \sim S/d^2$$

Where

ms : market share

S : casino size (capacity)

d : distance

Reilly's Law Extended:

$$ms \sim S / tt^2$$

Where

ms : market share

S : casino size (capacity)

tt : travel time / convenience

Northeast Slot Estimates											
Travel Time (in minutes):											
State	County	ZIP Code	Baltim.	MD Live	H'woodP	RockyG	OceanD	MTR	Wheeling	M Gras	CharlesT
MD	Allegany	21502	132.0	133.0	168.7	22.2	302.4	167.1	138.4	208.5	96.4
MD	Allegany	21504	123.1	124.1	159.8	13.3	293.5	169.9	136.9	207.0	87.5
MD	Allegany	21521	162.7	163.7	199.4	52.9	333.1	174.4	144.0	214.1	127.1
MD	Allegany	21529	137.1	138.1	173.8	27.3	307.5	162.5	146.8	216.9	101.5
MD	Allegany	21530	124.2	125.3	161.0	13.8	294.6	179.1	146.1	216.2	88.7
MD	Allegany	21532	137.5	138.5	174.2	27.7	307.9	159.7	131.2	201.4	102.0
MD	Allegany	21539	150.0	151.0	186.7	40.2	320.4	167.9	137.6	207.7	114.4
MD	Allegany	21540	159.4	160.5	196.2	49.6	329.8	186.1	157.5	235.8	116.6
MD	Allegany	21543	132.5	133.5	169.2	22.7	302.9	155.9	127.2	197.3	96.9
MD	Allegany	21545	141.5	142.6	178.3	31.7	311.9	159.6	141.1	218.1	106.0
MD	Allegany	21555	140.9	142.0	177.7	41.0	311.3	203.2	170.2	240.4	105.4
MD	Allegany	21557	143.2	144.2	179.9	33.4	313.6	181.1	152.5	222.6	107.6
MD	Allegany	21560	131.8	132.8	168.5	22.0	302.2	179.4	146.4	216.5	96.2
MD	Allegany	21562	149.1	150.1	185.8	39.3	319.5	187.1	158.4	223.0	103.8
MD	Allegany	21766	114.9	115.9	151.6	26.9	285.3	198.0	165.0	235.1	79.3
MD	Anne Arundel	20711	44.8	43.4	80.0	144.1	134.3	303.7	282.2	352.3	96.5
:	:	:	:	:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:	:	:	:	:
MD	Worcester	21851	147.0	145.2	145.2	257.6	38.2	417.2	395.7	465.8	209.9
MD	Worcester	21862	131.5	129.6	129.6	242.0	12.0	397.3	380.1	450.2	194.4
MD	Worcester	21863	137.8	136.0	136.0	248.3	25.0	403.6	386.5	456.6	200.7
MD	Worcester	21864	153.4	151.6	151.6	263.9	38.3	419.2	402.1	472.2	216.3
MD	Worcester	21872	132.2	130.3	130.3	242.7	16.0	398.0	380.8	451.0	195.1
Total MD											

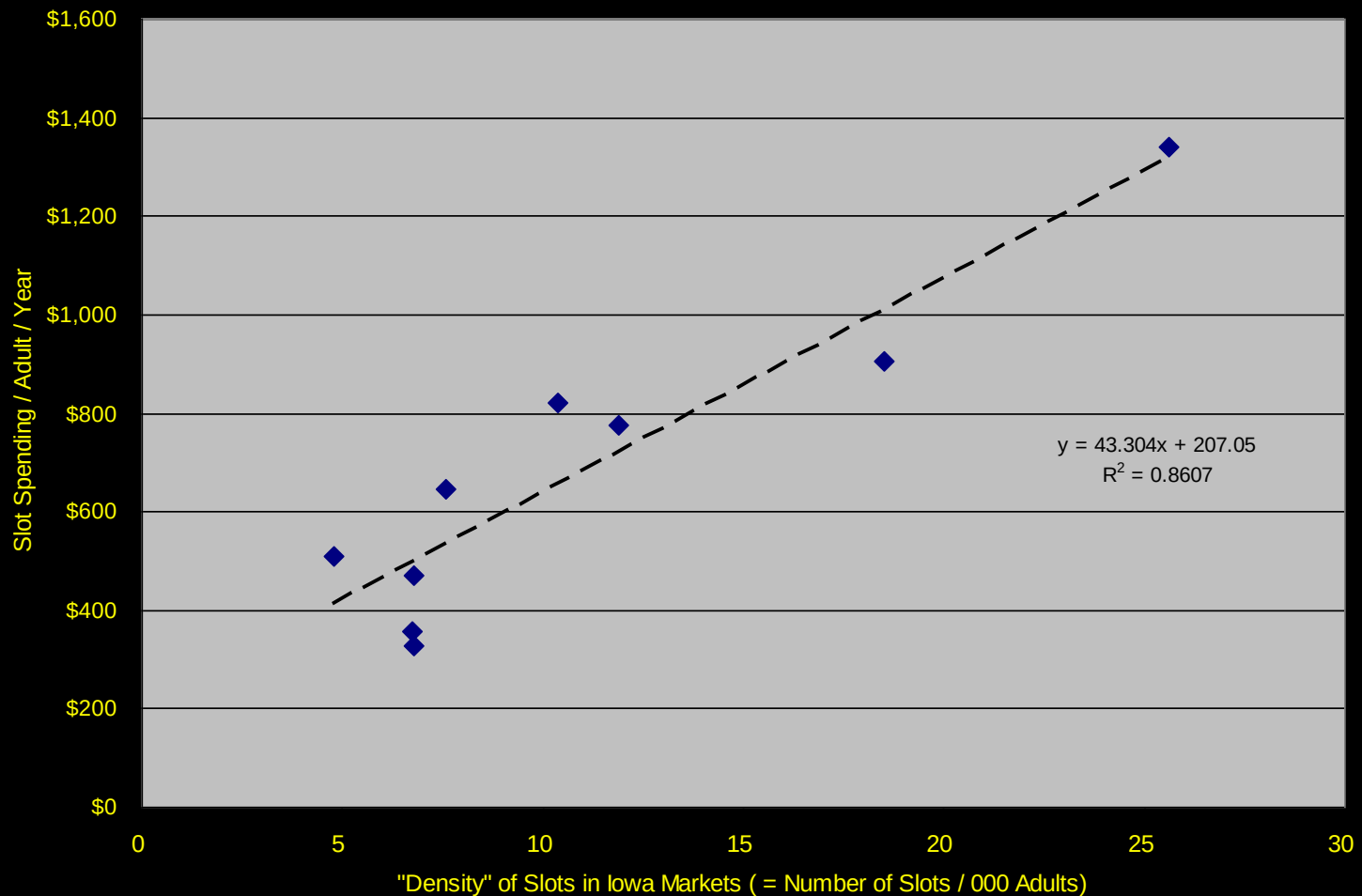
Gravity Models – Overview

- Location
- Location
- **Size**
- Everything Else

Bigger IS Better

- Consumer choice
 - Micro-environments
 - Ancillary attractions
 - Queuing issues even if not capacity-constrained
- Economies of scale
 - Ancillary attractions
 - Player rewards

More Slots, More Spending



Gravity Models – Overview

- Location
- Location
- Size
- **Everything Else**

“Everything Else” 1

- Personal Income
- Micro-Access
- Spaciousness
- Game Mix
- Fit & Finish
- Management Skill
- Marketing / Player Rewards

“Everything Else” 2

- Hotel
- Parking Garage
- Variety of Dining Choices
- “ / Retail
- “ / Entertainment
- “Brand”
- Tax / Retention Rate

“Everything Else”

=

“Attractiveness”

Reilly's Law Generalized (Huff+)

$$\text{weight}_{ij} = K_n \times \text{size}_j^{\text{scoeff}} \times (\text{dist}_{ij}/7)^{(\text{grav1}+\text{grav2})}$$

weight_{ij} : weight of casino j in market segment I

K_n : “attractiveness” parameter(s)

size_j : size of casino j

scoeff : size coefficient ≈ 1.0

dist_{ij} : distance of casino j from market segment i

grav1 : “competitive” gravity coeff. ≈ -2.0

grav2 : “aggregate” gravity coeff. ≈ -0.7

[Corresponds to Huff lambda, or “friction” = -2.7]

“Everything Else”

=

“Power Ratings”

Power Ratings Modulate:

- Local propensity to spend
- Absolute “attractiveness”
- Relative “ / Market Share
- “Reach” = Rate of exponential decline with distance

Exhibit 10: Slot Power Ratings on One Page

(Benchmark = Total Annual Spending of \$720 per Distance-Adj. Adult)

Northeastern US and Florida		Medium to Large Markets Elsewhere		Rural / Remote Markets Elsewhere	
		Mississippi average	131.8 n		
				St Jo MO	124.6 o
		Downstream Resort, OK	119.4	Deadwood, SD	119.8
		Harrahs NKC MO	119.2	S Dakota Tribes (avg of 8)	118.2 e
				Upstate Michigan avg.	118.0 e
		San Felipe (ABQ), NM	117.5 n	Laguna Tribe (3 facils), NM	117.9 n
				Kansas Tribes (avg. of 4)	117.0 e
				Cripple Creek, CO (2)	116.1 n
		Santa Ana (ABQ), NM	115.6 n	Diamond Jo Worth, IA	115.8
Salamanca, NY	115.0 e	Argosy Riverside, MO	114.5	Upstate Wisconsin avg.	115.0 e
		Louisiana average	113.9 n	Other NM (avg. of 9)	114.9 n
		Sandia (ABQ), NM	113.9 n	Iowa Tribes (average of 3)	112.1 e
		Ameristar KCMO	113.8	Dodge City, KS	112.0
				Emmetsburg, IA	111.8
				Terribles Lakeside, IA	111.7
				Black Hawk/CC, CO (2)	110.3 n
				Zia Park (Hobbs), NM	110.1 n
Midwest Standard +10%					
		Isleta (ABQ), NM	109.9 n		
Atlantic City, NJ avg.	109.8	Riverside, IA	109.9	SunRay Park, NM	109.7 n
Seneca Niagara (NY)	109.2 e	IOC Waterloo, IA	108.9	Mt. Pleasant, MI	108.7 e
Tioga Downs, NY	106.9			IOC Boonville, MO	106.9 n, o
Vernon Downs, NY	106.7				
(Buffalo) Fairgrounds, NY	106.0	Dubuque Diamond Jo, IA	105.9		
		Horseshoe / Bluffs Run, IA	105.6	Taos, NM	105.2 n
		Dubuque Mystique, IA	104.4	IOC Marquette, IA	104.2 o
		Argosy Sioux City, IA	103.8 o	Wisconsin Dells	104.0 e
		Grand Falls, IA (S. Falls, SD)	103.3		
Mohegan Sun, CT	103.1	Prairie Meadows, IA	103.2		
Ocean Downs, MD	102.9	The Downs at ABQ, NM	102.7 n		
		Jumers Rock Island, IL	102.3		
		Ameristar Council Bluffs, IA	102.2		
Mountaineer Park, WV	101.2				
Foxwoods, CT	101.0				
Mohegan @ Pocono Downs, PA	100.5				
"Midwest Standard"					
Presque Isle @ Erie, PA	98.8				
Finger Lakes, NY	98.7	Michigan City, IN	98.7 n		
Dover Downs, DE	98.0				
The Meadows / Pittsburgh	97.4	IOC KCMO	97.3 o	Ruidoso Downs, NM	97.5 n
Harrington Raceway, DE	97.0	Harrahs W St Louis	96.9 n		
Saratoga, NY	96.8	Clinton, IA	96.9		
Wheeling, WV	95.8	Detroit (avg / 3 facils)	96.0 n		
Penn National / Harrisburg, PA	94.7	Harrahs Council Bluffs, IA	94.5		
Mount Airy / Pocono, PA	94.4	Catfish Bend Burlington, IA	94.2		
Charles Town, WV	93.5	IOC Bettendorf, IA	93.8 o		
Delaware Park	93.3	Belterra, Florence, IN	93.7 n, o	Mark Twain, MO	93.7 n, o
		Ameristar St Chas, MO	93.1 n		
		Indiana Grand	92.9		
		Harrahs Joliet, IL	92.8 n, o	Metropolis, IL/KY	92.7 n, o
		East St Louis, IL (2 facils)	92.0 n, o		
		Rhythm City, IA	91.6 o		
Batavia, NY	91.0				
Midwest Standard -10%					
		Green Bay, WI	90.0 e		
		KCKS 7th St Casino	90.0 e (Class II slots)		
Harrahs @ Chester, PA	89.1	Hoosier Park, IN	89.3		

Exhibit 9: Gaming-Device "Power Ratings" in Various US Markets

(\$720 Benchmark Total Annual Spending on Slots and/or VLTs Per "Distance-Adjusted" Adult in 2012-13)

Northeastern US and Florida		Medium to Large Markets Elsewhere		Rural / Remote Markets Elsewhere	
		Mississippi average	131.8 n		
		Downstream Resort, OK	119.4	St Jo MO	124.6 o
		Harrahs NKCMO	119.2	Deadwood, SD	119.8
				S Dakota Tribes (avg of 8)	118.2
		San Felipe (ABQ), NM	117.5 n	Upstate Michigan avg.	118.0 e
				Lagunas (3 facils), NM	117.9 n
				Kansas Tribes (avg of 4)	117.0 e
				Cripple Creek, CO (2)	116.1 n
		Santa Ana (ABQ), NM	115.6 n	Diamond Jo Worth, IA	115.8
Salamanca, NY	115.0 e	Argosy Riverside, MO	114.5	Upstate Wisconsin avg.	115.0 e
		Louisiana average	113.9 n	Other NM (avg. of 9)	114.9 n
		Sandia (ABQ), NM	113.9 n	Iowa Tribes (avg of 3)	112.1 e
		Ameristar KCMO	113.8	Dodge City, KS	112.0
				Emmetsburg, IA	111.8
				Terribles Lakeside, IA	111.7
				Black Hawk/CC, CO (2)	110.3 n
				Zia Park (Hobbs), NM	110.1 n
Midwest Standard +10%					
		Isleta (ABQ), NM	109.9 n		
Atlantic City, NJ avg.	109.8	Riverside, IA	109.9	SunRay Park, NM	109.7 n
Seneca Niagara (NY)	109.2 e	IOC Waterloo, IA	108.9	Mt. Pleasant, MI	108.7 e
Tioga Downs, NY	106.9			IOC Boonville, MO	106.9 n, o
Vernon Downs, NY	106.7				
(Buffalo) Fairgrounds, NY	106.0	Dubuque Diamond Jo, IA	105.9		
		Horseshoe / Bluffs Run, IA	105.6	Taos, NM	105.2 n
		Dubuque Mystique, IA	104.4	IOC Marquette, IA	104.2 o
Mohegan Sun, CT	103.1	Argosy Sioux City, IA	103.8 o	Wisconsin Dells	104.0 e
Ocean Downs, MD	102.9	Grand Falls, IA (S. Falls, SD)	103.3		
		Prairie Meadows, IA	103.2		
		The Downs at ABQ, NM	102.7 n		
		Jumers Rock Island, IL	102.3		

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		Ameristar Council Bluffs, IA	102.2		
	Mountaineer Park, WV	101.2			
	Foxwoods, CT	101.0			
	Mohegan @ Pocono Downs	100.5			
	"Midwest Standard"				
	Presque Isle, Erie, PA	98.8			
	Finger Lakes, NY	98.7	Michigan City, IN	98.7 n	
	Dover Downs, DE	98.0			
	The Meadows / Pittsburgh	97.4	IOC KCMO	97.3 o	Ruidoso Downs, NM 97.5 n
	Harrington Raceway, DE	97.0	Harrahs W St Louis	96.9 n	
	Saratoga, NY	96.8	Clinton, IA	96.9	
	Wheeling, WV	95.8	Detroit (avg / 3 facils)	96.0 n	
	Penn National / Harrisburg, PA	94.7	Harrahs Council Bluffs, IA	94.5	
	Mount Airy / Pocono, PA	94.4	Catfish Bend Burlington, IA	94.2	
	Charles Town, WV	93.5	IOC Bettendorf, IA	93.8 o	
	Delaware Park	93.3	Belterra, Florence, IN	93.7 n, o	Mark Twain, MO 93.7 n, o
			Ameristar St Chas, MO	93.1 n	
			Indiana Grand	92.9	
			Harrahs Joliet, IL	92.8 n, o	Metropolis, IL/KY 92.7 n, o
			East St Louis, IL (2 boats)	92.0 n, o	
			Rhythm City, IA	91.6 o	
	Batavia, NY	91.0			
	Northeastern US Markets		Medium to Large Markets Elsewhere		Rural Markets Elsewhere
	Midwest Standard -10%		Green Bay, WI	90.0 e	
			KCKS 7th St Casino	90.0 e (Class II slots)	
	Harrahs @ Chester, PA	89.1	Hoosier Park, IN	89.3	
			Ameristar, E Chicago IN	88.9 n, o	
	Monticello, NY	88.5	St. Louis, MO (2 facils)	88.3 n	
	Sands Bethlehem, PA	87.9			
	Twin River @ Lincoln, RI	87.8			
			Hammond, IN	87.2 n, o	Caruthersville, MO 87.3 n, o
	The Rivers / Pittsburgh	86.0			
			Rising Sun, IN	85.8 n, o	

		Rising Sun, IN	85.8	n, o	
		Hollywood Lawrenceburg, IN	85.4	n, o	
		Hollywood Toledo, OH	84.8		
Parx / Philadelphia	83.8				French Lick, IN 83.8 n
		Majestic Star, Gary IN	82.4	n, o	
		Elgin (Chicago) IL	81.7	n, o	
Sugarhouse / Philadelphia	81.2	Louisville, KY/IN	81.1	n, o	
Valley Forge, PA	80.2				
Midwest Standard -20%		Milwaukee, WI	80.0	e o	
		Aurora (Chicago), IL	79.7	n, o	
Resorts World @ Aqueduct, NY	79.4			o	
Hollywood @ Bangor, ME	78.5	Joliet Empress, IL	78.5	n, o	
Newport Grand, RI	78.1				
Oxford, ME	77.7	Scioto Downs(Columbus), OH	77.5		
Pompano Park, FL	77.1				
Hollywood Perryville, MD	76.2				
Mardi Gras, WV	75.5				
Empire City @ Yonkers, NY	75.5			o	
Gulfstream Park, FL	75.4				
Mardi Gras / Hollywood, FL	73.1				
		Peoria, IL	72.3	n, o	
Maryland Live	71.1				
		Evansville, IN	69.2	n, o	
		Montana VLTs	69.2		
		Sunland Park, NM	69.0	n, o	
Magic City / Flagler, Miami, FL	68.1				
Calder Race Course, Miami, FL	65.0	Horseshoe Cleveland, OH	65.2		
		South Dakota VLTs	64.7		
		Hollywood Columbus, OH	61.5		
Miami Jai-Alai & Casino	57.5			a	
Greenbrier, WV	54.6			o	

a = annual rate

e = slot revenues estimated (usually "n" as well)

n = mileage-based and/or low-resolution estimate

o = old boat or capacity-constrained market

“Everything Else” = Power Rating

	Power Rating
Atlantic City (group)	109.2
Mohegan Sun	103.1
Foxwoods	100.6
Typical NE U.S. Racino	90 ±
Maryland Live	71.1

“Everything Else” = Power Rating

	Power Rating
Atlantic City (group)	109.2
Mohegan Sun	103.1
Foxwoods	100.6
Typical NE U.S. Racino	90 ±
Maryland Live	71.1

Tax Rate Matters!

Exhibit 10: Slot Power Ratings on One Page

(Benchmark = Total Annual Spending of \$720 per Distance-Adj. Adult)

Northeastern US and Florida		Medium to Large Markets Elsewhere		Rural / Remote Markets Elsewhere	
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		San Felipe (ABQ), NM	117.5 n	Laguna Tribe (3 facils), NM	117.9 n
				Kansas Tribes (avg. of 4)	117.0 e
				Cripple Creek, CO (2)	116.1 n
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Salamanca, NY	115.0 e	Argosy Riverside, MO	114.5	Upstate Wisconsin avg.	115.0 e
		Louisiana average	113.9 n	Other NM (avg. of 9)	114.9 n
		Sandia (ABQ), NM	113.9 n	Iowa Tribes (average of 3)	112.1 e
		Ameristar KCMO	113.8	Dodge City, KS	112.0
				Emmetsburg, IA	111.8
				Terribles Lakeside, IA	111.7
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Midwest Standard +10%					
		Isleta (ABQ), NM	109.9 n		
Atlantic City, NJ avg.	109.8	Riverside, IA	109.9	SunRay Park, NM	109.7 n
Seneca Niagara (NY)	109.2 e	IOC Waterloo, IA	108.9	Mt. Pleasant, MI	108.7 e
Tioga Downs, NY	106.9			IOC Boonville, MO	106.9 n, o
Vernon Downs, NY	106.7				
(Buffalo) Fairgrounds, NY	106.0	Dubuque Diamond Jo, IA	105.9		
		Horseshoe / Bluffs Run, IA	105.6	Taos, NM	105.2 n
		Dubuque Mystique, IA	104.4	IOC Marquette, IA	104.2 o
		Argosy Sioux City, IA	103.8 o	Wisconsin Dells	104.0 e
		Grand Falls, IA (S. Falls, SD)	103.3		
Mohegan Sun, CT	103.1	Prairie Meadows, IA	103.2		
Ocean Downs, MD	102.9	The Downs at ABQ, NM	102.7 n		
		Jumers Rock Island, IL	102.3		
		Ameristar Council Bluffs, IA	102.2		
Mountaineer Park, WV	101.2				
Foxwoods, CT	101.0				
Mohegan @ Pocono Downs, PA	100.5				
"Midwest Standard"					
Presque Isle @ Erie, PA	98.8				
Finger Lakes, NY	98.7	Michigan City, IN	98.7 n		
Dover Downs, DE	98.0				
The Meadows / Pittsburgh	97.4	IOC KCMO	97.3 o	Ruidoso Downs, NM	97.5 n
Harrington Raceway, DE	97.0	Harrahs W St Louis	96.9 n		
Saratoga, NY	96.8	Clinton, IA	96.9		
Wheeling, WV	95.8	Detroit (avg / 3 facils)	96.0 n		
Penn National / Harrisburg, PA	94.7	Harrahs Council Bluffs, IA	94.5		
Mount Airy / Pocono, PA	94.4	Catfish Bend Burlington, IA	94.2		
Charles Town, WV	93.5	IOC Bettendorf, IA	93.8 o		
Delaware Park	93.3	Belterra, Florence, IN	93.7 n, o	Mark Twain, MO	93.7 n, o
		Ameristar St Chas, MO	93.1 n		
		Indiana Grand	92.9		
		Harrahs Joliet, IL	92.8 n, o	Metropolis, IL/KY	92.7 n, o
		East St Louis, IL (2 facils)	92.0 n, o		
		Rhythm City, IA	91.6 o		
Batavia, NY	91.0				
Midwest Standard -10%					
		Green Bay, WI	90.0 e		
		KCKS 7th St Casino	90.0 e (Class II slots)		
Harrahs @ Chester, PA	89.1	Horsier Park, IN	89.3		

Exhibit 12: Slot Power Ratings in Retention-Rate Bins

(Benchmark = Total Annual Spending of \$720 per Distance-Adj. Adult)

Retention < 40%		Retention 40-60%		Retention 60-80%		Retention > 80%
						Mississippi average
				St Jo MO	124.6 o	
				Harrahs NKCMO	119.2	Deadwood, SD Downstream Resort, OK S Dakota Tribes (avg of 8) Upstate Michigan avg. Laguna Tribe (3 facils), NM San Felipe (ABQ), NM Kansas Tribes (avg. of 4) Cripple Creek, CO ⁽²⁾ Santa Ana (ABQ), NM Upstate Wisconsin avg. Salamanca, NY Other NM (avg. of 9) Sandia (ABQ), NM
				Diamond Jo Worth, IA	115.8	Iowa Tribes (average of 3)
				Argosy Riverside, MO	114.5	
				Louisiana average	113.9 n	
				Ameristar KCMO	113.8	
				Dodge City, KS	112.0	
				Emmetsburg, IA	111.8	
				Terribles Lakeside, IA	111.7	
		Zia Park (Hobbs), NM	110.1 n			Black Hawk/CC, CO ⁽²⁾
Midwest Standard +10%				Riverside, IA	109.9	Isleta (ABQ), NM Atlantic City, NJ avg. Seneca Niagara (NY) Mt. Pleasant, MI
		SunRay Park, NM	109.7 n	IOC Waterloo, IA	108.9	
		Tioga Downs, NY	106.9	IOC Boonville, MO	106.9 n, o	
		Vernon Downs, NY	106.7	Dubuque Diamond Jo, IA	105.9	
		(Buffalo) Fairgrounds, NY	106.0	Horseshoe / Bluffs Run, IA	105.6	Taos, NM
		Dubuque Mystique, IA	104.4	IOC Marquette, IA	104.2 o	Wisconsin Dells
				Argosy Sioux City, IA	103.8 o	
				Grand Falls, IA (S. Falls, SD)	103.3	Mohegan Sun, CT
Ocean Downs, MD	102.9	The Downs at ABQ, NM	102.7 n	Prairie Meadows, IA	103.2	
				Jumers Rock Island, IL	102.3	
				Ameristar Council Bluffs, IA	102.2	
		Mountaineer Park, WV	101.2			Foxwoods, CT
		Mohegan @ Pocono Downs, PA	100.5			
Midwest Standard						
		Presque Isle @ Erie, PA	98.8			
		Finger Lakes, NY	98.7	Michigan City, IN	98.7 n	
		Dover Downs, DE	98.0			
		Ruidoso Downs, NM	97.5 n			
		The Meadows / Pittsburgh	97.4	IOC KCMO	97.3 o	
		Harrington Raceway, DE	97.0	Harrahs W St Louis	96.9 n	
		Saratoga, NY	96.8	Clinton, IA	96.9	
		Wheeling, WV	95.8	Detroit (avg / 3 facils)	96.0 n	
		Penn National / Harrisburg, PA	94.7	Harrahs Council Bluffs, IA	94.5	
		Mount Airy / Pocono, PA	94.4	Catfish Bend Burlington, IA	94.2	
		Belterra, Florence, IN	93.7 n, o	IOC Bettendorf, IA	93.8 o	
		Charles Town, WV	93.5	Mark Twain, MO	93.7 n, o	
		Delaware Park	93.3	Ameristar St Chas, MO	93.1 n	
		Indiana Grand	92.9			
		Harrahs Joliet, IL	92.8 n, o	Metropolis, IL/KY	92.7 n, o	
				East St Louis, IL (2 facils)	92.0 n, o	
		Batavia, NY	91.0	Rhythm City, IA	91.6 o	
Midwest Standard -10%						Green Bay, WI
		Hoosier Park, IN	89.3			KCKS 7th St Casino (Class II slots)
		Harrahs @ Chester, PA	89.1	Ameristar, E Chicago IN	88.9 n, o	

Exhibit 13: Slot Power Rating vs. Casino Retention % (Detail)

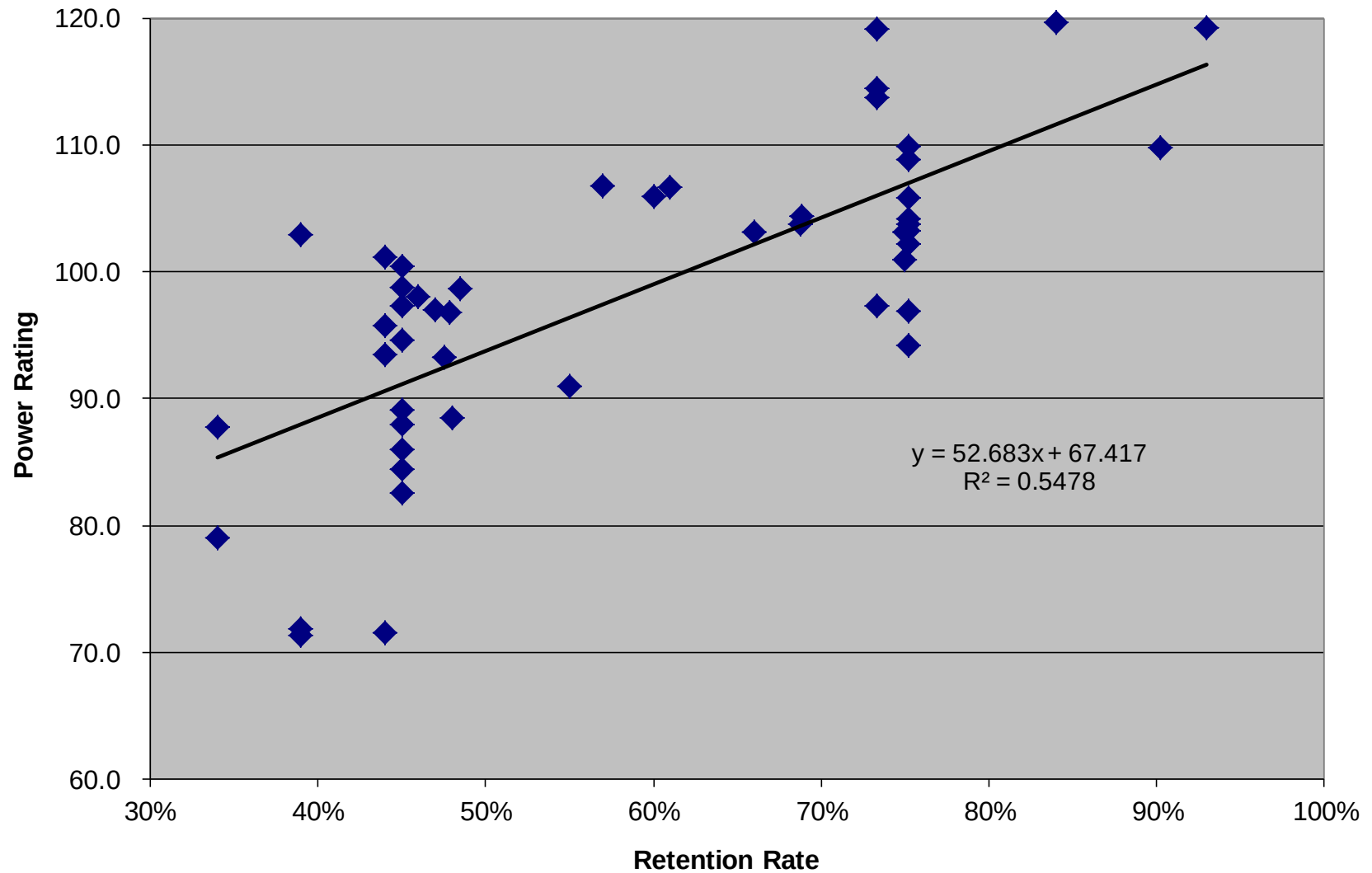
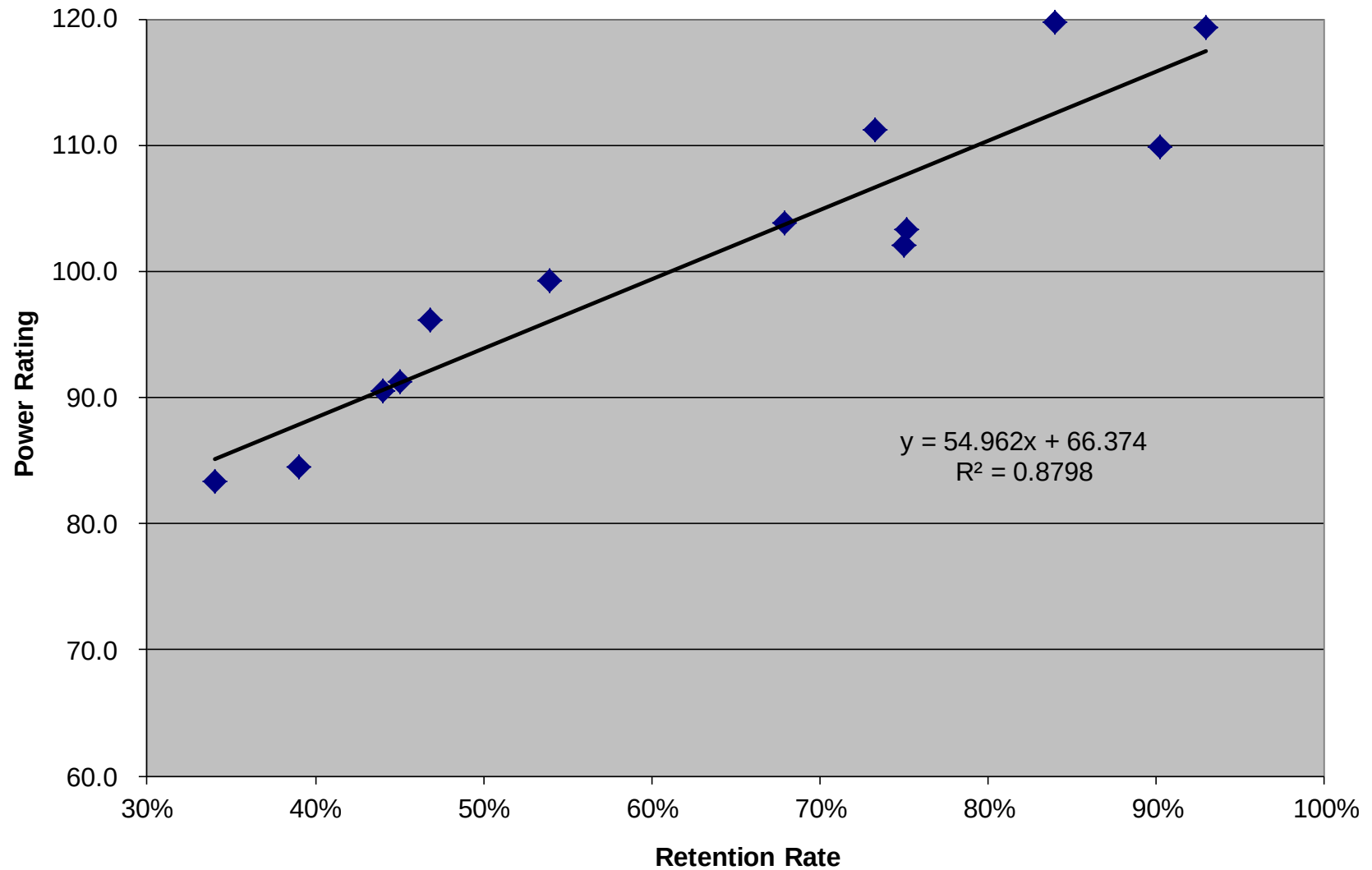


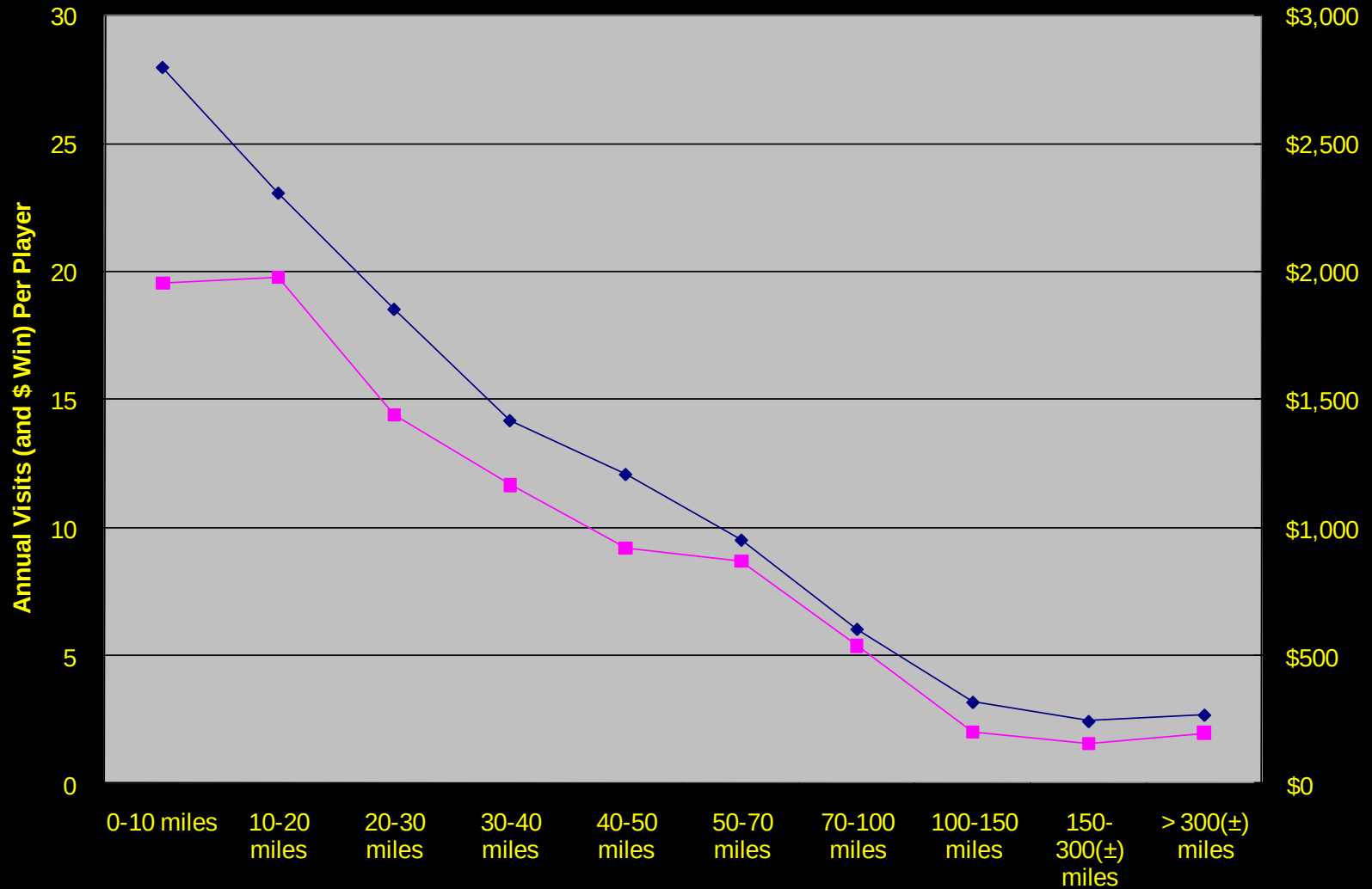
Exhibit 14: Slot Power Rating vs. Retention % (State± Averages)

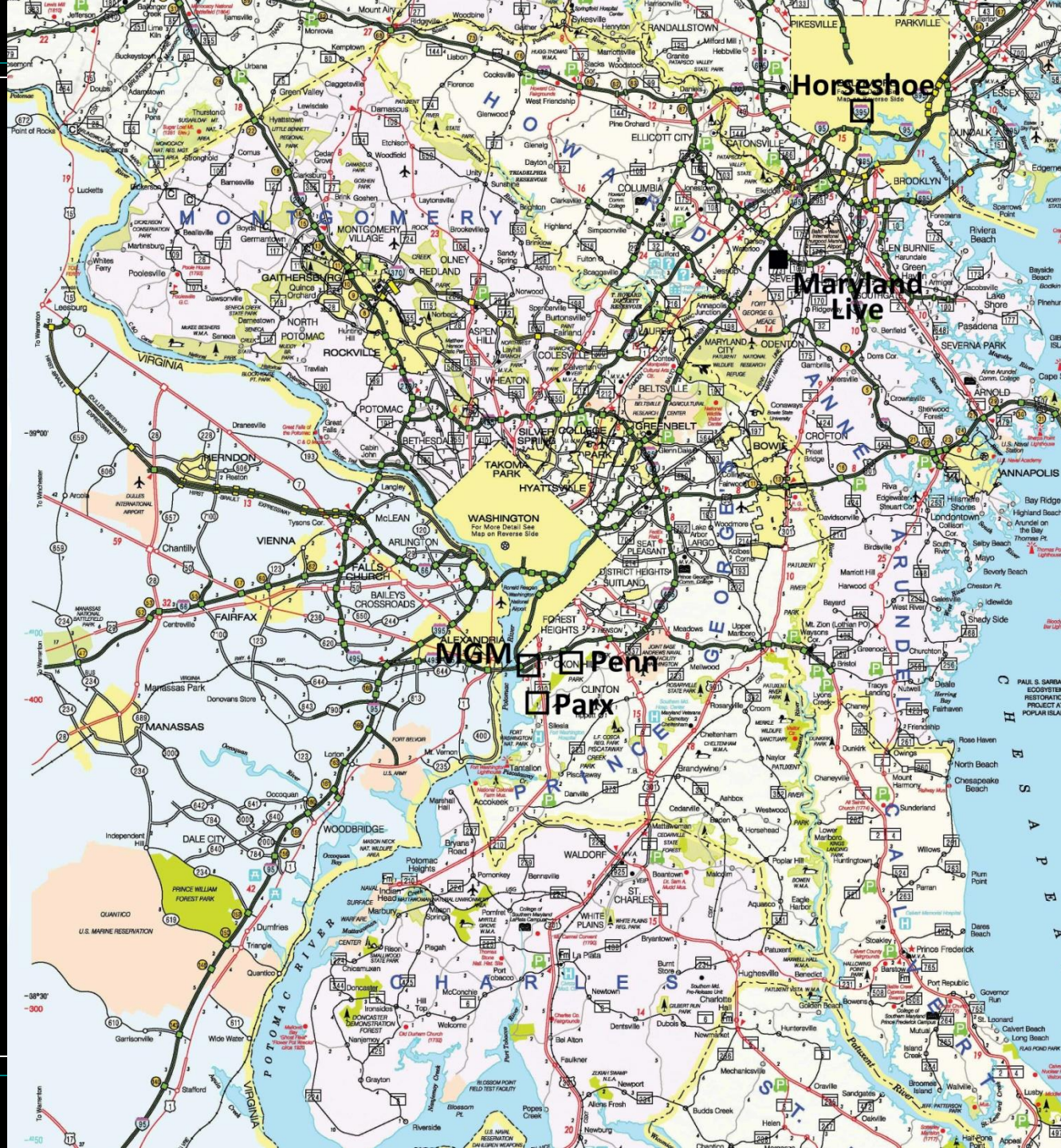


Gravity Models – Summary

- Location
- Location
- Size
- Everything Else

Exhibit A-11: Rates of Visitation (and Win) vs. Distance at Casino Z





Horseshoe

Maryland
Live

MGM Penn
Parx

More Slots, More Spending

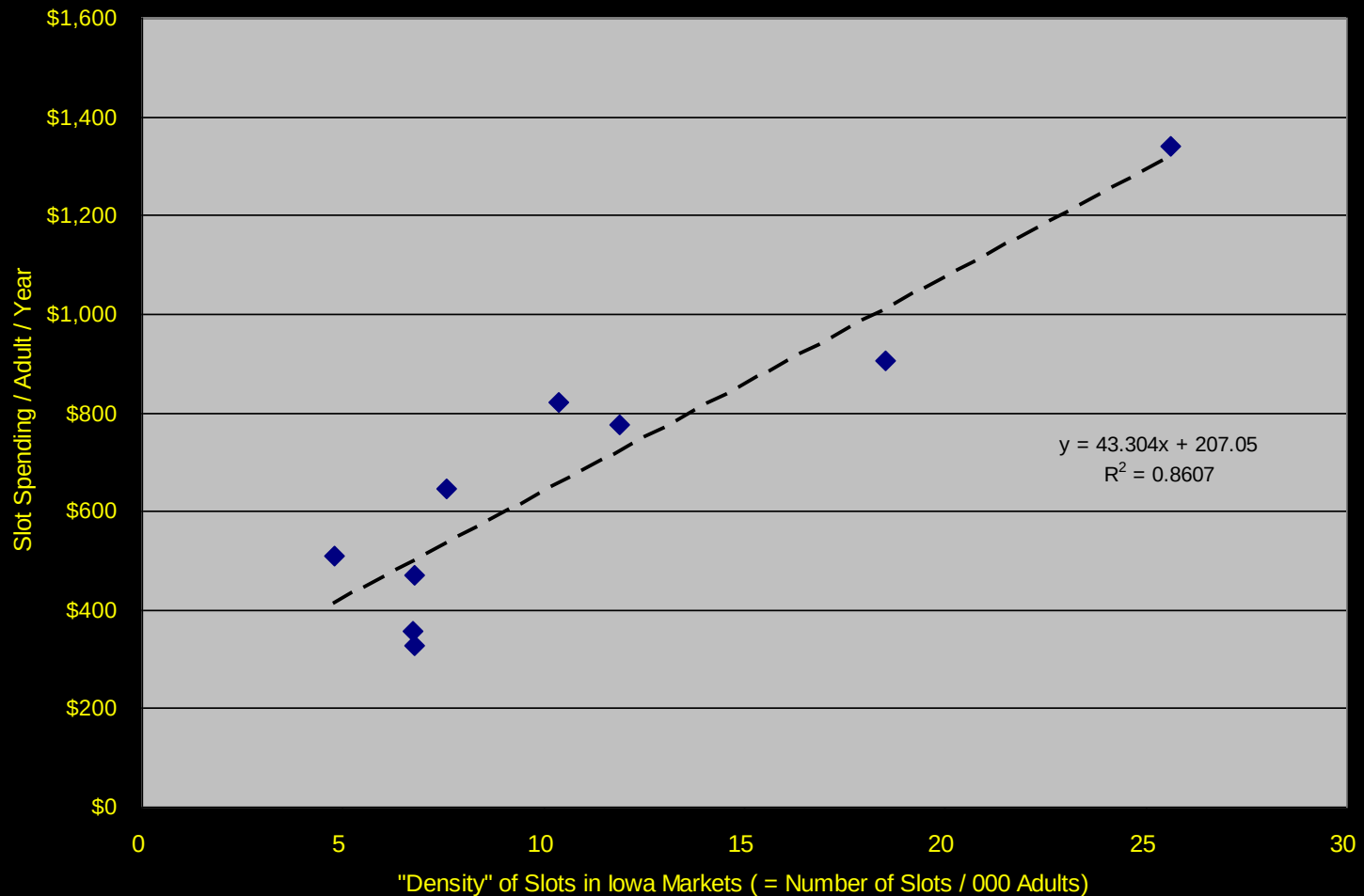
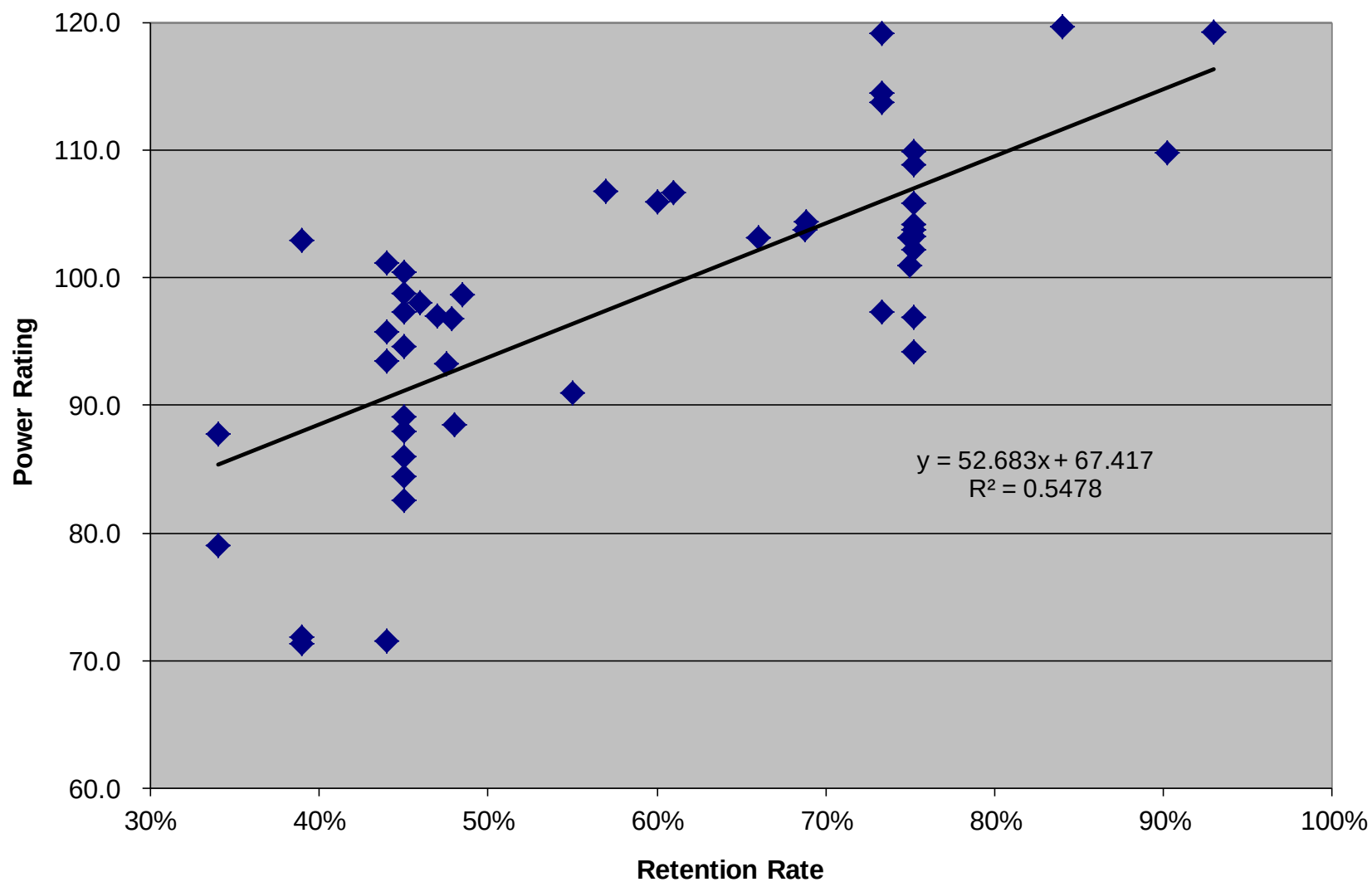


Exhibit 13: Slot Power Rating vs. Casino Retention % (Detail)



Model vs. Real World

*“All models are wrong,
some models are useful.”*

*George Box
(via Bo Bernhard)*

Exhibit A-12: Recent Projections Compared to Actual Results

(Total Annual Gaming Win / \$million)

	Projection / Source		Actual / Source	
Facility / Market:				
Zia Park, New Mexico	\$53.7	(1)	\$68.9	(2)
Emmetsburg, Iowa	\$23.4	(3)	\$26.4	(4)
Worth County, Iowa	\$34.2	(3)	\$67.5	(4)
Riverside, Iowa	\$82.0	(3)	\$85.8	(4)
IOC Waterloo, Iowa	\$96.8	(3)	\$76.9	(4)
Tioga Downs , NY	\$30.2	(5)	\$42.2	(6)
	\$49.9			
Hoosier Park, Indiana	\$275	(7)	\$217	(8)
Indiana Grand / Shelbyville	\$261	(7)	\$240	(8)
Wild Rose Clinton, Iowa	\$48.2	(9)	\$40.2	(10)
DBQ Diamond Jo, Iowa	\$61.9	(9)	\$67.2	(10)
Jumers Rock Island, Illinois	\$89.7	(9)	\$85.8	(11)
Dodge City, Kansas	\$40.7	(12)	\$44.0	(14)
Sumner County, Kansas	\$159.1	(13)	\$183.2	(14)
Kansas City, Kansas	\$203.3	(15)	\$125.0	(14)

*Projected Gaming
Revenues at New Casinos
in Prince George's County –
And Their Impacts*

Assumptions

- New Casinos' performance ("power ratings") very similar to Maryland Live
 - ◆ Minor modifications for \$/position, square footage, etc.
- Rest of the world remains as is
 - ◆ Travel times "as is"
 - ◆ Exception: Ocean Downs adds table games
 - ◆ Exception: Horseshoe Casino opens in Baltimore
 - ◆ Exception: Horseshoe and Maryland Live step up
- Gravity model x local & regional residents
 - ◆ Plus small contributions from hotel guests

Cummings “Power Ratings”

	Penn	Parx	MGM
As Proposed:			
Slots “Raw”	71.7	71.4	73.7
Slots Adjusted *	70.4	71.4	69.7
Tables	105.0	105.0	105.0

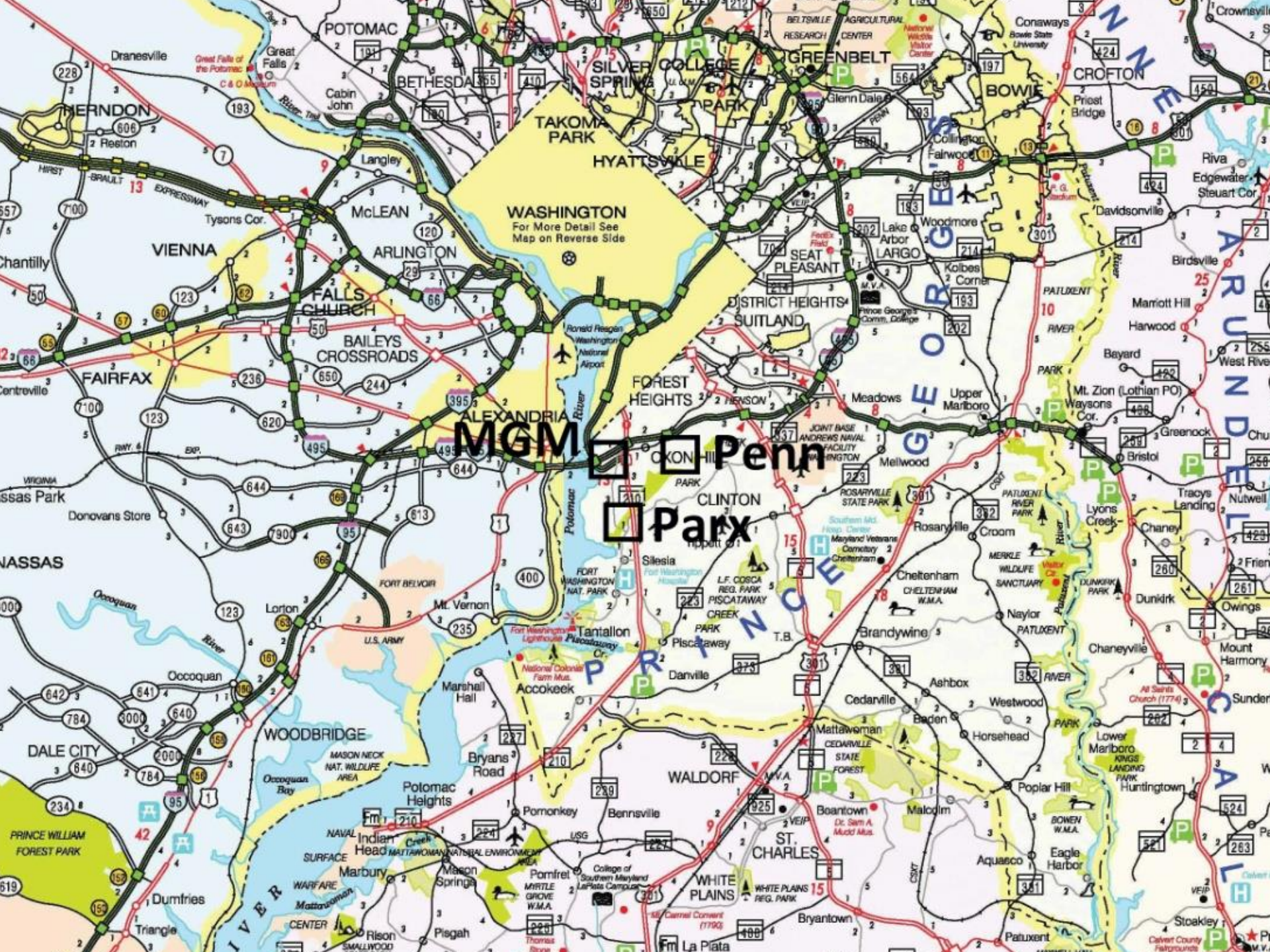
“Raw” includes effects of CapEx \$\$, Spaciousness, Hotel Rooms, & Retention Rate.

“Adjusted” adds effects of capacity constraints / crowding at prime times.

“Apples to Apples”

	Penn	Parx	MGM
Slots/VLTs	\$387.0	\$392.9	\$445.6
Tables	179.3	182.0	214.7
	-----	-----	-----
Totals:	\$566.3	\$574.9	\$660.4
Number of Slot/VLTs:	3,000	3,000	3,000

Gaming Revenue Projections in FY2019 in millions of then-year dollars.
Also assumes 110 house-banked tables and 40 poker tables at each.



“Apples to Apples”

	Penn	Parx	MGM
Slots/VLTs	\$387.0	\$392.9	\$445.6
Tables	179.3	182.0	214.7
	-----	-----	-----
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Number of Slot/VLTs:	3,000	3,000	3,000

Gaming Revenue Projections in FY2019 in millions of then-year dollars.
Also assumes 110 house-banked tables and 40 poker tables at each.

As Proposed

	Penn	Parx	MGM
Slots/VLTs	\$387.2	\$491.0	\$501.3
Tables	172.7	191.2	211.3
	-----	-----	-----
Total	\$559.9	\$682.2	\$712.6
Number of Slot/VLTs:	3,000	4,750	3,600

Gaming Revenue Projections in FY2019 in millions of then-year dollars.
Also incorporates modest variations in numbers of table games at each.

Increments due to “Size”

	Penn	Parx	MGM
Slots/VLTs	\$ + 0.2	+ 98.1	+ 55.7
Tables	- 6.6	+ 9.2	+ 3.4
	-----	-----	-----
Totals	- 6.4	+107.3	+ 59.2
Incremental Slot/VLTs:	0	1,750	600

Gaming Revenue Projections in FY2019 in millions of then-year dollars.
Also reflects modest variations in numbers of table games at each.

As Proposed

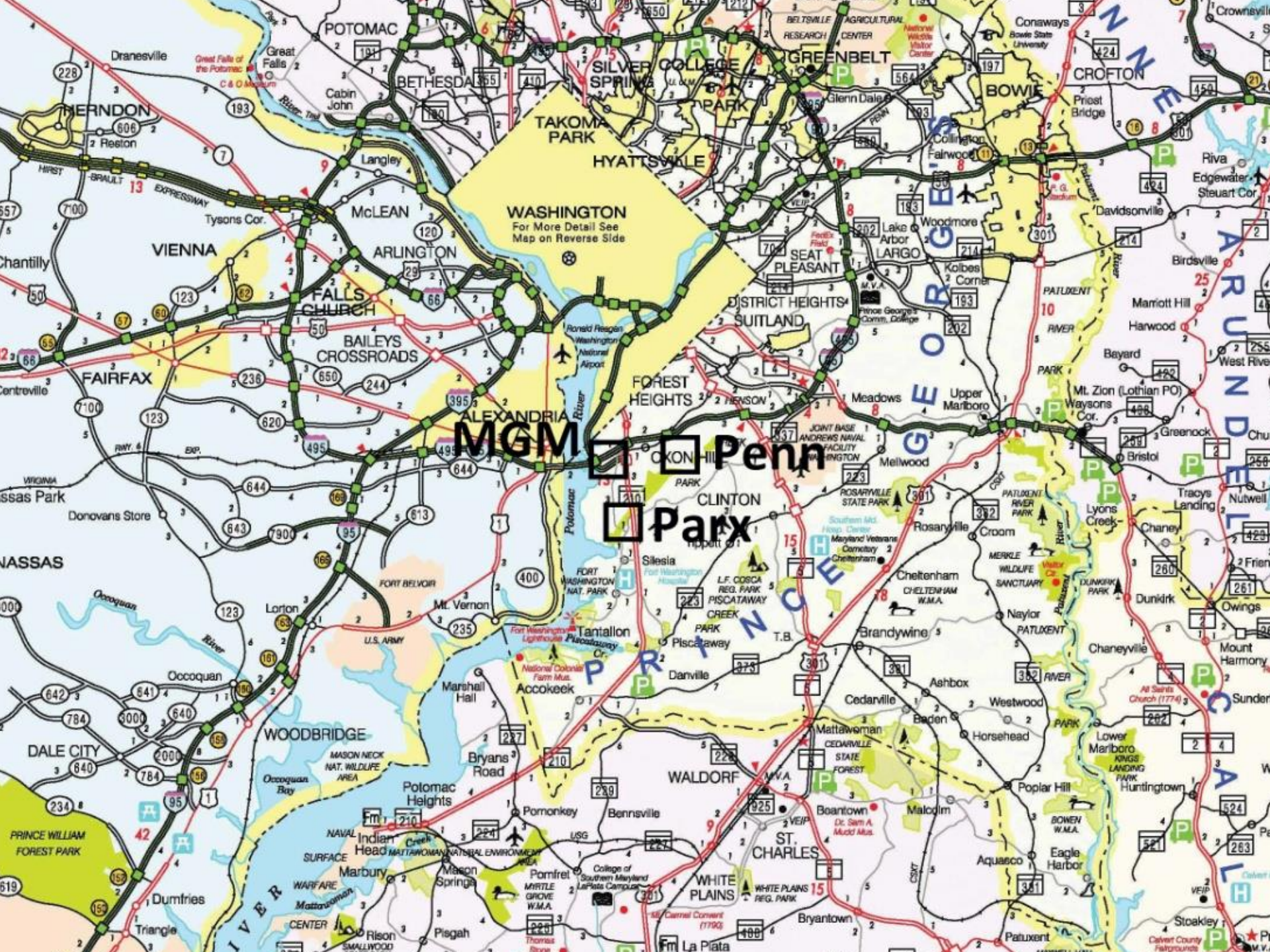
	Penn	Parx	MGM
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Number of Slot/VLTs:	3,000	3,000	3,000

Gaming Revenue Projections in FY2019 in millions of then-year dollars.
Also assumes 110 house-banked tables and 40 poker tables at each.



Sources by State / “Apples”

Source Market	Penn	Parx	MGM
Maryland	\$174.4	\$180.1	\$182.6
Virginia	288.1	290.1	342.5
DC	83.4	85.5	111.1
Pennsylvania	6.3	6.1	6.1
Delaware&WV	1.1	1.0	1.0
Other Northeast	6.1	5.9	6.5
Hotels in the Area	7.0	6.3	10.5
	-----	-----	-----
Total	\$566.3	\$574.9	\$660.4

(All \$million in FY2019 for “apples to apples” scenarios)

* Hotel estimate incremental to some visitors from the states above.

Sources by State / “Apples”

Source Market	Penn	Parx	MGM
Maryland	\$174.4	\$180.1	\$182.6
Virginia	288.1	290.1	342.5
DC	83.4	85.5	111.1
Pennsylvania	6.3	6.1	6.1
Delaware&WV	1.1	1.0	1.0
Other Northeast	6.1	5.9	6.5
Hotels in the Area	7.0	6.3	10.5
	-----	-----	-----
Total	\$566.3	\$574.9	\$660.4

(All \$million in FY2019 for “apples to apples” scenarios)

* Hotel estimate incremental to some visitors from the states above.

Sources / As Proposed

Source Market	Penn	Parx	MGM
Maryland	\$172.3	\$214.5	\$199.4
Virginia	284.9	346.0	369.7
DC	82.7	98.3	117.9
Pennsylvania	6.1	8.4	7.0
Delaware&WV	1.0	1.4	1.2
Other Northeast	5.9	7.3	6.9
Hotels in the Area	7.0	6.3	10.5
	-----	-----	-----
Total	\$559.9	\$682.2	\$712.6

(All \$million in FY2019 for casinos as proposed)

* Hotel estimate incremental to some visitors from the states above.

Sources / As Proposed

Source Market	Penn	Parx	MGM
Maryland	\$172.3	\$214.5	\$199.4
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Hotels in the Area	7.0	6.3	10.5
	-----	-----	-----
Total	\$559.9	\$682.2	\$712.6

(All \$million in FY2019 for casinos as proposed)

* Hotel estimate incremental to some visitors from the states above.

Impacts on Other MD Casinos

Maryland Casino	Penn	Parx	MGM
New Prince George's Co.	\$559.9	\$682.2	\$712.6
Hollywood Perryville	- 4.0	- 5.2	- 4.8
Horseshoe Baltimore	- 22.6	- 34.1	- 32.0
Maryland Live	- 67.6	- 99.9	- 94.2
Ocean Downs	- 2.8	- 4.0	- 3.4
Rocky Gap	- 2.4	- 3.5	- 3.1
	-----	-----	-----
Net Gaming Revenues	\$460.5	\$535.4	\$575.2

(All \$million in FY2019 for casinos as proposed)

Impacts on Other MD Casinos

Maryland Casino	Penn	Parx	MGM
New Prince George's Co.	\$559.9	\$682.2	\$712.6
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Impacts on Other MD Casinos

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Rocky Gap	- 2.4	- 3.5	- 3.1
	-----	-----	-----
Net Gaming Revenues	\$460.5	\$535.4	\$575.2

(All \$million in FY2019 for casinos as proposed)

Impacts on Net Exports

	Penn	Parx	MGM
Slots/VLTs	\$286.0	\$346.7	\$367.3
Tables	107.1	116.2	134.2
	-----	-----	-----
Totals:	\$393.1	\$462.9	\$501.5
Number of Slot/VLTs:	3,000	4,750	3,600

Gaming Revenue Projections in FY2019 in millions of then-year dollars.
Incorporates modest variations in numbers of table games at each.

Increased \$\$ from Maryland

	Penn	Parx	MGM
Slots/VLTs	\$ 52.9	\$ 55.8	\$ 56.6
Tables	14.5	16.7	17.2
	-----	-----	-----
Totals:	\$ 67.4	\$ 72.5	\$ 73.7
Number of Slot/VLTs:	3,000	4,750	3,600

Gaming Revenue Projections in FY2019 in millions of then-year dollars.
Incorporates modest variations in numbers of table games at each.

Bottom-Line Net Gaming \$\$

	Penn	Parx	MGM
Slots/VLTs	\$338.9	\$402.5	\$423.8
Tables	121.6	132.9	151.4
	-----	-----	-----
Totals:	\$460.5	\$535.4	\$575.2
Number of Slot/VLTs:	3,000	4,750	3,600

Gaming Revenue Projections in FY2019 in millions of then-year dollars.
Incorporates modest variations in numbers of table games at each.

Will E. Cummings

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cummingstw@aol.com

Questions Please!

Bottom-Line Net Gaming \$\$

	Penn	Parx	MGM
Slots/VLTs	\$338.9	\$402.5	\$423.8
Tables	121.6	132.9	151.4
	-----	-----	-----
Totals:	\$460.5	\$535.4	\$575.2
Number of Slot/VLTs:	3,000	4,750	3,600

Gaming Revenue Projections in FY2019 in millions of then-year dollars.
Incorporates modest variations in numbers of table games at each.