

GAMBLING IMPACT AND BEHAVIOR STUDY

APPENDIX B

METHODOLOGY

FOR THE RANDOM-DIGIT DIAL AND PATRON SURVEYS AND THE COMMUNITY DATABASE

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1. RDD ADULT AND YOUTH SURVEYS: SAMPLING AND WEIGHTING

Sampling of Telephone Households

The universe for the national study of gambling behavior consisted of the civilian, household population of the United States, aged 18 and older (i.e., adults). The study did not include group quarters, institutional, or military populations. Youths aged 15 and younger were definitely excluded. Older youths aged 16 and 17 were surveyed in the youth sample. The Census Bureau's *usual place of residence* concept governed sampling decisions throughout the project.

As of this writing, there are about 100,000,000 households in the United States, and about 95 percent of them have at least one telephone line, thereby leaving about 5 percent that have no telephone. The telephone subuniverse consists of all persons in the study universe who live in a household with at least one telephone line, while the nontelephone subuniverse consists of all who live in a household with no telephone. Because telephone interviewing is time-efficient and relatively cost-effective, we chose to sample the telephone universe only, using a national, random-digit dial (RDD) design with approximately 2,400 completed interviews.

A principal concern with RDD sampling is that so many telephone numbers are not working residential numbers (WRNs). Many are business numbers, nonworking numbers, or something else. In fact, if we were to select a simple random sample from a conceptual list of all telephone numbers in working area codes, only about 25 to 27 percent of the numbers would turn out to be WRNs. To increase the “hit” rate of WRNs, statisticians typically employ either the Waksberg-Mitofsky method or some form of list-assisted sampling.

NORC's standard for RDD surveys—and, indeed, the approach we employed for the gambling study—is the list-assisted approach. Our list-assisted designs are more statistically efficient than, and are as operationally efficient as, the Waksberg-Mitofsky design. The list-assisted method yields at least as high a proportion of WRNs as the Waksberg-Mitofsky method, depending on the number of listings required per bank. Unlike the Waksberg-Mitofsky method, the list-assisted approach also produces an unclustered sample. As a result, statistics from this design tend to achieve a smaller design effect and to be more precise than statistics from a Waksberg-Mitofsky sample.

For our list-assisted approach, we divide all telephone numbers in working exchanges into clusters of 100, called *100-banks* or simply *banks* (e.g., 312-759-4100 to 312-759-4199). We typically eliminate from the sampling universe all banks with zero listed telephone numbers, called *zero-banks*, and sample only from banks with one or more listed numbers, called *one⁺-banks*. Such sampling is called *one⁺ sampling*. Formally, *one⁺ sampling* provides complete coverage of all listed and unlisted numbers in banks with at least one listed number and omits unlisted numbers in banks with no listed numbers.

One⁺ sampling covers almost 98 percent of the universe of telephone households, implying that unlisted numbers in zero-banks account for the remaining 2 percent. About 50 percent of telephone numbers selected randomly from one⁺-banks will turn out to be WRNs.

Moreover, for many surveys, noncoverage bias¹ associated with this method tends to be small. The uncovered WRNs do not appear to differ systematically from the rest of the telephone population. We believe this to be the case for the national gambling study. It is difficult to see how there might be differential gambling behavior in WRNs in zero-banks versus in one⁺-banks.

NORC purchased the sample of telephone numbers from Survey Sampling, Inc. (SSI), a well-known supplier of telephone samples with whom NORC has a long-standing relationship. To select the sample, SSI relied on information from the Bellcore file of active area codes and exchanges, and on information from the Donnelley Quality Index, which gives the number of residential listings within each bank. Under NORC's careful direction, SSI implemented the above-described one⁺ sampling design.

To meet the objectives of the national study of gambling behavior, NORC directed SSI to stratify the RDD sample by lottery status (states with lottery, states without lottery). The lottery stratum included telephone numbers in Arizona, California, Colorado, Connecticut, Delaware, the District of Columbia, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oregon, Pennsylvania, Rhode Island, South Dakota, Texas, Vermont, Virginia, Washington, West Virginia, and Wisconsin, while the no-lottery stratum included Alabama, Alaska, Arkansas, Hawaii, Mississippi, Nevada, North Carolina, North Dakota, Oklahoma, South Carolina, Tennessee, Utah, and Wyoming.

NORC had the selected sample screened by SSI for unassigned and nonworking numbers. In the same process, SSI screened for fax and modem numbers. The screening identified approximately one-half of the nonworking and nonvoice numbers in the sample.

In addition, NORC directed SSI to match the sample to their database of business telephone numbers and to flag all matches. Typically an RDD sample is 12- to 15-percent business numbers. Approximately one-half of these (6 to 8 percent of sample numbers) were identified through the matching process.

NORC's standard practice—and the one followed here—is to order 20-percent more telephone numbers than we think we will need. The extra 20 percent is inexpensive to acquire, but highly cost-effective. It provides us with considerable flexibility when dealing with unforeseen circumstances.

Furthermore, NORC's standard practice is to divide the overall sample into a large number of random replicates, each of a relatively small size. Normally, we release only 100 percent of what we think we need to our telephone centers for interviewing operations. The balance—the 20-percent *safety margin*—we hold in reserve until needed, and then we release only enough further replicates to achieve our objectives. We never plan to release more sample than needed, which would unnecessarily increase costs.

We used all of these practices as we carefully controlled the instant samples.

For the national survey of gambling behavior, we actually ordered and obtained from SSI an RDD sample of 11,500. Of the total sample, 10,000 numbers were selected in the lottery stratum and

¹We refer to lack of coverage of zero-banks, not to noncoverage of nontelephone households (see Brick et al., 1995).

1,500 were selected in the no-lottery stratum. Sampling was independent in the two strata. We calculated that we would only need 9,200 numbers to support the needs of the study; therefore, we released this number to our telephone center for data-collection operations. The residual 2,300 cases comprised the 20-percent safety margin. As the data collection progressed, we determined that we would achieve our sampling objectives without the safety margin; thus, we never released these cases.

Plan

Our estimates for the number of telephone numbers to order was based on many factors:

- Rates obtained from the CPS for the number of households with adult females, and adult males
- Population of lottery / no-lottery states
- Expected number of pathological and problem gamblers amongst males and females
- Distance to major gambling facilities
- Expected number of completed interviews.

From examining the location of gambling establishments on a map, we originally assumed that 90 percent of the U.S. adult population lives within 50 miles of a major gambling facility. After working with many cities in the 100-community study, it became clear that this estimate is too high. Changing 90 percent to 70 percent, with a sample size of 3,000 we obtain the following breakdown:

Table 1. Distance to Major Gaming Facility, Lottery and Non-Lottery States

Distance to a Major Facility	States w/ Lottery	States w/o Lottery	Total
<= 50 Miles	1,829	271	2,100
51 to 250 Miles	784	116	900
> 250 Miles	0	0	0
Total	2,613	387	3,000

This table reflects the target number of completes as of the planning stage of the project. Using this breakdown we compute the number of telephone number needed, as shown below:

Table 2. Target Number of Interviews by Distance to Major Gaming Facility and Lottery

State Lottery	Distance to gambling (miles)	Total No.	Expected Number of Gamblers			Adj. for interview completion (75%)	Adj. for screener completion (80%)	Adj. for resid. phones (54%)
			Path. (1.5%)	Prob. (4.5%)	Other Rec. (64%)			
Yes	<= 50	1,829	27	83	1,170	2,439	3,048	5,645
Yes	51 to 250	784	12	35	502	1,045	1,307	2,420
Yes	> 250	0	0	0	0	0	0	0
No	<= 50	271	4	12	174	361	452	836
No	51 to 250	116	2	5	74	155	193	358
No	> 250	0	0	0	0	0	0	0
Yes	Total	2,613	39	118	1672	3,484	4,355	8,065
No	Total	387	6	17	248	516	645	1,194

State Lottery	Distance to gambling (miles)	Total No.	Expected Number of Gamblers			Adj. for interview completion (75%)	Adj. for screener completion (80%)	Adj. for resid. phones (54%)
			Path. (1.5%)	Prob. (4.5%)	Other Rec. (64%)			
Total	<= 50	2,100	31	95	1,344	2,800	3,500	6,481
Total	51 to 250	900	14	40	576	1,200	1,500	2,778
Total	> 250	0	0	0	0	0	0	0
Total	Total	3,000	45	135	1,920	4,000	5,000	9,259

We estimated that 75 percent of the households would yield completed interviews, requiring 3,484 eligible phone numbers in lottery states, and 516 eligible phone numbers in no-lottery states. From experience with the RDD pretest, an 80-percent adjustment for screener completion was used, resulting in the following counts: lottery states needed 4,355 numbers, and no-lottery states needed 645 numbers. Using a 54-percent adjustment for residential phone contacts, lottery states needed 8,065 numbers, and no-lottery states needed 1,194 numbers.

Finally, we inflated the numbers, 8,065 and 1,194, by approximately 20 percent to guard against unforeseen departures from the assumed rates, and ordered 10,000 numbers in lottery states and 1,500 numbers in no-lottery states. We initially released 9,200 numbers for data collection by our telephone center. There were no subsequent releases.

Sampling execution

Completion codes were recorded for each of the 9,200 cases, from which the following statuses were determined:

- Eligibility determined (ED)
- Eligibility (SE)
- Screener completion (SC)
- Interview completion (IC)

The first column indicates if eligibility was determined, the second column indicates the eligibility determination, the third column indicates screener completion status, the fourth column indicates interview completion status, and the disposition codes used are shown in column five.

In the table, a “1” indicates yes, “0” indicates no, and “ ” is not applicable.

Table 3. Explication of Case Statuses

ED	SE	SC	IC	Code	Meaning	All States	Lottery States	No Lottery States
1	1	1	1	0	Complete by phone	2404	2052	352
0				1	Language barrier	140	125	15
1	1	1	1	2	Complete by SAQ	14	12	2
1	0			3	Computer Tone	530	480	50
1	0			4	Business/Government	1090	965	125
1	0			5	Second Number at Hsehd	61	53	8
0				6	Phone problem	368	322	46
1	0			7	Disconnected/changed number	2365	2038	327
1	0			8	Cellular phone/pager	64	55	9
1	1	1	0	9	Coded complete but data not found	7	6	1
1	0			81	Second home	18	15	3
1	0			82	No one over 18 years old in household	9	9	0
1	1	1	0	85	R died after screener	5	4	1
0				86	NO ANSWER	150	130	20
0				90	ANSWERING MACHINE	271	231	40
1	1	0		91	Contact made - not screened	17	15	2
1	1	0		92	Final no available household members	12	11	1
1	1	1	0	93	Final refusal after screener by Respondent	565	490	75
1	1	1	0	94	Screened - not interviewed	51	48	3
1	1	0		95	Incapacitated	30	26	4
1	1	0		96	Final refusal before screener	783	697	86
1	1	1	0	97	Final refusal after screener by gatekeeper	189	161	28
1	1	1	0	193	Final hostile refusal after screener by resp.	29	28	1
1	1	0		196	Final hostile refusal before screener	6	6	0
1	1	1	0	197	Final hostile refusal after screener by gatekpr	22	21	1

Tabulating the various completion codes, we have 9,200 telephone numbers, of which the eligibility of 929 was not determined; of the remaining 8,271, we had 4,137 ineligible telephone numbers (not a unique household). Of the 4,134 eligible households, we completed the household screener in 3,160.

Sampling One Adult Respondent per Household

The sampling protocol called for one randomly selected adult per household.

Sampling plan

We considered several methods of selection of the respondent from a household:

- Person who answers the phone,
- Most recent birthday,
- Youngest male, oldest female,
- Separate male and female samples (pretest scheme),
- Trolldahl/Carter/Bryant (see below), and
- Full household roster (Kish technique).

Keeter and Fisher (1997) compare the last birthday and youngest male, oldest female (YMOF) methods. The latter method performed better in terms of gender distribution, but the proportion of young males was significantly larger than that in the *Current Population Survey*.

Czaja, Blair, and Sebestik (1982) compared the Kish and Trol Dahl/Carter/Bryant (T-C-B) methods, finding that, in terms of interview and refusal rates, the T-C-B procedure produced better results than the Kish procedure. In fact, these authors used two variations of the T-C-B procedure; in one, where the interviewer asks for the count of adult females living in the household, and in the other, a count of the adult males. The procedure querying the number of females produced the best results, the Kish method, the second best, and the male variation, the worst. Consequently, we decided to use a variant of the T-C-B procedure.

With the procedure, the interviewer begins by asking two questions: (1) How many persons 18 years or older live in your household, counting yourself? (2) How many of them are women? Using one of the four matrices depicted below, the interviewer then selects the household member to interview. The answer to question 1 determines the column to choose, and the answer to question 2 determines the row to choose.

The intersection of the row and column contains the type of person to seek, coded in tables as:

M = man, OM = oldest man, YM = youngest man
W = woman, OW = oldest woman, YW = youngest woman.

One of the matrices is pre-assigned to each selected telephone household prior to the start of the interview.

The percentage of households that fall within each cell are shown below in Matrix A (these data were obtained from the 1997 *Current Population Survey*). For example, 49.69 percent of households have one adult male and one adult female (household size is two in the second column, and number of women is one in the second row). For this cell, when using matrices A or B, the interviewer asks to interview the woman, and using C or D, the man.

Table 4. Screener Matrices

		Number of adults in household			
		1	2	3	4+
Matrix A					
Number of women 18 years or older in household	0	M (10.51)	OM (1.67)	YM (0.26)	YM (0.07)
	1	W (20.18)	W (49.69)	W (5.13)	OM (0.86)
	2	—	OW (3.11)	YW (5.04)	YW (2.00)
	3	—	—	YW (0.37)	OW (0.80)
	4+	—	—	—	OW (0.36)
Matrix B					
Number of women 18 years or older in household	0	M	YM	YM	OM
	1	W	W	OM	W
	2	—	OW	M	OM
	3	—	—	YW	M or OM
	4+	—	—	—	OW
Matrix C					
Number of women 18 years or older in household	0	M	YM	OM	OM
	1	W	M	W	YM
	2	—	YW	OW	OW

		Number of adults in household			
		1	2	3	4+
	3	—	—	OW	YW
	4+	—	—	—	YW
Matrix D					
<i>Number of women 18 years or older in household</i>	0	M	OM	OM	YM
	1	W	M	YM	W
	2	—	YW	M	YM
	3	—	—	OW	M or YM
	4+	—	—	—	YW

The percentages of male/female and youngest/oldest obtained using these matrices can be computed by adding the percentages in Matrix A for the various age/sex interview requests. For example, using Matrix A, “Oldest Male” is asked for in the first row, second column (1.67 percent) and in the second row, fourth column (0.86 percent). These two percentages add to 2.53 percent.

The following table indicates the percentages of respondents obtained by matrix.

Table 5. Distribution of Respondents Within Screener Matrices

Matrix	Percentage of Respondents					
	Male	Female	Youngest Male	Oldest Male	Youngest Female	Oldest Female
A	13.37	86.68	0.33	2.53	7.41	4.27
B	25.48	74.57	1.93	8.00	0.37	3.47
C	63.06	36.99	2.53	0.33	4.27	7.41
D	75.17	24.88	8.0	1.93	3.47	0.37

Matrices C and D clearly favor the selection of a male.

To compensate for a higher refusal rate among men, Bryant (1975) proposed a disproportionate assignment of the matrices:

A B C D B C D A B C D C D

Our RDD pilot test also found the cooperation rate to be lower among men. In addition, NORC planned to tip the gender balance in favor of males in order to increase the number of p/p gamblers. We assigned Matrices C and D, the matrices which favor the selection of a male, twice for each use of Matrices A and B. We employed the following (repeating) pattern of matrix usage: A B C D, C D, A B C D, C D. The resulting sequence is assigned to the list of eligible households. The percentage of males we expected to interview with this pattern was 52.4 percent.

For more than 85 percent of the respondents selected by the pattern of matrices cited in the literature or the suggested modification, age is not qualified—in other words, the interviewer simply asks to speak with a male or a female.

Sampling execution

Of the 3,160 interviews attempted, we obtained completed interviews from 2,418 households. One respondent was 17 years old, an ineligible age, yielding a total of 2,417 completed adult interviews.

Interviews by lottery/no-lottery states, and by distance from major casino, are distributed such that 2,063 respondents are from lottery states (85.35 percent) and 354 are from states without lotteries (14.65 percent). In addition, 1,733 respondents lived within 50 miles of a major casino (71.70 percent), and 684 respondents lived more than 50 miles from a major casino (28.30 percent). In the tables that follow, we show the distance-by-lottery distribution of the completed adult interviews (Table 6), the age-by-sex distribution of completed adult interviews (Table 7), and completion rates for all states and by lottery/no-lottery states (Table 8).

Table 6. Distribution of Respondents by Lottery State and Distance to Casino

		Distance to major casino		Total
		Less than 50 miles	Greater than 50 miles	
Lottery state	Yes	1,431 (59.21%)	632 (26.15%)	2,063 (85.35%)
	No	302 (12.49%)	52 (2.15%)	354 (14.65%)
Total		1,733 (71.70%)	684 (28.30%)	2,417

Table 7. Distribution of Respondents by Age and Sex

Sex	Age Category					Total
	18–29	30–39	40–49	50–64	65+	
Male	217	301	270	225	139	1152
Female	243	267	276	266	213	1265
Total	460	568	546	491	352	2417

Table 8. Completion Rates by Lottery State

	Total	Lottery State	
		Yes	No
Working Residential Number Rate = (SE=1)/(number of telephone numbers)	0.449	0.447	0.464
Screener Completion rate = (SC=1)/(SE=1)	0.795	0.789	0.833
Interview Completion rate = (IC=1)/(SC=1)	0.736	0.731	0.763

Weight Computation for RDD Data

Population data

Data for households and population in the United States were obtained from the March 1998 *Current Population Survey* (CPS) CD-ROM. The number of households in each state was estimated by summing the household weights (HSUP-WGT, record type 1, columns 287-294) of samples on the CD-ROM.

HH_EST	FIPSTATE	LOTTERY
1725620.77	1	0
231736.36	2	0
1691624.04	4	1
1006653.12	5	0
11501858.09	6	1
1557879.16	8	1
1270643.50	9	1
271800.59	10	1
230049.15	11	1
6018105.13	12	1
2866074.99	13	1

414225.80	15	0
457762.05	16	1
4473358.80	17	1
2262200.41	18	1
1133147.05	19	1
1022125.14	20	1
1527931.69	21	1
1646606.15	22	1
514862.84	23	1
1943186.21	24	1
2394735.39	25	1
3766285.75	26	1
1783586.79	27	1
1033085.25	28	0
2107643.77	29	1
355827.46	30	1
642749.58	31	1
674769.06	32	0
451431.38	33	1
2910193.78	34	1
649846.02	35	1
6970248.35	36	1
2891376.92	37	0
252947.84	38	0
4430583.81	39	1
1323898.46	40	0
1282930.22	41	1
4662168.84	42	1
402064.29	44	1
1452334.75	45	0
285296.83	46	1
2181670.44	47	0
7143791.34	48	1
675714.50	49	0
244666.60	50	1
2590728.02	51	1
2225966.90	53	1
743720.01	54	1
2099725.84	55	1
186778.68	56	0
=====		
102584217.91		

The number of households in lottery and non-lottery states was then computed by adding the number of households estimates of corresponding states.

Lottery	Households
Yes	88533405.96
No	14050811.95
	=====
	102584217.91

The number of adults (18 years and older) was estimated using the person weights (MARSUPWT, record type 3, columns 66 to 73), by summing these weights. Record type 3 of the CPS CD-ROM also contains age (columns 15 and 16), sex (column 20), and race (columns 25, 27, and 28) information, which we used to estimate the population in (LOTTERY)-by-(RACE)-by-(SEX)-by-(AGE GROUP) cells.

Lottery is coded 1 for lottery, 0 for no lottery. Age groups are 0–17, 18–29, 30–39, 40–49, 50–64, and 65 and older. Age groups are labeled by the youngest age of the age range. Sex is coded 1 for male, 2 for female. Race is coded 1 for Hispanic, 2 for non-Hispanic black, and 3 for other.

POP_EST	ADLT_EST	LOTTERY	AGECAT	SEX	RACE
168121.12	0.00	0	0	1	1
1266531.02	0.00	0	0	1	2
3503527.68	0.00	0	0	1	3
155252.99	155252.99	0	18	1	1
606661.98	606661.98	0	18	1	2
2131424.03	2131424.03	0	18	1	3
99089.59	99089.59	0	30	1	1
540685.57	540685.57	0	30	1	2
2437841.91	2437841.91	0	30	1	3
53514.45	53514.45	0	40	1	1
409326.67	409326.67	0	40	1	2
2140317.82	2140317.82	0	40	1	3
26813.22	26813.22	0	50	1	1
266442.89	266442.89	0	50	1	2
2050269.19	2050269.19	0	50	1	3
14089.42	14089.42	0	65	1	1
204976.91	204976.91	0	65	1	2
1553897.00	1553897.00	0	65	1	3
166973.00	0.00	0	0	2	1
1178776.48	0.00	0	0	2	2
3529902.09	0.00	0	0	2	3
103608.79	103608.79	0	18	2	1
701182.46	701182.46	0	18	2	2
2261928.56	2261928.56	0	18	2	3
80190.81	80190.81	0	30	2	1
703959.72	703959.72	0	30	2	2
2349475.45	2349475.45	0	30	2	3
45971.76	45971.76	0	40	2	1
460890.54	460890.54	0	40	2	2
2244993.95	2244993.95	0	40	2	3
28402.54	28402.54	0	50	2	1
2083866.43	2083866.43	0	50	2	3
15874.93	15874.93	0	65	2	1
341958.12	341958.12	0	65	2	2
2124144.17	2124144.17	0	65	2	3
5496236.58	0.00	1	0	1	1
4440693.63	0.00	1	0	1	2
21820612.48	0.00	1	0	1	3
3382484.48	3382484.48	1	18	1	1
2198594.64	2198594.64	1	18	1	2
13608313.12	13608313.12	1	18	1	3
2855948.40	2855948.40	1	30	1	1
2183587.06	2183587.06	1	30	1	2
15495513.48	15495513.48	1	30	1	3
1643724.24	1643724.24	1	40	1	1

1610374.88	1610374.88	1	40	1	2
13577541.38	13577541.38	1	40	1	3
1184636.26	1184636.26	1	50	1	1
1196676.23	1196676.23	1	50	1	2
11629523.77	11629523.77	1	50	1	3
666504.57	666504.57	1	65	1	1
850190.49	850190.49	1	65	1	2
10234524.92	10234524.92	1	65	1	3
5107139.67	0.00	1	0	2	1
4329290.81	0.00	1	0	2	2
20674149.59	0.00	1	0	2	3
2944694.18	2944694.18	1	18	2	1
2617547.58	2617547.58	1	18	2	2
13485208.80	13485208.80	1	18	2	3
2603476.23	2603476.23	1	30	2	1
2529686.09	2529686.09	1	30	2	2
15576788.57	15576788.57	1	30	2	3
1714978.18	1714978.18	1	40	2	1
1989764.51	1989764.51	1	40	2	2
13805137.21	13805137.21	1	40	2	3
1294676.05	1294676.05	1	50	2	1
1527584.39	1527584.39	1	50	2	2
12325994.39	12325994.39	1	50	2	3
920920.40	920920.40	1	65	2	1
1247294.85	1247294.85	1	65	2	2
13907984.56	13907984.56	1	65	2	3
=====	=====				
269093735.74	197411781.59				

Sample

Completion codes were recorded for each of the 9,200 cases, from which the following statuses were determined:

- Eligibility determined (ED)
- Eligibility (SE)
- Screener completion (SC)
- Interview completion (IC)

The first column in the table below indicates whether eligibility was determined, the second column indicates eligibility determination, the third column indicates screener completion, the fourth column indicates interview completion, and the disposition codes used are shown in column five. In the table, “1” indicates yes, “0” indicates no, and a blank indicates that field is not applicable.

ED	SE	SC	IC	Code
1	1	1	1	0 Complete by phone
0				1 Language barrier
1	1	1	1	2 Complete by Self-Administered Questionnaire
1	0			3 Computer Tone
1	0			4 Business/Government
1	0			5 Second Number at household
0				6 Phone problem
1	0			7 Disconnected/changed number
1	0			8 Cellular phone/pager
1	0			81 Second home
1	0			82 No one over 18 years old in household
1	1	1	0	85 R died after screener
0				86 NO ANSWER
0				90 ANSWERING MACHINE
1	1	0		91 Contact made, not screened
1	1	0		92 Final no available household members

```

1 1 1 0 93 Final refusal after screener by respondent
1 1 1 0 94 Screened, not interviewed
1 1 0 95 Incapacitated
1 1 0 96 Final refusal before screener
1 1 1 0 97 Final refusal after screener by gatekeeper
1 1 1 0 193 Final hostile refusal after screener by R
1 1 0 196 Final hostile refusal before screener
1 1 1 0 197 Final hostile refusal after screener by gatekeeper

```

Tabulating the various completion codes, we have a total of

```

9200 Telephone numbers
- 929 Eligibility not determined
  = 8271 Eligibility determined
    -4137 Ineligible
      = 4134 Eligible
        -974 Screener incomplete
          = 3160 Screener complete
            -742 Interview incomplete
              = 2418 Completed interviews

```

Missing values: Imputation

Data on sex, race, or age were missing for 23 of the completed interview cases and were imputed. In order to control the distribution of age and sex of the respondents, we selected RDD respondents using the Trolldahl-Carter-Bryant method. Using this method, the interviewer asks, (1) how many persons 18 years or older live in the household? and (2) How many are women? Based on the response, the interviewer then asks to interview the youngest male, oldest male, youngest female, or oldest female. The interviewer then records the selection of the adult respondent. Consequently, knowing the “selection of adult respondent,” we know the sex of the respondent, which gives us a good guess as to the interviewee’s age group. Missing values for the variable SEX and AGECA were hot-deck imputed together, by picking a random donor from the same “selection of adult respondent” cell.

Missing values for RACE were imputed by picking a random donor of the same SEX-by-AGECA cell.

One interviewee was 17 years old. This case was age-ineligible, reducing the completed and eligible cases to 2,417. The tables below shows the distribution of completed cases, following imputations, based on lottery, sex, race, and age categories.

LOTTERY=0 SEX=1

COUNTRY=0 SEX=1		AGECAT					Total
RACE	18	30	40	50	65		
1	4	0	2	0	0	6	
2	5	6	7	2	1	21	
3	22	32	26	27	26	133	
Total	31	38	35	29	27	160	

LOTTERY=0 SEX=2

COUNTRY=0 SEX=1						Total
RACE	AGECAT					
	18	30	40	50	65	
1	3	0	0	1	0	4
2	7	13	5	5	3	33
3	31	30	26	39	31	157
Total	41	43	31	45	34	194

LOTTERY=1 SEX=1

RACE		AGECAT					Total
	18	30	40	50	65		
1	33	30	12	13	3	91	
2	17	21	26	17	13	94	
3	136	212	181	166	112	807	
Total	186	263	219	196	128	992	

LOTTERY=1 SEX=2

RACE		AGECAT					Total
	18	30	40	50	65		
1	21	22	10	7	8	68	
2	39	38	31	20	19	147	
3	142	164	189	182	179	856	
Total	202	224	230	209	206	1071	

Collapsing sparse cells

The four tables shown above reveals that some of the cells are too sparse for weight adjustment computations. Consequently, we decided to collapse cells as follows: In lottery states (LOTTERY=1), Hispanics (RACE=1) 40 years and older were collapsed into a single cell, and non-Hispanic blacks (Race=2) 50 years and older were collapsed into a single cell. In non-lottery states (LOTTERY=0), all races were collapsed into a single cell.

After imputation and cell merging, the distribution of the 2,417 cases is as follows:

LOTTERY=0 SEX=1

RACE	AGECAT					Total
	18	30	40	50	65	
1	31	38	35	29	27	160
2	0	0	0	0	0	0
3	0	0	0	0	0	0
Total	31	38	35	29	27	160

LOTTERY=0 SEX=2

RACE	AGECAT					Total
	18	30	40	50	65	
1	41	43	31	45	34	194
2	0	0	0	0	0	0
3	0	0	0	0	0	0
Total	41	43	31	45	34	194

LOTTERY=1 SEX=1

RACE	AGECAT					Total
	18	30	40	50	65	
1	33	30	28	0	0	91
2	17	21	26	30	0	94
3	136	212	181	166	112	807
Total	186	263	235	196	112	992

LOTTERY=1 SEX=2

RACE	AGECAT					Total
	18	30	40	50	65	
1	21	22	25	0	0	68
2	39	38	31	39	0	147
3	142	164	189	182	179	856
Total	202	224	245	221	179	1071

Weighting steps

1. *Base weight.* The base weight is defined as the reciprocal of the selection probability—in other words, (telephone population)/(sample size). It is constant within the lottery stratum and also constant—but a different constant—within the non-lottery stratum.
2. *Adjustment for unknown eligibility.* Weights of cases whose eligibility is unknown are spread within stratum (lottery, non-lottery) to remaining cases whose eligibility is known.
3. *Adjustment for screener nonresponse.* Weighting is henceforth restricted to the eligible cases, or working residential numbers. This adjustment, done within stratum (lottery, non-lottery), spreads the weight of the screener nonrespondents across the screener respondents.

We use no specific adjustment for multiple telephone lines in the same household. We designed NORC's data collection procedures to identify a household's main telephone line. If

the selected case was the main line, then the interview proceeded. Otherwise, the interview was terminated and the case was coded as ineligible. By these procedures, in theory, each household is linked to one and only one telephone line, and thus has one and only one probability of selection, namely the probability of selection of the main telephone line. Assuming these procedures were successful, no adjustment to the case weight is required. Even if the procedures were less than fully successful, such as due to response error, the adjustment at Step 5 should remove potential bias. Thus, at this stage, we view the weight as a household weight.

4. *Poststratification to the total household population within strata (lottery, non-lottery).* The result of this step is shown below as weight WT_4. This adjustment produces weights that sum up to the total household population, as set forth in the section entitled "Population Data," including telephone and nontelephone households. The instant weights are the final household weights.
5. *Person weight.* We convert the household weight to the person weight by multiplying the previously obtained weights WT_4 by the number of adults in the household. This step adjusts for the random selection of one adult respondent within the household. Person weights are displayed below as weight WT_5. To avoid extremely large weights, this multiplier was limited to five.
6. *Adjustment for interview nonresponse within cells defined by stratum (lottery, non-lottery), sex, race, and age.* This adjustment, called WT_6, spreads the weights of interview nonrespondents across the respondents within cells. The structure of cells is the same as for the poststratification adjustment in Step 7.
7. *Poststratification by stratum (lottery, non-lottery), sex, race, and age.* We adjusted the Step-6 weights to our best independent estimates of the size of the adult household population. Poststratification adjusts person weights, so that within each cell, weights sum to the population estimate of that cell. The poststratified weights are the final person weights and are displayed below as WT_7.

Final household weights WT_4

LOTTERY	Number of cases	Number of cases with positive WT_4	Sum of SC	Sum of WT_4	Smallest positive WT_4	Largest positive WT_4	Mean of positive WT_4
0	1200	449	449	14050811.95	31293.57	31293.57	31293.57
1	8000	2711	2711	88533405.96	32657.10	32657.10	32657.10
	=====	=====	=====	=====			
	9200	3160	3160	102584217.91			

Person weights WT_5

Number of cases with positive WT_5	Sum of WT_4	Sum of WT_5	Smallest positive WT_5	Largest positive WT_5	Mean of positive WT_5
3160	102584217.91	196004197.2	31293.57	163285.51	62026.64

Note that the sum of WT_4 is 102,584,218, the CPS estimated number of households, and the sum of WT_5 is 196,503,287, an estimate of the size of the adult household population.

Poststratified person weights WT_7

The sum of WT_7 is 197,411,782, the same as the adult household population estimated from CPS records. Cells for post stratification were collapsed, as described in the Collapsing Sparse Cells section above. Correspondingly, in the table below, ‘*’ indicates all races, ‘40+’ indicates 40 years and older, and ‘50+’ indicates 50 years and older.

L	S	R	AGE	Number of cases	Number of cases with positive WT_7	Sum of WT_6	Sum of WT_7	Smallest positive WT_7	Largest positive WT_7	Mean of positive WT_7
0	1	*	18	40	31	2127962.61	2893339.00	52606.16	210424.65	93333.52
0	1	*	30	57	38	3035476.08	3077617.07	41034.89	164139.58	80989.92
0	1	*	40	47	35	2659953.26	2603158.94	38281.75	153127.00	74375.97
0	1	*	50	40	29	2503485.43	2343525.30	36054.24	180271.18	80811.22
0	1	*	65	40	27	2315724.02	1772963.33	33452.14	167260.69	65665.31
0	2	*	18	56	41	3285824.62	3066719.81	36948.43	184742.16	74798.04
0	2	*	30	51	43	2972888.94	3133625.98	37305.07	186525.36	72875.02
0	2	*	40	42	31	2347017.59	2751856.25	46641.63	139924.89	88769.56
0	2	*	50	58	45	2972888.94	2477124.78	33028.33	99084.99	55047.22
0	2	*	65	49	34	2096669.04	2481977.22	50652.60	253262.98	72999.33
1	1	1	18	47	33	3624938.42	3382484.48	35605.10	178025.50	102499.53
1	1	1	30	43	30	2677882.44	2855948.40	47599.14	190396.56	95198.28
1	1	1	40+	55	28	3265710.29	3494865.07	55474.05	277370.24	124816.61
1	1	2	18	31	17	1992083.28	2198594.64	62816.99	251267.96	129329.10
1	1	2	30	35	21	2188025.89	2183587.06	51990.17	155970.50	103980.34
1	1	2	40	38	26	2449282.72	1610374.88	31575.98	157879.89	61937.50
1	1	2	50+	39	30	1959426.17	2046866.72	43550.36	130651.07	68228.89
1	1	3	18	194	136	12703613.03	13608313.12	45665.48	228327.40	100061.13
1	1	3	30	314	212	17210293.23	15495513.48	39031.52	156126.08	73092.04
1	1	3	40	247	181	15120238.64	13577541.38	39584.67	158338.67	75014.04
1	1	3	50	245	166	14075211.35	11629523.77	36686.19	183430.97	70057.37
1	1	3	65	184	112	9993073.49	10234524.92	54438.96	163316.89	91379.69
1	2	1	18	31	21	1698169.35	2944694.18	73617.35	368086.77	140223.53
1	2	1	30	28	22	1534883.84	2603476.23	63499.42	317497.10	118339.83
1	2	1	40+	37	25	1861454.87	3930574.63	103436.17	310308.52	157222.99
1	2	2	18	50	39	2939139.26	2617547.58	36866.87	184334.34	67116.60
1	2	2	30	57	38	3037110.57	2529686.09	36662.12	146648.47	66570.69
1	2	2	40	43	31	2253340.10	1989764.51	34306.28	137225.14	64185.95
1	2	2	50*	55	39	2808510.85	2774879.24	41416.11	165664.43	71150.75
1	2	3	18	186	142	12181099.38	13485208.80	46500.72	232503.60	94966.26
1	2	3	30	229	164	12964869.85	15576788.57	51922.63	155767.89	94980.42
1	2	3	40	234	189	14336468.17	13805137.21	36044.74	180223.72	73043.05
1	2	3	50	244	182	14597725.00	12325994.39	34049.71	170248.54	67725.24
1	2	3	65	250	179	11887185.46	13907984.56	52089.83	260449.15	77698.24
=====				9200	2417	195677626.17	197411781.59	=====		

Sampling for the Youth Study

Initially, for the telephone survey of youth, we ordered from SSI 2,000 telephone numbers, targeted at youth ages 12 to 17, and 32,000 RDD (non-targeted) numbers. This study was to include only 16- and 17-year-olds. SSI does not provide age-targeted telephone lists for 16 to 17 years only.²

After our first few weeks of production, we found that we were much more successful with the youth-targeted sample than the traditional RDD sample. On December 15th, we ordered an additional 3,000 youth-targeted numbers from SSI and abandoned further use of the RDD sample.

The initial sample of telephone numbers was ordered separately for lottery and no-lottery states, in the following quantities: 1,700 age-targeted numbers for lottery states and 300 age-targeted numbers for no-lottery states; 27,500 random-digit dial numbers for lottery states and 4,500

² The youth-targeted lists are formed from school registrations, magazine subscriptions lists, voter registration lists, and drivers license information.

random-digit dial numbers for no-lottery states. The subsequent sample of 3,000 telephone numbers was allocated as 2,708 in lottery states and 292 in no-lottery states.

The desired mix of lottery/no-lottery state phone numbers was controlled by sequencing replicates. We denoted replicates of age-targeted numbers for lottery states with “A,” age-targeted numbers for no-lottery states with “B,” RDD numbers for lottery states with “C,” and RDD numbers for no-lottery states with “D.” We released replicates of 500 in the following order:

```

1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
A  A  A  B  A  A  A  A  A  A  B  A  A  A  A  A  A  B  A  A  C  C  C  D  C

26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
C  C  C  C  C  C  D  C  C  C  C  C  C  D  C  C  C  C  C  C  C  D  C  C  C

51 52 53 54 55 56 57 58 59 60 61 62
C  C  C  D  C  C  C  C  C  C  C  D

```

The 3,000 additional youth-targeted telephone numbers we ordered on December 15, 1998, were all coded as replicate 63.

All together, we obtained 534 completed youth interviews, 469 from youth living in lottery states and 65 from youth living in no-lottery states. The youth-targeted list was much more productive for yielding eligible youth: 475 of the completed youth interviews came from the youth-targeted list, while only 49 came from the RDD list.

Table 9. Distribution of Youth Respondents by Sample List

		Telephone Sample		Total
		RDD	No. targeted	
State has lottery	Yes	47	422	469
	No	2	63	65
Total		49	485	534

Sampling for the Pilot Study

In July 1998, we conducted a pilot test of the RDD survey. In this pilot test, 308 phone numbers were “worked” for males, 136 numbers for females. The numbers and percentages of households that were reached, completed the screen, and completed the interview are shown in the table below.

Table 10. Distribution of Pilot-Test Cases by Case Status and Sex

Case Status	Male sample	Males	Female sample	Females
Cases worked	308		136	
HH reached	163	52.9% of cases worked	71	52.2% of cases worked
Screen complete	67	41.1% of HHs reached	28	39.4% of HH reached
Interview complete	21	31.3% of screens complete	11	39.3% of screens complete

In sorting through the counts for “completes,” “refusals,” and “ineligibles,” we found the number of ineligible to be considerably larger than expected. One possible reason for this could be that the screen gave female respondents, for example, an easy way to terminate the phone call—in other words, if the interviewer asked a female answering the phone to speak with an adult male, a quick response might be, “No males live here.”

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2. REPORT ON THE PATRON PILOT STUDY

The pilot study for the patron survey was conducted August 5, 6, 20, and 21 at three sites in Wisconsin and Nevada. During this time, NORC field interviewing staff successfully screened and interviewed a total of 86 respondents. This section provides an overview of the design of the pilot study and discusses and evaluates the data collection efforts of the patron pilot. The section concludes with recommendations for the main patron study.

Pilot Objectives

The purpose of the pilot study was to establish whether patron interviews would provide valid and useful data from interviews conducted at a small sample of sites. Specifically, the pilot sought to assess the feasibility of collecting data in a large destination-style casino with multiple modes of entry and exits and to determine whether the data, either alone or in conjunction with the national telephone survey data, described the behavior of a well-defined set of problem and pathological (p/p) gamblers.

Sample Design

It was determined that a small sample of four sites would be sufficient for meeting the goals of the pilot. NORC contacted the American Gaming Association (AGA) and other relevant trade associations, with the assistance of the Commission, explained the project and requested permission to conduct the interviews. In the end, a tribal casino in Wisconsin and two casinos in Nevada granted approval for onsite interviews.

The sampling plan for the pilot study utilized an intercept methodology, whereby interviewers approached patrons at predetermined intervals (e.g., every seventh patron) and screened them for basic demographic information (e.g., age and gender) and the distance they had traveled from home to visit the casino (less than 50 miles, 50 to 250 miles, or more than 250 miles). The project statistician determined the number of interviews to be completed by demographic/distance category and by access points. At the tribal casino, two interviewers were assigned to screen and interview during afternoon (3 to 7 p.m.) and evening (7 p.m. and after) shifts. Interviewers were to approach every third person and screen to determine gender and the distance traveled. Interviewers were provided a worksheet to track the completion of cases in these different cell categories.

Based on interviewer feedback from the tribal casino data collection, the screening and sampling specifications were refined to improve interviewer efficiency in monitoring the sample cells and to yield a cross-sectional sample of the casino's population. In Nevada, interviewers intercepted every seventh person and screened for gender and age in three broad categories (18 to 29, 30 to 64, and 65 and older). We did not use a screen for distance traveled due to the expected randomness of localities from which Nevada casino patrons came. However, distance can be imputed from ZIP Codes provided by respondents during the interview.

Instrument

The pilot instrument was an abridged paper-and-pencil (PAPI) version of the RDD instrument. The PAPI version was found to be more suitable for administration in the busier environment of the

onsite interview mode. The questionnaire contained no items not on the RDD instrument and included items from the following sections (see Appendix A for more detail on the patron questionnaire):

- A. Demographic Information
- B. Gambling Behavior (focusing on past year/last visit)
- C. Gambling-Related Attitudes, Motivations, and History
- D. Problem Gambling Diagnostic Assessment
- E. Gambling Treatment Experience
- F. Family/Marital Status and Issues
- G. Income and Financial Information
- H. Criminal Activity and Status
- J. Mental and General Health
- K. Substance Use

Timings were collected for Sections B, C, G, and H to determine whether any adjustments would be needed to stay within the 20- to 30-minute time limit for questionnaire administration.

Data Collection

Interviewer training and debriefing

Interviewer training was conducted by phone 2 days prior to each data collection effort. The training covered the sampling plan, gaining cooperation, common questions and answers, and a review of the questionnaire. During the training, interviewers had the opportunity to practice gaining cooperation techniques and asked questions about implementing and monitoring the sampling plan.

Debriefings were held with the interviewing staff within 2 days of data collection close-down. It was important to hold the debriefings soon after interviews were completed, to ensure that interviewers' recollections of events were fresh. Topics covered during the debriefings included production, casino arrangements and atmosphere, monitoring patron traffic for screening, gaining cooperation, refusals, the effectiveness of the incentive, and the questionnaire. Results from the tribal casino debriefing were used to refine procedures for the Casino N1 and Casino N2 data collection in Nevada.

Production

Tribal casino

A team of two interviewers conducted interviews for the pilot study at the tribal casino on August 5th and 6th. The interviewer debriefing was held on August 7th. Overall, data collection at the tribal casino went very smoothly. Seventeen respondents (eight females and nine males) out of the targeted 20 were interviewed. The intercept ratio was two attempts for every completed interview. The average interview administration time was 21 minutes.

The facility was very cooperative, providing a table and chairs at the casino's two entrances (a main entrance and a drop-off door for charter buses) for interviewing patrons as they exited. Interviewers reported that at times it was difficult monitoring patron traffic, particularly at the entrance/exit for charter buses, where persons would depart in large groups. No significant problems were encountered with gaining respondent cooperation. In fact, the \$10 incentive fee was found to be very effective. The refusals received were owed primarily to respondents either being in a hurry to catch their bus or preferring to continue gambling. No refusals appeared to be based on the nature of the study or the content of the questionnaire.

Interviewers also provided feedback on the sampling procedures and the questionnaire, recommending alterations that would simplify the screening and interviewing process. These changes were implemented at the Nevada pilot test.

Casinos N1 and N2

Due to the size of the casinos in Nevada and NORC's efforts to achieve maximum coverage during interview shifts, NORC decided to send two teams of two interviewers each to these locations. The teams conducted interviews at casinos N1 and N2 on August 20th and 21st. The interviewer debriefing was held on August 24th. NORC assessed that this phase of the pilot went very well. Sixty-nine respondents (32 females and 37 males) were interviewed, of a targeted 80 interviews. The intercept ratio was five approaches for every one completed interview.

Two interviewing sessions were scheduled at each of the casinos; one session was from 3 to 5 in the afternoon, and the other from 7 to 9 in the evening. The average interview administration time was 18 minutes at Casino N1 and 21 minutes at N2. Tables 11 and 12 display the production results.

Table 11. Nevada Production, Casino N1

Gender/Age	Day	Evening	Total
Entrance 1 (street entrance)			
<i>Males</i>			
Male/18–29	1	2	3
Male/ 30–64	2	1	3
Male/65+	1	1	2
<i>Females</i>			
Female/18–29	2	2	4
Female/30–64	1	2	3
Female/65+	1	0	1
TOTAL	8	8	16
Entrance 2 (tram)			
<i>Males</i>			
Male/18–29	2	1	3
Male/30–64	1	2	3
Male/65+	1	0	1
<i>Females</i>			
Female/18–29	1	2	3
Female/30–64	2	1	3
Female/65+	2	0	2
TOTAL	9	6	15
CASINO N1 TOTAL			31

Table 12. Nevada Production, Casino N2

Gender/Age	Day	Evening	Total
Entrance 1 (front desk entrance)			
<i>Males</i>			
Male/18–29	0	2	2
Male/30–64	1	1	2
Male/65+	1	1	2
<i>Females</i>			
Female/18–29	3	2	5
Female/30–64	2	1	3
Female/65+	3	1	4
TOTAL	10	8	18
Entrance 2 (Walkway between Casino N2 and adjacent)			
<i>Males</i>			
Male/18–29	1	2	3
Male/30–64	2	2	4
Male/65+	2	2	4
<i>Females</i>			
Female/18–29	0	2	2
Female/30–64	3	1	4
Female/65+	2	1	3
TOTAL	10	10	20
Casino N2 TOTAL			38

Field staff reported that both facilities were very cooperative. At Casino N1, the interviewing teams were stationed at two entrances that were pre-selected by casino staff. One location was an entrance leading to the main casino thoroughfare. The other station was located at the tram/parking lot exit, where patrons could be transported to another casino. Tables and chairs were provided at the two exit locations. The casino assigned one security officer at each station to ensure that the selection and interviewing processes proceeded smoothly. The presence of security also appeared to further legitimize the interviewers' presence to casino staff. At all times, the security staff maintained a distance of at least 10 feet to ensure respondent privacy. In total, 16 interviews were conducted at the street entrance and 15 at the tram/parking lot exit.

At Casino N2, the protocol was similar. Interviews were conducted at two locations pre-selected by the staff—the main lobby entrance and a walkway exit to another casino. A security detail was assigned to each team for the day and evening shifts. One significant difference from the Casino N1 data collection was that no tables or chairs were provided, due to Casino N2's concerns about fire code regulations. Nonetheless, 18 interviews were conducted at the main lobby entrance and 20 interviews were conducted at the walkway exit.

During the debriefing, interviewers stated that no significant problems were encountered with gaining respondent cooperation. As in the tribal casino, the \$10 incentive was found to be very effective. Field staff did report, however, that senior patrons were particularly skeptical about participating. One staff member at the casino indicated that senior citizens have been alerted to scams specifically targeting elders in casinos. Other persons who declined participation generally appeared to be in too much of a hurry to listen to the introductory script, or indicated a lack of interest.

Interviewers also reported that the sampling procedures were easy to follow, but that it was at times difficult to monitor group traffic. Further training exercises and increased staffing levels helped diminish this problem in the main patron survey.

Problem and pathological gamblers

The prior section reviewed the results of data collection in large casino environments—the first objective of the pilot study. In this section, attention will be given to the prevalence of problem and pathological (p/p) gamblers who were identified by the questionnaire. Table 13 below provides a summary of the number of p/p gamblers encountered in the pilot study.

Table 13. Problem and Pathological Gamblers by Sex

	0	1	2	3 or 4	5	Total
Lifetime Gambling Problems						
Male	20	13	5	1	1	40
Female	35	6	4	0	1	46
<i>Total</i>	55	19	9	1	2	86
<i>Percent of total</i>	64.0%	22.1%	10.5%	1.1%	2.3%	100.0%
Past-Year Gambling Problems						
Male	31	8	1	0	0	40
Female	39	4	2	1	0	46
<i>Total</i>	70	12	3	1	0	86
<i>Percent of total</i>	81.4%	14.0%	3.5%	1.1%	0.0%	100.0%

Summary of Findings and Implications for the Main Data Collection

The purpose of the main patron survey was (1) to *efficiently* generate a *substantial* number of problem and pathological gamblers from different regions of the country *without* the biases and artifacts engendered by selecting cases from samples of people currently or recently in treatment, and (2) to meet or exceed general standards of response rates for the interview mode chosen. The patron pilot study was designed to test whether these objectives of efficiency, yield, and response rate could be met in the most demanding of environments—namely, destination-style casinos. Although an interview length of approximately 20 minutes exceeds that of most intercept surveys by a substantial margin, our results were successful in terms of the objectives of cost-efficiency, yield, and cooperation. We completed approximately two interviews per working interviewer hour (or about one per hour of nominal field time, at 8 hours per day). Even with travel expenses, this yields a cost per case appreciably below that of telephone interviewing.

In the pilot survey, the yield in terms of lifetime prevalence of one or more DSM–IV criteria was 36 percent of cases; 14 percent of cases reported two or more lifetime problems. The overall response rate was approximately 23 percent, which is at the upper end of general randomized intercept-mode experience; nevertheless, this response rate was improved substantially in the main Patron Survey. We also noted that the proportion of problem gamblers from the total sample was virtually invariant across the pilot sites, regardless of response rate; this outcome suggests that the factors contributing to nonresponse are not biased with respect to the main variables of interest in this study.

Our results indicated that it was feasible for NORC to meet the objectives of the main patron survey.

3. SAMPLE REPORT FOR THE MAIN PATRON STUDY

Facility Sample

The plan initially proposed by NORC for the main patron survey had been to draw a multistage probability sample of casino and pari-mutuel patrons, using revenue-based (or revenue-correlated) measures of size to select 6 pari-mutuel and 26 casino facilities at random, with probability proportional to size, from a geographically dispersed sample of states. The number of patrons to be interviewed was set at 512 (16 per facility), based on assuming problem and pathological gambling rates of approximately 20 percent of patrons after calculations using the previous literature. This approach also assumed that we would be able to begin facility recruitment in August and schedule the field interviewing period from September 15 to December 15 (concurrent with the adult RDD survey effort).

Subsequent to completion of the patron pilot survey, the Commission's research subcommittee was unable to reach unanimous agreement on whether to proceed with the main survey, and the Research Subcommittee asked the Commission to convene a special meeting to consider the majority's recommendation to proceed and the minority's recommendation not to proceed. In October, 1999, the Commission decided by a vote of six to two (one member not present) for NORC to proceed with the patron survey in accordance with a sample design described in the Majority Report of the Research Subcommittee and in cooperation with an independent observer selected by the Commission.

The Majority Report set the targets for the main patron survey at approximately 500 interviews in 30 gambling facilities in different regions of the country, with categorical targets (compared with completed interviews actually achieved) as follows:

- Lotteries: 170 interviews
- NV & NJ casinos: 125 interviews
- Riverboats: 65 interviews
- Tribal casinos: 65 interviews
- Pari-mutuel: 40 interviews
- VLT/noncasino EGD: 40 interviews

Along with the changes in design, there were changes in schedule. The delay in approval of the patron survey meant that the field period had to be postponed and shortened. The first patron interviews were not able to be performed until November 20, 1998, and the last had to be completed no later than January 15, 1999.

In order to carry out the required design under the new time constraints, NORC selected two Western states, three Mississippi River states, and three Northeastern states in which to collect data, and then, within them, drew random samples of gambling facilities as follows:

- 13 Southern and 4 Northern casinos in Nevada
- 4 casinos in New Jersey
- A lower Mississippi state: 7 riverboat casinos
- An upper Mississippi state: 5 riverboat casinos
- Indian casinos: 2 in a Western state, 2 in a Northeastern state, in a Mississippi state
- Racetracks: 2 Eastern, 1 Midwestern, 1 Western

- Lottery outlets: 8 in a Midwestern state (primary and alternate from each ZIP income quartile)
- Lottery and VLT: 13 in a Western state (primary and 2 alternates from each ZIP income quartile, 1 extra in highest quartile)

Although some facilities were selected as a backup wave, in view of the time constraints all 63 of the facilities were recruited from the outset. Nevertheless, due to the relatively slow rate of response to the request for cooperation and the need to schedule interviewing around holidays and other seasonal obstacles, we determined about midway through the field period that the target of 30 sites would be difficult to reach by the close of data collection and this would threaten the more critical target of 500 cases. Therefore, beginning in mid-December we increased the number of targeted cases per facility visited from 20 to 30; the average finally achieved was 25 interviews per facility.

Interviewing

Interviewing was accomplished at 21 of 61 facilities sampled (two of the sampled facilities turned out to be closed); most of which required three or more contacts to successfully recruit. Sixteen facilities refused to participate and recruitment of the others was discontinued at the point that we achieved the required number of interviews in the category and location to which the facility belonged. Completed interviews on a facility-by-facility basis were as follows:

Casinos

Southwest (NV)

30 at Facility A
30 at Facility B
30 at Facility C

Northeast (NJ)

30 at Facility D
29 at Facility E

Riverboats

20 North Central
24 North Central
20 South

Tribal

40 North Central
27 Northeast

Lottery Ticket Outlets, by income level of ZIP code (Quartiles)

43 West (1Qt)
19 North Central (1Q)
21 North Central (1Q)
26 West (3Q)
29 North Central (3Q)
25 West (4Q)

VLT/EGD

19 West (2Q)
12 West (3Q)

Pari-mutuel

16 North Central
20 Northeast
20 West

TOTAL for 21 facilities: 530 interviews

The fieldwork achieved the overall target for number of interviews and approximated all facility-specific targets. Within facility types, the patron response rates were as follows:

Type of Facility	Targeted	Attempted	Completed	Response Rate
Casinos in NV & NJ	125	313	150	48%
Riverboat casinos	65	119	64	54%
Tribal casinos	65	98	67	68%
Lottery (traditional & VLT)	210	313	193	62%
Pari-mutuel	40	225	56	26%
TOTAL	505	1,068	530	50%

The procedures used in the Patron Interview are described in the next two sections, which contain the Gaming Facility Patron Guide for Interviewers and an Observer's report on the patron survey.

4. PATRON SURVEY GUIDE FOR INTERVIEWERS, NOVEMBER 1998

Contents

- I. INTRODUCTION
- II. SPONSORSHIP AND BACKGROUND INFORMATION
- III. STUDY DESIGN
 - A. Selection of Facilities
 - B. Initial Contact with Sampled Facilities
 - C. On-Site Sampling & Interviewing of Patrons
- IV. PATRON PILOT SURVEY
- V. FIELD INTERVIEWER'S ROLE IN DATA COLLECTION
 - A. Preparation for site visit
 - B. Arrival and set-up at the site
 - C. Expected Behavior at the Site
 - D. Sampling to Determine "N"
 - E. Data Collection and Ongoing Sampling
 - F. Non-Interview / Out-of-Scope Record Keeping
 - G. Tasks Following Data Collection
- VI. ADMINISTRATIVE FORMS
 - A. Suggested Responses to Commonly Asked Questions
 - B. Sampling Form to Determine "N"
 - C. Sample Introductory Script & Screener Questions
 - D. Non-Interview Report
 - E. Respondent Incentive Report / Respondent Consent Form
 - F. Transmittal Form

I. Introduction

Welcome to the Gaming Facility Patron Survey. Those of us who have already begun working on this interesting project are pleased that you will be joining our team. Your responsibilities will not only cover interviewing gambling patrons, but will include the sampling of those patrons as well. As we enter the field phase of this study, there is no role more important than yours.

II. Sponsorship and Background Information

The Gaming Facility Patron Survey is an important part of the Gambling Impact and Behavior Study (GIBS). This study is funded by the National Gambling Impact Study Commission (NGISC). The Commission was created by the 104th Congress through Public Law 104169 which was signed by President Clinton on August 3, 1996. The Commission, under the leadership of Kay James, Chair, was established for a two year period from the date of its first meeting which was June 30, 1997. The report to Congress, the President, and the governors is due by June 30, 1999.

The Gambling Impact & Behavior Study was initiated and funded by the NGISC in order to estimate the amount and type of gambling behavior and associated activities, attitudes, and consequences for individuals and communities.

NORC is the prime contractor for GIBS, which in addition to the patron interviews consists of a Random Digit Dialing (RDD) component and other data collection procedures. The RDD interviews are currently being conducted by the NORC Lake Park telephone shop in Chicago, IL. Subcontractors for GIBS are Gemini Research located in Northampton, Massachusetts; Christiansen Cummings Associates of NYC and Arlington, Massachusetts; and the Lewin Group of Fairfax, Virginia.

Significant trade associations from whom NORC has sought help in encouraging companies in the industry to cooperate with GIBS include the American Gaming Association and the National Indian Gaming Association.

III. Study Design

A. Selection of facilities

Approximately 20 facilities spread throughout the country have been selected as sites for patron interviews. These facilities include locations where lottery tickets can be purchased, casinos, Indian casinos, dog and horse racing facilities, and off track wagering facilities.

B. Initial contact with sampled facilities

Each sampled site was contacted in early November by NORC senior field staff. The first objective of this contact was to introduce the study and NORC to the selected facilities. The second and prime objective was to elicit the approval and cooperation of the facilities' management for NORC's plan to collect data from the facilities' patrons. The third objective was to establish a date and time when NORC FIs would visit the facilities to sample patrons and to conduct exit interviews.

C. Onsite sampling and interviewing of patrons

During the period from mid-November through December 15th, one day will be spent at each facility with a team of FIs at each exit during specified times of the day/evening. The number of required interviews will vary by facility, however, the total number of on site interviews required from all facilities combined is 512. Your role includes making or confirming a floor plan/map of the facility; selecting good sites for intercepting patrons to recruit for interviews; determining the size of the sampling "N"; ongoing patron sampling; and interviewing.

IV. Patron Pilot Survey

In August 1998, NORC conducted a pilot patron survey at three facilities. Eighty-six interviews lasting 20–30 minutes each were completed in Wisconsin and Nevada. Based on the success of this pilot, the Commission voted to go ahead with the main study, which is what you are embarking on now.

V. Field Interviewer's Role in Data Collection

A. Preparation for site visit

The following is a list of items needed for your data collection site visit:

1. Project manual
2. Sampling Forms
3. Questionnaires
4. Respondent receipts/Consent Forms
5. Non-Interview Reports
6. FI ID Card
7. Clip Board
8. Pencils/Pencil sharpener/Pens
9. Note Pad
10. Telephone # of FMs & CO staff
11. Transmittal Forms
12. Federal Express Envelopes & pre-printed Fed Ex labels

At some locations you may be standing most of the time. Wear comfortable shoes. Pant suits are permissible; however, blue jeans are not. You may be working indoors or outdoors. Keep this in mind when making your wardrobe selection. In most cases there will be 2 visits on the same day, one in the afternoon and one in the evening.

B. Arrival and setup at the site

When you arrive at the site, ask for your contact person. Be sure you wear your FI ID badge. Introduce yourself and if you are going to be working with another FI, be sure you give this information to the contact person. If there is more than one FI at a site, one will be named the lead FI. Since most exits will be covered at one time or another, it is necessary that you familiarize yourself with the site layout. Ask the contact person if a table and 2 chairs are available for your use. Inquire as to whether or not you will need any other identification, such as a visitor's pass. If so, be sure to obtain one for yourself and for any other FI working at the site. Be prepared to answer any questions the contact person may have about the study. Please refer to Questions/Answers Job Aid.

Once you are informed of your working location and you do have the use of a table and chairs, set up your materials. Use a shoulder bag/pouch to organize and keep all materials. **DO NOT LEAVE ANY FORMS OR OTHER MATERIALS LYING OPEN ON THE TABLE FOR OTHERS TO SEE. ALL MATERIALS MUST BE KEPT OUT OF SIGHT AND REACH OF ANYONE OTHER THAN THE FI.** This is very important for confidentiality issues.

C. Expected behavior at the site

Under no conditions are you allowed to partake in any gaming activity while at the site. It is important that you are professional at all times during your site visit. You are not only presenting yourself, but also representing NORC.

D. Sampling to determine "N"

Before you begin approaching patrons, you must count the number of people who exit the facility during a 5 minute period. Do NOT include in your count anyone who appears under 18 years of age or is identifiably employed by the casino. Please refer to the sample and instructions on the "Sampling Form to Determine N" job aid. The completed form will tell you how many interviews are required at the particular site and how to select the patron to be interviewed.

E. Data collection and ongoing sampling

If your Sampling Form to Determine N indicates you are to approach every 5th exiting patron, this will be your ongoing sampling procedure for that exit. When you approach the 5th person, introduce yourself and explain what you need. Please refer to the Introductory Script on the back of the Sampling Form. If the patron consents to be interviewed, complete the questionnaire and begin your count again. If the person you approach refuses, or you determine that he or she is either under age or an employee at the facility, you must record this on the Non-Interview Report. After you complete the non-interview report, begin your count again, approaching the next 5th patron. In other words, you either complete a questionnaire or make a notation on the non-interview report at the time the patron is selected.

Sampling people in groups will be the toughest. You need to have some simple strategy for group counting (e.g., left to right) so that you know the specific person to be selected. While completing the questionnaire, keep in mind the confidentiality factor. If the selected patron is accompanied by another person(s), you should try to conduct the interview so as to avoid the questions and answers being heard by the other(s). Be sure to keep the Respondent's back to any surveillance cameras during the interview if at all possible. After the interview is completed, have the patron sign the Consent/Receipt form and give the patron 10 dollars.

F. Non-interview / out-of-scope record keeping

Anytime it is determined the selected patron refuses, or is either under age or an employee of the facility, YOU MUST MAKE A NOTATION ON THE NIR LOG AT THAT TIME. If you are noting a refusal, signify the race (B-W-A-I-O) in either column A or B, under Male or Female, next to the column indicating reason for refusal. If the patron is either under age or facility employee, simply put a slash mark at the bottom of the form, in the area marked Out of Scope. In either event, just a single entry is required. Please refer to NIR Form for completion instructions.

G. Tasks following data collection

Be sure you inform your contact person when you have completed your interviewing tasks, whether it be your afternoon or evening visit. Thank him (her) for all his (her) help. Leave the location clean, with no scraps of papers etc. on the table or floor.

After each visit Federal Express all the materials from that visit to CO. Complete a Transmittal Form, enclosing all materials from the site and send out within 24 hours.

Please refer to Transmittal Form for completion instructions. All materials to be returned include completed Questionnaires, Consent/Receipt forms, Sampling Form and NIR Log(s). If you have something in particular you think CO should be made aware of, either about the facility or the interview process at the facility, attach a comments sheet with the materials. Regarding field notes, don't be shy! Err on the side of writing down any incident that happens during the field period that is not recorded elsewhere or might be questioned, even if you see no problem with it.

Suggested Responses to Commonly Asked Questions

1. What do I get for doing this questionnaire?

This study is your opportunity to contribute to our understanding of America's gambling habits. Your views and experiences are invaluable to researchers and policy-makers.

2. How much do I get paid for doing this questionnaire?

\$10

3. I'm too busy to participate.

I understand you are very busy. Our results would be biased if we only included respondents who could easily make the time to talk with us. Your participation is critical to the success of this study. For most people, the interview only takes about 15 to 20 minutes and all you have to do is answer the questions that I ask.

4. Is it mandatory for me to do the questionnaire?

No. Participation in this study is completely voluntary. However, your participation is very important to the success of the study. Nobody can replace your experiences or opinions.

5. These questions are too personal/sensitive.

All information you choose to give will remain strictly confidential, and will be reported only aggregated with other participants' responses so that no individual can be identified. You may refuse to answer any question you choose. Once we begin the interview, if we come to a question that you're not comfortable with, you may refuse to answer it.

6. Who is the survey being conducted for?

This study is being conducted for the National Gambling Impact Study Commission, a group created by Congress and the President to evaluate the social and economic impacts of gambling on our society.

7. Why should I answer this survey when I don't gamble?

It is important for us to collect information from all Americans, not just those who gamble. Your opinions about gambling are just as important to Congress and policy makers.

8. What is the purpose of this study?

The goal of this study is to assess gambling's impact on individuals, families, businesses, social institutions, and the economy in general.

9. What will the results of the survey be used for?

To inform legislatures, policy-makers, and researchers in the field about the state of Gambling in the United States.

10. What will my participation involve?

Depending on your experiences with gambling, completing the questionnaire should take about 15–20 minutes.

11. How many other people are being asked these questions?

We will be completing interviews with 21 people.

12. Will I be able to get information on the outcome of this study?

Data from the Gambling Impact and Behavior Study will be reported to Congress and the public in June, 1999. The National Gambling Impact Study Commission homepage is accessible on the Internet; its address is <http://www.ngisc.gov>. This page will include findings from the Gambling Impact and Behavior Study.

13. Will my answers be kept confidential?

Confidentiality of the data will be strictly enforced. All identifying information will be kept separate from the questionnaires. The analysis files that are prepared and the final data that will be published will in no way identify individual respondents, rather will feature group findings.

14. What kind of questions will you be asking me?

The survey asks questions about your experiences feelings towards gambling and questions about your gambling behavior.

GAMING FACILITY PATRON SURVEY

Sampling Form to Determine “N”

N=The number that will designate the skip interval and thus the sampled patron each time you begin to count patrons exiting the (site). For example if the N=5, when you begin your count each time you are ready to sample the next R, the 5th patron will be your sampled R.

SITE:

EXIT:

DATE:

FI:

OBJECTIVE: To tally the total number of eligible patrons exiting the (site) during a 5 minute period.

TIME PERIOD: to

- PROCEDURES:
- Mark “X” for every 10 patrons
 - Do not count anyone who appears to you to be under 18...but when in doubt, count the patron
 - At the end of the 5 minute period, tally the total
 - Refer to the formulas below to determine the “N”
 - If you need more space for tallying, use back side of this form

10___ 10___

10___ 10___ ↑↓

10___ 10___ ETC. →

10___ 10___ ↑↓

10___ 10___

If total number of patrons =

- ▶ Under 50 use X as your “N”
- ▶ 51–100 use X as your “N”
- ▶ etc.....

GAMING FACILITY PATRON SURVEY

Sample Introductory Script & Screener Questions

INTRODUCTORY SCRIPT:

“Hello/excuse me (sir/maam)....you have been randomly selected to participate in a national survey asking respondents their attitudes about gaming activities.”

“In order to determine whether or not you are eligible for this survey, I need to ask....

1. What is your date of birth?
2. Are you an employee of [SAMPLED FACILITY]?”

THE RESPONDENT IS ELIGIBLE IF:

- ☐ DOB = DATE OF SAMPLING OR PRIOR TO DATE OF SAMPLING 1980
- ☐ RESPONDENT IS NOT AN EMPLOYEE OF SAMPLED FACILITY/SITE

IF ELIGIBLE:

“Wonderful, you are eligible! This interview will only take 20–30 minutes of your time and you will be compensated \$10. We can begin the interview immediately after I read to you important information.”

IF INELIGIBLE:

RECORD THIS INFORMATION ON YOUR NIR FORM IN THE OUT OF SCOPE BOX.

GAMING FACILITY PATRON SURVEY

Non-Interview Report

SITE:

EXIT:

DATE:

SHIFT:

FI ID:

Directions: Under proper age group and gender, note race of patron by entering B for black, W for white, A for Asian, I for Native American, or O for other. This entry should be made in line with reason NIR. For example, a 22 year old white male would not even make eye contact with FI. In section II a, under male, enter W in space with reason, "Refused Contact". For out-of-scope cases, enter a single slash mark in the Out of Scope box for each applicable case.

Reason For Refusal	A Ages 18 to 49		B Ages 50 and above	
	MALE	FEMALE	MALE	FEMALE
Refused Contact				
No Time				
Confidentiality Concerns/Too Personal				
Does Not Do Surveys				
Religious or Cultural Reservations				
Other (Briefly Specify)				

Out of Scope (underage, facility employee, non-English-speaking)

RESPONDENT INCENTIVE RECEIPT
Project: Gaming Facility Patron Survey (4856)

NORC
11/98

Date of Interview: ___/___/___ **Incentive Amount:** _____

Respondent ID#: |__|_|_|_|_|_|_|_|

Respondent Name: _____
(please print)

Respondent Signature: _____

FI Name: _____ **FI ID#** |__|_|_|_|_|_|_|_|

FI Signature: _____

RESPONDENT CONSENT FORM
11/98

NORC

I have voluntarily agreed to be a respondent in the Gaming Facility Patron Survey conducted by the National Opinion Research Center affiliated with the University of Chicago. I understand that my answers will be kept confidential and will be combined with all other respondents' answers to be reported in statistical form only.

Respondent Signature: _____

GAMING FACILITY PATRON SURVEY Transmittal Form

Facility:

Exit:

FI Name:

FI ID:

Date of Interviews:

Shift:

Date Shipped:

Received:

Received by:

Please place check mark next to form and enter the number for each form enclosed.

ENCLOSURES	# ENCLOSED
------------	------------

Questionnaire	
---------------	--

Consent/Receipt Form	
----------------------	--

Sampling Form	
---------------	--

NIR Log	
---------	--

Other (specify below)	
-----------------------	--

Transmittal Form Distribution

White Copy: Central Office

Yellow Copy: Supervisor

Pink Copy: FI Copy

5. INDEPENDENT OBSERVER REPORT ON PATRON SURVEY

NATIONAL GAMBLING STUDY THIRD PARTY REVIEW OF SURVEY PROCEDURES

*PREPARED FOR
THE NATIONAL GAMBLING IMPACT STUDY COMMISSION
BY
ORGANIZATIONAL RESEARCH & CONSULTING*

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JANUARY 22, 1999

Executive Summary

The National Opinion Research Center (NORC) has been contacted by the National Gambling Impact Study Commission to conduct a survey of casino patrons in an effort to assess the societal impact of gambling. As part of this study the Commission has requested Organizational Research & Consulting (ORC) to do an independent third party review of the NORC survey of patrons at three casinos. The purpose of the third party review was to assess interviewer adherence to NORC's guidelines, training materials, and to standard survey practice. Three different casino sites in two states were selected by ORC in consultation with NORC.³ A total of 38 attempted and/or completed interviews was observed.

The third party review confirms that NORC's interviewers adhered to professional standards of survey data collection. They consistently followed NORC guidelines and adhered to standard survey practices. This review concludes NORC's interviews were conducted in a highly professional manner by well-trained interviewers. Following are details of the review process that led to this conclusion.

³Observations occurred in two casinos in one state and one casino in another state.

Background

Congress authorized The National Gambling Impact Study Commission on June 3, 1996 by Public Law 104–169. The broad charge to the Commission was to “conduct a comprehensive legal and factual study of the social and economic impacts of gambling in the United States on (A) Federal, State, local and Native American Tribal governments; and (B) communities and social institutions generally, including individuals, families, and businesses within such communities and institutions.”

As part of that charge, the Commission engaged the services of a contractor, NORC, to conduct surveys of patrons at establishments where legal gambling occurs. The goal of these site surveys was to provide information on the societal impact of gambling on individuals and families.

Because of the impact and importance of the Commission’s findings, ORC was requested to provide an independent third party review of the survey data collection process. The purpose of this review was to ensure interviewers’ adherence to NORC’s guidelines and training materials as well as to standard survey practice. ORC was not requested to formally review the general study design or methodology except to note any deviations from generally accepted survey practice.

The Commission tasked ORC to prepare an observation summary report detailing descriptions of any procedural deviations by NORC site teams and stated reasons for such deviations. Observer’s logs are also to be included in the report. In addition, the Commission has requested ORC to maintain anonymity about site locations and interviewers.

Third Party Review Tasks

As required by the Commission, the following tasks were performed by Organizational Research & Consulting.

- **Survey Materials:** ORC reviewed the proposed NORC survey design, survey instruments, and procedures.
- **Interviewer Training:** ORC participated in the NORC interviewer training. This consisted of a review of training materials followed by a telephone conference for questions and clarification. No special circumstance training was needed for the sites observed.
- **Survey Observation:** ORC provided an observer to monitor NORC interviewers conducting the Gambling Survey at three casino sites. The sites were selected by ORC after consultation with NORC. All three sites were observed by the same person. The observer maintained a log and noted all deviations/anomalies in NORC’s performance of their survey procedures as described in their guidelines, training materials, and standard survey practices.

The observation process began when a casino patron was approached to participate in the study and ended when either data was secured for a completed interview or a Non-Interview Report was filled out. The ORC observer was beside the interviewer when questions were asked and was able to see the answers recorded. Since interview length varied depending on the patron’s answers, it was not possible to have an equal number of observations per interviewer.

Overview of Survey Data Collection Process

According to the “Gambling Impact and Behavior Study: Gaming Facility Patron Survey Guide for Interviewers” prepared by NORC, interviewers’ were responsible for “selecting good sites for intercepting patrons to recruit for interviews; determining the size of the sampling interval, n ; ongoing patron sampling; and interviewing.” During the observer’s training, the observer had a question about the sampling frame. NORC’s Project Director stated that the sampling frame had been changed from determining a specific n for each site to a predetermined $n=3$ for each site. The purpose for having an n was to assure that a random selection of patrons occurred. The random selection process was conducted at each of the observed sites. Every third patron either entering or exiting the casino was selected to participate in the study.⁴ Interviewing areas selected by the contact at each observed casino had sufficient patron traffic to complete the number of predetermined interviews for each casino.

The NORC training manual required interviewers to follow these procedures:

- Wear the NORC identification badge;
- Use the sample introduction script to get patrons to participate in the study;
- Ask two screener questions to make sure the patron qualifies for the study;
- Get the patron to sign the consent form for study participation;
- Note age category, gender, and reason for refusal on the “Gaming Facility Patron Survey Non-Interview Report” form if the patron does not agree to participate in the study or does not qualify;
- Ensure privacy while interviewing;
- Have patron sign receipt for receiving \$10.00 for participating in the study; and
- Make sure data are secured for each completed “Gaming Facility Patron Questionnaire.”

These standard interviewing procedures were noted in the observation logs:

- Questions were asked in the order they appeared in the questionnaire;
- Skip patterns were followed appropriately;⁵
- Questions were asked verbatim;
- Interviewer did not direct the patron toward a specific answer (did not lead the patron);

⁴At each site observed, the determination at the site was made whether to sample patrons entering or exiting the casino. Once the determination was made, it was consistently applied.

⁵A skip pattern is when a certain response is given that leads to not asking (skipping) certain questions because the questions are inappropriate.

- Interviewer probed the patron's answer where appropriate;
- All appropriate questions were asked;
- Interviewer recorded accurately the patron's answers;
- Interviewer was friendly;
- Interviewer was responsive to the patron; and
- Patron's questions about the study were answered according to a prepared script.

Site One

The first casino had three interviewers, with one interviewer designated as the lead for that site. Interview times were scheduled in two shifts: 3:00 p.m. to 5:00 p.m. and 7:00 p.m. until the number of completed interviews was obtained for that site. Interviewer C was unavailable for the 7:00 p.m. shift. Therefore, there were fewer interviews observed for interviewer C. A total of 19 attempted and/or completed interviews was observed. Of these 19 observations, 10 were completed interviews. Interviewers A and B were observed eight times each. Interviewer C was observed three times. There was only one entrance/exit point at the casino.

At each of the observed times interviewers wore their NORC badges, sampled every third patron, used the introductory script, and verified the patron qualified for the study. If the patron did not qualify or refused to participate in the study, the Non-Interview Report was completed. If the patron agreed to participate in the study, the consent and receipt forms were signed and the data were secured.

Privacy of the patron's answers was ensured with the exception of one instance. The patron insisted that his wife sit with him during the interview. The lead interviewer was queried about this lack of privacy for this particular interview. The lead interviewer stated that NORC's policy was to allow it if the patron insisted. Having the patron's wife present did not appear to affect the patron's answers.

All standard interviewing procedures were followed except for one deviation. The standard procedures followed were: questions were asked in the appropriate order and skipped; there were no leading questions; probes were used to clarify answers; all questions were asked; answers were accurately reported; and the interviewers were friendly and responsive to patrons.

One deviation from standard procedures involved an interviewer who failed to read a response category verbatim. In question C1, instead of "not at all important" the interviewer said "not important at all." This did not change the meaning of the response category nor did it affect the patron's response.

The observer noted excellent interviewing techniques. These techniques were: interviewers took notes to capture parts of the answer not covered in the response categories; they probed extensively; and they had control of the interview.

In one instance, the interviewer followed the procedure of requesting a signature to receive money for participation in the study. The receipt was not signed by one patron for the \$10.00 because the patron refused the money. The patron said “Donate the money to charity.”

Site Two

The second casino had four interviewers with one interviewer designated as the lead for that site. Interview times were scheduled in two shifts: 3:00 p.m. to 5:00 p.m. and 7:00 p.m. until the number of completed interviews was obtained for that site. A total of 11 attempted and/or completed interviews was observed. Of these 11 observations, 8 were completed interviews. Interviewers B, C, and D were observed three times each. Interviewer A was observed twice. There were two separate entrance/exit points at the casino. Two interviewers were assigned to each point.

At each of the observed times interviewers wore their NORC badges, sampled every third patron, used the introductory script, and verified the patron qualified for the study. If the patron did not qualify or refused to participate in the study, the Non-Interview Report was completed. If the patron agreed to participate in the study, the consent and receipt forms were signed and the data were secured.

All standard interviewing procedures were followed: questions were asked in the appropriate order and skipped; questions were asked verbatim; there were no leading questions; probes were used to clarify answers; all questions were asked; answers were accurately reported; and interviewers were friendly and responsive to patrons. The observer also noted that when there was an inconsistency on the answers between two interrelated questions, the interviewers reasked the questions to clarify responses. Notes were also taken to clarify the patron’s answers.

Site Three

The third casino had four interviewers with one interviewer designated as the lead for that site. Interview times were scheduled in two shifts: from 3:00 p.m. to 5:00 p.m. and 7:00 p.m. until the number of completed interviews was obtained for that site. A total of eight attempted and/or completed interviews was observed. Of these eight observations, seven were completed interviews. Interviewers B and C were observed twice. Interviewer A was observed three times and interviewer D was observed once.⁶ There were two separate entrance/exit points at the casino. Two interviewers were assigned to each point.

All the interviewers wore their NORC badges, sampled every third patron, used the introductory script, and verified the patron qualified for the study. If the patron did not qualify or refused to participate in the study, the Non-Interview Report was completed. If the patron agreed to participate in the study, the consent form was signed and the data were secured. Each interview was conducted in private.

⁶Interviewers A and B were positioned at one entrance/exit point for both shifts. Interviewers A and B were observed for the 3:00 to 5:00 p.m. shift. Interviewers C and D were positioned at the other entrance/exit point. Interviewers C and D were observed from 7:00 p.m. until the number of completed interviews was obtained for that site. The number of completed interviews for that casino was obtained more quickly than the observer anticipated. Therefore, interviewer D was only observed once.

The standard interviewing procedures were followed: questions were asked in the appropriate order and skipped; questions were asked verbatim; there were no leading questions; probes were used to clarify answers; all questions were asked; answers were accurately reported; and the interviewers were friendly and responsive to patrons. One patron declined the \$10.00 offered for participation and did not sign the receipt for the money.

The only deviation the observer noted was in question A1 where the instruction was “CODE WITHOUT ASKING QUESTION, UNLESS NOT OBVIOUS:

I am required to ask whether you are male or female. Are you . . .

1. Male
2. Female”

One interviewer consistently read the question to each patron. This deviation erred on the side of ensured accuracy.

Conclusion

The National Opinion Research Center conducted the study following the procedures specified in their training manual as well as general standard interviewing procedures. There were no deviations from generally accepted survey practice in NORC’s study design or methodology. Interviewers were professional and successful in obtaining agreements from patrons to participate in the study.

At each of the observed times interviewers wore their NORC badges, sampled every third patron, used the introductory script, and verified the patron qualified for the study. If the patron did not qualify or refused to participate in the study, the Non-Interview Report was filled out. If the patron agreed to participate in the study, the consent form was signed and the data were secured.

Standard interviewing procedures were followed: questions were asked in the appropriate order and skipped; there were no leading questions; probes were used to clarify answers; all questions were asked; answers were accurately reported; and the interviewers were friendly and responsive to patrons.

Although, interviewers followed the procedure to give a \$10.00 incentive, the money was refused twice. Thus, in two instances the receipt for the \$10.00 given to patrons for participating in the study was not signed.

There were only three deviations noted. None of which impacted the quality of data collected. One deviation involved changing the word order in one response category. This did not change the meaning of the response. The second deviation involved the possible loss of privacy because the patron insisted on having his wife with him. NORC followed their internal interviewing policy that allowed the patron to have a companion as long as the latter did not intervene in the interview. The third deviation involved asking each patron the gender questions. This deviation helped assure the quality of the data.

6. COMBINING THE RDD AND PATRON SURVEY DATA

Data File Combining RDD and Patron Survey Records

The SAS data file COMBINED.SD2 includes all records from the RDD survey ($n = 2,417$) together with the subset of “players”—individuals who gambled at a casino during the past year and/or were weekly lottery gamblers—from the Patron survey ($n = 450$). Thus, the total number of records equals $2,417 + 450 = 2,867$. The variable SURVEY is coded 1 = RDD or 2 = Patron. There are 2,417 cases coded SURVEY = 1, and there are 450 cases coded SURVEY = 2.

The combined file includes two weights: WTPOP is standardized to add up to the population size, i.e., about 197 million. WTSAMP is standardized to add up to the sample size, or 2,867. The combined file represents about 197 million U.S. individuals aged 18 and older.

Key Assumption in Combining Surveys

The key assumption is that the two surveys represent the same population, namely adults aged 18 and older in the U.S. In particular, the gambling and related behaviors and attributes of Patron survey respondents—individuals who were sampled at a small number of purposively selected locations in the U.S.—are assumed to be typical of persons with similar levels of casino and lottery gambling frequency in the U.S. general population. This assumption implies that—at least within strata defined by gambling frequency and other relevant variables—the weights already computed for respondents to the RDD survey (Engleman, L., “Weight computation for gambling RDD data,” 2/19/99) are also appropriate for respondents to the Patron survey.

To evaluate the key assumption, NORC will analyze differences in measured characteristics between RDD and Patron survey player respondents.

Construction of Weights: Poststratification Adjustment Cells

Another variable on COMBINED.SD2 is CELL, which is the “poststratification adjustment cell,” coded 1 to 23 and 69. 1641 of the 2417 RDD cases are coded 69, which means “nonplayer,” i.e., neither gambled in a casino during past year nor gambled weekly in a lottery. None of the 450 Patron cases on the file are coded 69. The 80 patron survey cases that were nonplayers (i.e., 530–450) are not included in the combined file, because these cases are probably not representative of nonplayers in the U.S.

We used three steps to construct weights (“WTPOP”) for cases in the combined file: First, the weights of the 1641 RDD nonplayers were not changed. Second, separately within each of the 23 player adjustment cells (codes 1 to 23), we assigned the mean weight of RDD respondents to each Patron survey respondent in the same cell. Third, separately within each of the 23 player adjustment cells (codes 1 to 23), we multiplied the weight of each RDD and Patron survey case by a constant equal to the population size of the cell—estimated using the RDD survey—divided by the sum of the weights within the cell.

These three steps ensured that Patron survey cases were weighted similarly to RDD cases within each adjustment cell and that the sum of the weights (“WTPOP”) equaled the estimated population

size both within each adjustment cell and in the total sample. To compute the sample-standardized version of the weights (“WTSAMP”), we divided the weights of all cases by the mean weight across the total sample of 2867 cases.

The key decision in the construction of weights pertained to the definition of poststratification adjustment cells (“CELL”). The 23 subsamples or cells were defined based on two statistical criteria (e.g., Cochran, 1977; Lessler and Kalsbeek, 1992)—heterogeneity of cells and cell sample sizes.

Heterogeneity of cells

The cells should be defined to be as dissimilar as possible with respect to the mean values of key response variables. Thus, we defined the 23 adjustment cells based primarily based on measures of past-year casino and lottery gambling frequencies—variables known to be distributed differently in the RDD and Patron surveys—and secondarily based on age and sex of respondent.

Cell sample sizes

Each cell should contain at least about 15 sample cases in the survey that is being adjusted, i.e., the Patron survey.

The following table shows the definitions of the 23 adjustment cells and the sample sizes and sums of weights (“WTPOP”) for the RDD and Patron surveys:

Table 14. Definitions of Adjustment Cells, Sample Sizes, and Sums of Weights

Cell	Definition	Age Group	Survey	Sample Size	Sum of WTPOP
1	Casino gambling and lottery, both weekly or more	All	RDD	4	53766.15
			Patron	25	336038.44
2	Casino weekly or more, lottery less	18 to 49	RDD	10	412821.88
			Patron	14	577950.64
3		50 and older	RDD	2	13020.90
			Patron	25	162761.30
4	Casino 1 to 3 times per month, lottery weekly or more	18 to 49	RDD	7	132922.14
			Patron	16	303822.03
5		50 to 64	RDD	11	271307.49
			Patron	22	542614.97
6		65 and older	RDD	6	116689.79
			Patron	14	272276.18
7	Casino 1 to 3 times per month, lottery less than weekly	18 to 49	RDD	19	815671.00
			Patron	25	1073251.31
8		50 to 64	RDD	8	172496.69
			Patron	18	388117.56
9		65 and older	RDD	3	33730.64
			Patron	15	168653.22
10	Casino a few days per year	18 to 29	RDD	55	3913856.32
			Patron	16	1138576.38
11	Casino a few days per year, lottery weekly or more	30 to 49	RDD	33	1654921.95
			Patron	20	1002983.00
12		50 to 64	RDD	25	1040287.76
			Patron	25	1040287.76
13	Casino a few days per year	65 and older	RDD	38	2082384.62

Cell	Definition	Age Group	Survey	Sample Size	Sum of WTPOP
			Patron	20	1095991.91
14	Casino a few days per year, lottery less than weekly	30 to 39	RDD	58	3588817.53
			Patron	20	1237523.29
15		40 to 49, male	RDD	23	1022830.73
			Patron	17	756005.32
16		40 to 49, female	RDD	19	1039601.37
			Patron	12	656590.34
17		50 to 64, male	RDD	23	930438.83
			Patron	17	687715.66
18		50 to 64, female	RDD	26	1127172.80
			Patron	18	780350.40
19	Casino once a year, lottery weekly or more	All	RDD	24	1001182.95
			Patron	19	792603.17
20	Casino once a year, lottery less than weekly	All	RDD	221	15889315.33
			Patron	28	2013125.92
21	No casino, lottery weekly or more	18 to 39	RDD	65	4545017.26
			Patron	18	1258620.16
22		40 to 64	RDD	63	3786365.39
			Patron	24	1442424.91
23		65 and older	RDD	33	1700709.02
			Patron	22	1133806.01
69	No past-year casino or lottery	All	RDD	1,641	133145151.32

Properties of the Weights

Analysis showed that the weights of the combined file are only moderately skewed (skewness = 1.56) with a coefficient of variation of about 0.53.

Cell means of WTPOP range from a minimum of 6510 (cell 3) to a maximum of 81137 (cell 24). Thus we expect a modest decline in statistical precision due to unequal weighting, compared with a file of equal weights (self-weighted).

7. COMMUNITY DATABASE SAMPLE AND VARIABLES

Drawing the Sample of Communities

The following is a description of the procedures used to select the 100 non-tribal communities for the community data base portion of the Gambling Impact and Behavior Study. Many of the parameters for selecting these communities, such as the restriction of the sample to places with populations of 10,000 or more persons, were specified in the Commission’s request for proposals and made good research sense in terms of the need to assure minimum numerical thresholds for statistical analysis. In addition to the 100 non-tribal communities, five tribal communities were selected using procedures also described herein. However, statistical information for the social and economic variables used in the community data base study was not available for the tribal communities and they had to be omitted from the analysis. NORC staff in consultation with technical advisors William Thompson (University of Nevada, Las Vegas) developed the sample design, Peter Reuter (University of Maryland), and Will Cummings (Christiansen/Cummings Associates [CCA]).

Selecting 100 non-tribal communities

In order to define a non-tribal community, we used the U.S. Census Bureau’s definition of “place.” Places are either legally incorporated, general-purpose geopolitical units such as cities and townships (in contrast to special-purpose units such as water districts), or they are statistical equivalents to such units, called census designated places (CDPs). For each decennial census since 1950, the Census Bureau in cooperation with state agencies has delineated CDP boundaries. CDPs are defined as “densely settled concentrations of population that are identifiable by name, but are not legally incorporated places.” More than 32,000 places were identified in the 1990 census, but only about ten percent or 3,148 places had populations of more than 10,000 persons. These 3,148 larger places accounted for 143,252,373 or about 58 percent of the U.S. population.

The 100 non-tribal communities in the database were selected from these 3,148 “places.” The procedure described below was based on a simple random sampling without replacement procedure within the following four non-tribal strata or cells, which were designed to optimize for statistical testing of casino proximity while reflecting co-occurrence of lotteries and other gambling opportunities:

- A. 40 places: Within 50 miles of a lottery facility *and* a major casino;
- B. 5 places: *Not* within 100 miles of lottery facility but within 50 miles of a major casino;
- C. 40 places: Within 50 miles of lottery facility but *not* within 100 miles of a major casino;
- D. 15 places: No legal gambling, including off-track and on-track pari-mutuel betting facilities.

		Lottery	
		Yes	No
Casino	Yes	A (40)	B (5)
	No	C (40)	D (15)

A major casino was defined as a gaming establishment with 500 or more electronic gaming devices (EGDs). In the discussion that follows we refer to the four sampling cells by their letters, and the following table represents the criteria described above:

The following seven steps describe how the places were sampled. Refinements in how places were assigned to cells are described after step 7.

- Assign permanent random numbers to all 3,148 places.
- Sort places by their permanent random number.
- Begin with the place with the smallest random number. Identify whether the place has *access* (as defined below) to:
 - one or more major gambling facilities; if ambiguous then exclude the place;
 - lottery sales outlets; if ambiguous then exclude the place;
 - any form of regulated gambling (if not, then cell D).
- Reject places that are “in the middle” (i.e., that are not clearly identifiable as having or not having access to major gambling facilities and/or lotteries).
- Repeat steps 3 and 4 for the first 500 places.
- Search the list of places past the first 500 places, considering only “no lottery” states, until cell B has 5 places and cell D has 15 places.
- Of the 500+ places classified 100 were selected, incorporating the points listed in the “Other considerations” section (see below).

As each candidate place was considered in step 3, we coded its access to a “major” gambling casino by first checking a map by hand to see if one or more major gambling facilities were nearby.

- Access to a major facility was classified as “**yes**” if one or more gambling facilities were within 50 miles of the place and at least one facility had table games and 500 or more EGDs. There was one exception to this rule: for Atlantic City, this distance was set at 75 miles.
- Access was classified as “**no**” if there were no major facilities within 100 miles of the place. Again an exception to this rule was established for Atlantic City, for which the distance was set at 125 miles.
- If there were small casinos or charity bingo places nearby (i.e. within 50 miles), or if the previous two tests did not result in a yes or no decision, then the place was considered ambiguous with respect to access to major casinos and it was excluded from consideration.
- Moreover, a place was excluded if it was a suburb of a big city (population over 1,000,000) and the city or another of its suburbs had already been selected into the 100-community sample.

Information about casinos was taken from “Where to Play in the USA: The Gaming Guide.” Distances were measured “as-the-crow-flies” irrespective of state boundaries.

Next, distances to lottery facilities were defined as follows:

- The lottery status for places in states with a lottery was defined as “yes.”
- For places in states without a lottery, the status was defined as “yes” if the place was within 25 miles of a place with population 10,000 or more located in a neighboring lottery state. For example, Mississippi has no lottery, but Mississippi residents living in places along the border with Louisiana may cross the border to purchase lottery tickets.
- Places not categorized by the previous two criteria were considered ambiguous and excluded from consideration.

Places excluded due to being “in the middle” with respect to lottery access account for a population of approximately 51 million. Among the exclusions were the New York and Philadelphia metropolitan areas. In addition, only one place could be selected from other major population centers such as greater Los Angeles or Chicago. These exclusions of places with ambiguous or middling status and bias in favor of smaller places (but not smaller than 10,000 persons) were intended to increase the capability to statistically detect the localized effects—whether positive or negative—of proximity to major casinos and lotteries.

A place was considered to have no access to any kind of gambling if

- The previous two tests yielded no access to casinos or lottery facilities, and
- It was at least 60 miles from any place of 10,000 population where any gambling establishment, including off-track and on-track pari-mutuel horse and/or dog race betting facilities, was available.

Other considerations:

- Atlantic City, NJ was automatically selected as a cell A member.
- Only one place was permitted to be selected per county.
- In each cell as many states were represented as possible. Consequently, multiple places from states with the largest number of places (with the largest number of random identifiers) were removed from the selection in order to reduce cells A and C to 40 places.

Selecting the tribal communities

Based on the book “Where to Play in the USA” (1997) 25 of the largest tribal gaming facilities were identified, where “large” refers to table games and 500 or more EGDs.

Using 1990 census data, communities with 500 or more Native Americans located nearby (within 50 miles) of these facilities were identified. Only those communities where Native Americans comprised at least 10 percent of the population were considered. There were no such communities within 50 miles of 11 of the 25 largest tribal gaming facilities.

From the remaining 14 communities we randomly selected five communities.

Selecting 10 communities for case studies

From the list of 500 places from which the 100 communities were drawn, we randomly selected 10 that had access to a major gaming facility. This random selection was stratified by region to ensure representation of communities from throughout the continental United States.

Variable Selection and Sources

The Commission mandated the selection of certain types of demographic and economic variables for inclusion in the community database. The purpose of collecting these variables was to enable tracking of changes over time (on a year-to-year basis) in the economic and social conditions of communities and, where possible, to determine whether changes might or might not be correlated with access to gaming facilities or per capita spending on various types of games. The years of interest were 1980–1996.

The specific areas of interest were as follows:

Economic Conditions

- Employment Patterns
- Unemployment Rates
- Bankruptcy Rates
- Personal Income
- Private & Public Earnings
- Government Expenditures
- Income Maintenance/AFDC

Social Conditions

- Crimes
- Suicides
- Divorces
- Marriages
- Births
- Deaths

For each of these areas we examined data series available down to the level of geographic detail needed, which generally was at the county or municipality level. These data were compiled mainly in central statistical files, available in electronic form in the Regional Economic Indicator Series (REIS), City and County Data Book, FBI Uniform Crime Reports, and the NCHS Vital and Health Statistics series. Data series with the degree of geographic detail and annual frequency needed for the purposes of the community data base were virtually all in the form of governmental statistics developed or collected at the local level according to national standards and formats, and put together by federal agencies with the assistance of state and local agencies.

The following sections define the variables selected and the sources of the data series.

Employment patterns by industry

Employment statistics were available at the county level for most of the years. We selected the following variables from the Regional Economic Indicator Series (REIS) or the City and County Data Book.

- Total Employment (full- and part-time)
- Employment–Construction
- Employment–Transportation
- Employment–Services
- Employment–Local Government
- Employment–Retail Trade

Unemployment

As with employment statistics, these data series were available at the county level for most years from the REIS and the City and County Data Book. The following variables were selected.

- Civilian Labor Force–Unemployment
- Civilian Labor Force–Unemployment Rate

Bankruptcy

Number of bankruptcy filings was available at the county level through the Administrative Office of the U.S. Courts. The data were available for the years 1988–1996. The following variables were extracted:

- Business Chapter 7 Filings
- Business Chapter 11 Filings
- Business Chapter 12 Filings
- Business Chapter 13 Filings
- Non-Business Chapter 7 Filings
- Non-Business Chapter 11 Filings
- Non-Business Chapter 12 Filings
- Non-Business Chapter 13 Filings
- Total Chapter 7 Filings
- Total Chapter 11 Filings
- Total Chapter 12 Filings
- Total Chapter 13 Filings
- Total Bankruptcy Filings
- Total Business Bankruptcy Filings
- Total Non-Business Bankruptcy Filings

Personal income

These data were available from the REIS and the City and County Data Book. We included the following variables:

- Personal Income–Total
- Personal Income–Dividends, Interest, and Rent
- Personal Income–Income Maintenance
- Personal Income–Retirement
- Personal Income–Transfer Payments
- Personal Income–Unemployment Insurance
- Per Capita Personal Income–Total
- Per Capita Personal Income–Dividends, Interest, and Rent
- Per Capita Personal Income–Income Maint.
- Per Capita Personal Income–Retirement
- Per Capita Personal Income–Transfer Payments
- Per Capita Personal Income–Unemployment Insurance

Private and public earnings

Private and public earnings were available through the REIS and the City and County Data Book. The specific variables selected were:

- Private Earnings–Construction
- Private Earnings–Eating and Drinking Places
- Private Earnings–General Merchandise
- Private Earnings–Hotel and Other Lodging
- Private Earnings–Amusement and Recreation
- Private Earnings–Retail Trade
- Private Earnings–Services
- Private Earnings–Social Services
- Private Earnings–Transportation
- Earnings–Local Government and Government Enterprises

Government expenditures

There was some variation in availability by year, with some information available annually, others every five years, and others only for recent periods. We selected the following variables to provide general information on government expenditures:

- Direct Federal Expenditures–Individuals
- Direct Federal Expenditures–Retirement and Disability

- Direct Federal Expenditures–Salaries and Wages

Income maintenance/AFDC

Data were available through the City and County Data Book. The following variables were included in the data series:

- Income Maintenance
- Per Capita Income Maintenance
- AFDC–Recipient Children
- AFDC–Recipient Families
- AFDC–Total Recipients

Crime

The main data source at the necessary levels and frequencies is in the form of crimes reported to police, which are compiled in the FBI Uniform Crime Reports (UCR), Part I (UCR Part II includes only arrest data and is collected intermittently, with substantial gaps in reporting). We extracted the following categories of offenses at the community level:

- Overall Crime index
- Violent Crime Index
- Property Crime Index
- Arson
- Assault
- Burglary
- Larceny
- Murder
- Motor Vehicle Theft
- Rape
- Robbery

Vital statistics

Reports of vital statistics at the county level were available through the Vital and Health Statistics periodic reports published by the National Center for Health Statistics (NCHS) and through CDC Wonder (<http://wonder.cdc.gov>). We extracted the following variables for the data series:

- Total Suicides
- Suicide Rate–Not Age Adjusted
- Suicide Rate–Age Adjusted
- Total Divorces
- Divorce Rate

- Total Marriages
- Marriage Rate
- Total Births
- Birth Rate
- Births to Mothers under Age 15
- Births to Mothers Ages 15–19
- Births to Mothers Under Age 20
- Total Deaths
- Death Rate
- Deaths from Motor Vehicle Accidents
- Infant Mortality Rate

Availability of Gaming Facilities and Estimated Gaming Expenditures

Christiansen/Cummings Associates (CCA) provided data on the availability of gaming facilities and estimated gaming expenditures for each community for each year (at the county level). Availability was coded 1 if a gaming facility was within 50 miles of the community in the specific year; it was coded 0 if a gaming facility was not within 50 miles of the community. In the rare case where a facility opened during the particular year, a value of 0.5 was assigned. Facilities included bingo, casino, lottery, and pari-mutuel.

The following description provides the general approach to estimating the various gaming expenditures.

Data on gambling receipts as reported by state regulatory agencies for each year were compiled first. For those games in which customers rarely travel long distances (lotteries, charitable bingo, and other games), receipts were divided by the total state population for the relevant year. For these games, an “urban factor” was also included: CCA assumed that residents of metropolitan areas spend 10 percent more⁷ than the residents of non-metropolitan areas.

The sources of the state population data were:

- 1980 and 1984–92: U.S. Department of Commerce, *Statistical Abstracts of the United States* 1993
- 1995: Claritas Corporation
- Other years: CCA inter/extrapolations

⁷ CCA estimate, based upon several states for which there is (fragmentary) data by county or township. The 10 percent estimate is conservative; the result may be an underestimate for urban communities and an overestimate for rural ones.

For each community for each year, CCA assumed spending at the corresponding statewide rate; at the “rural” rate for communities not in metropolitan areas, and at the “urban” rate (10 percent higher) for those communities within metropolitan areas.

For those games in which customers often travel longer distances (casino gaming and pari-mutuel wagering on horse racing, greyhound racing, and jai-alai), CCA initially followed the same procedure to develop estimates of per capita receipts for each state for each year. CCA assumed no “urban factor” for these games. For horse and greyhound racing, the data suggested there was no such (consistent) factor, with great differences across various markets.⁸ For casino gambling, the urban/rural differences may be real, but there were insufficient data to make an approximate quantitative estimate.

To estimate per capita spending for each community on pari-mutuel gambling, CCA “modulated” the statewide per capita receipts estimate for each year by a “proximity factor” based upon the distance from each community to the nearest pari-mutuel facility (race track, jai-alai fronton, or off-track betting facility). For some communities near racetracks in other states (especially those located in states without tracks of their own, such as Missouri), the “base” rate of spending was assumed to be that of the state in which the track(s) is (are) located. (See the additional description below.)

For casino gaming, CCA developed separate estimates for table games and gaming devices (some states, such as Rhode Island, Delaware, and West Virginia, offer only the devices). For fourteen states, most prominently Nevada and New Jersey, CCA “spread” reported state receipts across the geographic areas from which most customers of these casinos come. (For Nevada this included the entire U.S.; for the other states, CCA assumed, as with lotteries and charitable games, that the spending of local residents generated essentially all of the receipts.) (See the additional information below.)

CCA then summed the estimated contributions from each state to each of the relevant casino jurisdictions; for example, Massachusetts residents were estimated to contribute various portions of the receipts reported in Rhode Island, Connecticut, New Jersey, and Nevada. These contributions add up to the total estimated casino spending from each state. The total was then divided by the state population to estimate statewide per capita spending. As with the pari-mutuel sports, CCA next “modulated” the statewide spending estimate for each year by a “proximity factor,” based upon the distance from each community to the nearest casino or gaming-device facility.

For charitable games and for Indian gaming (bingo and casinos), receipt data are often fragmentary or non-existent. In these cases, CCA estimated receipts based upon the per capita receipts and/or spending rates of the most comparable markets for which data *are* available. CCA then included these estimated receipts figures in the statewide totals which form the basis for the procedures described above.

Lottery spending estimates

Sources for lottery receipt data were

⁸ Horse and greyhound racing have much less competition from other professional sports, and other commercial entertainment activities in general, in rural as opposed to urban areas. In smaller, rural areas the proportion of the population which is occupationally connected with racing or related equine activities can be significant.

- 1993–1997: Christiansen (et al.), “Gross Annual Wager of the United States” articles in *International Gaming and Wagering Business* magazine (based, in turn, upon data from state lottery agencies)
- Other years: CCA estimates based upon lottery sales and prize data as follows:
- 1991–1992: LaFleur, *1995 World Lottery Almanac*
- 1980–1990: LaFleur, *1990 Compendium of Lottery Statistics* (with some adjustments to 1990 based upon LaFleur, *1995 Compendium of Lottery Statistics*)

As described above, CCA divided each state’s total lottery receipts by total state population for the relevant year, adjusted by an “urban factor” which assumes that the residents of metropolitan areas spend 10 percent more than the residents of non-metropolitan areas. Mathematically, CCA’s procedure divides receipts by (total population + (10 percent x urban population)). This yields the per capita spending estimate for the non-urban population; the per capita spending estimate for the urban population is 10 percent higher.

Source for urban proportion of the population (specifically for 1990, but assumed equal for all years): U.S. Department of Commerce, *Statistical Abstracts of the United States, 1993*

For each community for each year, CCA then assumed spending at the corresponding statewide rate, “urban” or “rural,” depending on the status of the community.

The resulting estimates for per capita spending on lotteries range up to \$160 (for Massachusetts, by far the highest). The estimated rates of spending for most of the communities in other (lottery) states ranged from \$30–100, with most near the middle of the distribution.

Pari-mutuel spending estimates

Sources for pari-mutuel receipt data were:

- 1993–1997: Christiansen (et al.), “Gross Annual Wager of the United States” articles in *International Gaming and Wagering Business* magazine (based, in turn, upon data from state regulatory agencies)
- 1992: ARCI (Association of Racing Commissioners International), *Statistical Summary*
- 1989–1991: CCA, *Summary of Pari-mutuel Taxation* (for each year)
- 1980–1988: CCA estimates based upon handle and takeout rate data from NASRC (National Association of State Racing Commissioners, the organization that preceded the ARCI), *Statistical Summary* (for each year)

CCA divided total receipts for each state by population to calculate per capita receipts for each year. As described above, urban dwellers are *not* assumed to (consistently) spend more than rural residents on pari-mutuel gambling.

CCA then “modulated” state per capita receipts estimates for each year by a “proximity factor” for each community. These were based upon the distance from each community to the nearest racetrack, jai-alai fronton, or off-track betting facility. These proximity factors range from 10

percent for most communities 50 miles or more from any pari-mutuel facility to 250 percent for a few communities containing or immediately adjacent to such facilities. The underlying basis for these proximity factors was survey data indicating that, for a reasonable range of distances, the rate of track attendance (and therefore, one may assume, spending) declines roughly in proportion to distance, i.e., the “elasticity” of spending with respect to distance is approximately -1.0.⁹

For some communities near racetracks in other states (especially those located in states without tracks of their own, such as Missouri), the “base” rate of spending was assumed to be that of the state in which the track(s) is (are) located.

In a few exceptional markets, the resulting pari-mutuel spending estimates range up to \$50 per person. For most communities relatively close to pari-mutuel facilities, the typical range is from \$15 to \$25. At the other end of the spectrum, for most communities 50 miles or more from a race track, spending is estimated at \$2–5 per person.

Bingo and other charitable games spending estimates

CCA developed estimates for bingo and for other “charitable” games (primarily raffles, pull-tabs, punch cards, break-open tickets, and casino nights, for which the receipts reporting is often inferior to that for bingo).

Sources for bingo and charitable receipt data:

- 1993–1997: Christiansen (et al.), “Gross Annual Wager of the United States” articles in *International Gaming and Wagering Business* magazine (based, in turn, upon data from state regulatory agencies)
- Other years: CCA estimates (“backcasts”) based upon “Gross Annual Wager” estimates for the U.S. as a whole (prior to 1993, CCA did not publish estimates for individual states)

CCA followed procedures identical to those for lotteries, as described above. First, divide estimated receipts by total state population for each year, with urban residents assumed to spend 10 percent more than rural ones. Second, assume spending for each community at the corresponding statewide rate. For most communities, these estimates were in the single digits, \$2–10 per person. For a few states, most prominently Minnesota (with huge spending on pull-tabs), the estimates ranged up to \$56.

Casino (table and device) spending estimates

Sources for casino (and gaming device) receipt data:

⁹ For these particular calculations, CCA used some judgment in estimating these “proximity factors.” This is because the *statewide* per capita estimates to which they were applied result from a variety of market conditions with respect to average distance. In New York and Florida, for example, almost all of the state resides within a few miles of a pari-mutuel facility, while the (few) tracks in states like Arkansas and Minnesota are at some distance from most of the population. The “base” (statewide) rates for Arkansas and Minnesota therefore already reflect substantial discounts for (average) distance.

- 1993–1997: Christiansen et al., “Gross Annual Wager of the United States” articles on *International Gaming and Wagering Business* magazine (based, in turn, upon data from state regulatory agencies)
- 1980–1992: Nevada, New Jersey and other state Casino Control Commission (or equivalent agency) statistical reports
- Indian Gaming: CCA estimates

Because some states, such as Rhode Island, Delaware, and West Virginia, have offered only gaming devices, CCA developed separate estimates for casino table games and gaming devices.

For fourteen states, of which the most notable are Nevada and New Jersey, CCA “spread” reported state receipts across the geographic areas from which one may reasonably believe most customers of these casinos come (for Nevada, across the entire U.S.; the other states’ receipts “spread” in this fashion are Colorado, Connecticut, Delaware, Illinois, Indiana, Iowa, Louisiana, Mississippi, Missouri, Rhode Island, West Virginia, and Wisconsin.)

For the other casino states, CCA assumed, as with lotteries, that essentially all of the receipts are generated by the spending of local residents.

The “spread” of spending/receipts was based upon the distance of each state from the relevant casino state(s) and qualitative assessments of competitive factors. For Nevada and New Jersey, CCA calculated “effective market area populations” based upon distance and competitive factors. CCA then divided total receipts (in Nevada, for example) by the relevant total effective market area population to estimate “distance- and competition-adjusted per capita spending,” and then applied the relevant distance and competitive factors for each state to estimate the contributions of its residents to such receipts.¹⁰

For other states, CCA simply estimated the proportions of receipts which arose from the spending of the state’s residents and of those of nearby states. These estimates were based upon previous CCA detailed analyses similar to those applied for Nevada and New Jersey.

CCA then summed up the estimated contributions from each state to each of the relevant casino jurisdictions to generate total estimated casino spending from each state. CCA divided by the state population to estimate statewide per capita spending. As with the pari-mutuel games, to estimate per capita spending for each community CCA modulated the statewide spending estimate for each year by a proximity factor based upon the distance from each community to the nearest casino or gaming-device facility.

¹⁰ The “distance” and “competitive” factors were based upon survey data from Nevada and New Jersey regarding the origin of their casinos’ patrons. CCA estimated the “distance factors” (elasticity with respect to distance) to be about -0.6 for Nevada and -0.65 for New Jersey. (These are notably less severe than the -1.0 estimated for the pari-mutuel sports in general, i.e., casinos “pull” better from longer distances.) The “competitive factors” were estimated more qualitatively, but again were based on survey data. As an example, CCA estimated that due to competition from the closer casinos in Connecticut, Massachusetts residents patronized casinos in New Jersey at about 30 percent of the rate they otherwise would have, and casinos in Nevada, at about 40 percent—higher than New Jersey despite the greater distance because the casinos in Nevada offered a more attractive casino/resort experience.