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HAMILTON COUNTY JUDGES

STATISTICAL METHODS AND DECISION MAKING - A MANAGERIAL REPORT

PRESENTED BY: SWAPNA S, DILEEP VUPPALADHADIAM, GIRISH P SHANTHARAMA, C ROSHAN SINGH

GREAT LAKES INSTITUTE OF MANAGEMENT

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HAMILTON COUNTY JUDGES CASE – THE PROBLEM

Hamilton County judges try thousands of cases per year. In an overwhelming majority of cases disposed, the verdict stands are rendered. However, some cases are appealed, and of those appealed, some of the cases are reversed. Kristen Deglaze of the The Cincinnati Enquirer conducted a study of cases handled by Hamilton County judges over the years 1994 through 1997 (The Cincinnati Enquirer, January 11, 1998). Shown in Data File Judge.xls View in a new window are the results for 182,908 cases handled (disposed) by 38 judges in Common Pleas Court, Domestic Relations Court and Municipal Court. Two of the judges (Dinkelacker and Hogan) did not serve in the same court for the entire three-year period.

The purpose of the newspaper's study was to evaluate the performance of the judges. Appeals are often the result of mistakes made by judges and the newspaper wanted to know which judges were doing a good job and which were making too many mistakes. You have been called in to assist in the data analysis. Use your knowledge of probability and conditional probability to help with the ranking of the judges. You also may be able to analyze the likelihood of cases handled by different courts being appealed and reversed.

Prepare a report with your rankings of the judges. Also, include an analysis of the likelihood of appeal and case reversal in the three courts. At a minimum your report should include the following:

The probability of cases being appealed and reversed in the three different courts

The probability of a case being appealed for each judge

The probability of a case being reversed for each judge

The probability of reversal given an appeal for each judge

Rank the judges within each court. State the criteria you used and provide a rationale for your choice.

ADOPTED METHODOLOGY

Based on the available data and data analysis regarding Hamilton County Judges in three different courts, the judges can be ranked appropriately by their probability to be appealed cases, reversed cases and combination of the both. With the help statistics and probability the calculations are made to arrive at:

i.   The probability of appeal, rank by probability of appeal,
ii.   The probability of reversal, rank by probability of reversal,
iii.   The conditional probability of reversal given appeal, rank by conditional probability of reversal given appeal and overall sum of ranks.

Those judges who rank highest (i.e., 1st, 2nd, 3rd...) have the lowest probability to have appealed cases, reversed cases and lowest conditional probability of reversed cases given appeal.

By ranking the judges, we can arrive at 'To what extent Judges' judgements are accepted?' there by arrive at the effectiveness of the judgement made by these judges. Effort has also been made to show analysis which interprets who is the most effective judges overall.

3 different courts have been ranked: Common Court, Domestic Court and Municipal Court. The overall rankings are arrived at by summing up all of the rankings by all of the three probability variables to arrive at the most efficient judges among the three courts.

DATA ANALYSIS

1. PROBABILITY OF CASES APPEALED AND REVERSED IN THREE COURTS

Court	(1) Total Disposed Cases	(2) Total Appealed Cases	(3) Total Reversed Cases	(4) P(R/A) =(3)/(2)	(5) P(A) =(2)/(1)	(6) P(A and R) =(4)*(5)
Common Court	43945	1762	199	0.11294	0.04010	0.00453
Domestic Court	30499	106	17	0.16038	0.00348	0.00056
Municipal Court	108464	500	104	0.20800	0.00461	0.00096
Grand Total	**182908**	**2368**	**320**			**0.00604**

APPROACH – 1: DIRECT APPROACH

Judges can be ranked directly only on the basis of probability of reversals depending on the court of their functioning.

Common Court Judges Ranking		
Judge	P(R)	Rank
Ralph Winkler	0.001942	1
Thomas Nurre	0.002000	2
Robert Kraft	0.002231	3
Thomas Crush	0.002966	4
Timothy Hogan	0.003582	5
Fred Cartolano	0.003951	6
John O'Connor	0.004042	7
Ann Marie Tracey	0.004139	8
Arthur Ney Jr.	0.004349	9
Richard Niehaus	0.004772	10

Domestic Court Judges Ranking		
Judge	P(R)	Rank
Ronald Panioto	0.000231	1
Penelope Cunningham	0.000366	2
Patrick Dinkelacker	0.000667	3
Deborah Gaines	0.001023	4

Municipal Court Judges Ranking		
Judge	P(R)	Rank
Deidra Hair	0.00000	1
Karla Grady	0.00000	1
Beth Mattingly	0.07692	3
Mike Allen	0.09302	4
David Davis	0.11628	5
Timothy Black	0.14634	6
Timothy Hogan	0.15385	7
James Patrick Kenney	0.16667	8
Dennis Helmick	0.17241	9
Nadine Allen	0.17647	10

Robert Ruehlman	0.005616	11
Patrick Dinkelacker	0.006359	12
Norbert Nadel	0.006759	13
William Morrissey	0.007256	14
William Mathews	0.007951	15
J. Howard Sundermann Jr.	0.010471	16

David Stockdale	0.18182	11
Mark Schweikert	0.18182	11
Melba Marsh	0.20588	13
William Mallory	0.23684	14
Jack Rosen	0.31707	15
Joseph Luebbers	0.32000	16
Albert Mestemaker	0.32143	17
Leslie Isaiah Gaines	0.37143	18
Mark Painter	0.42857	19
John A. West	0.50000	20

INFERENCE – BASED ON DIRECT APPROACH

a. Judge Ralph Winkler is the best Judge of Common Court;
b. Ronald Panioto is the best Judge in Domestic Court; and
c. Karla Grady has the best Judge in Municipal Court. Deidra Hair could also be place equivalent to Karla Grady.

APPROACH – 2: DETAILED APPROACH

2. DATA ANALYSIS OF COMMON COURT

Judge	Sum of Disposed	Sum of Appealed	Sum of Reversed	P(A)	P(R)	P(A and R)	Rank based on P(A)	Rank based on P(R)	Rank based on P(A and R)	Sum of Ranks
Ann Marie Tracey	3141	127	13	0.0404	0.1024	0.0041	9	7	8	24
Arthur Ney Jr.	3219	125	14	0.0388	0.1120	0.0043	5	8	9	22
Fred Cartolano	3037	137	12	0.0451	0.0876	0.0040	14	5	6	25
J. Howard Sundermann Jr.	955	60	10	0.0628	0.1667	0.0105	16	13	16	45
John O'Connor	2969	129	12	0.0434	0.0930	0.0040	12	6	7	25
Norbert Nadel	2959	131	20	0.0443	0.1527	0.0068	13	12	13	38

Patrick Dinkelacker	1258	44	8	0.0350	0.1818	0.0064	3	14	12	29
Ralph Winkler	3089	88	6	0.0285	0.0682	0.0019	1	3	1	5
Richard Niehaus	3353	137	16	0.0409	0.1168	0.0048	11	10	10	31
Robert Kraft	3138	127	7	0.0405	0.0551	0.0022	10	2	3	15
Robert Ruehlman	3205	145	18	0.0452	0.1241	0.0056	15	11	11	37
Thomas Crush	3372	119	10	0.0353	0.0840	0.0030	4	4	4	12
Thomas Nurre	3000	121	6	0.0403	0.0496	0.0020	8	1	2	11
Timothy Hogan	1954	60	7	0.0307	0.1167	0.0036	2	9	5	16
William Mathews	2264	91	18	0.0402	0.1978	0.0080	7	16	15	38
William Morrissey	3032	121	22	0.0399	0.1818	0.0073	6	14	14	34

3.   DATA ANALYSIS OF DOMESTIC COURT

Judge	Sum of Disposed	Sum of Appealed	Sum of Reversed	P(A)	P(R)	P(A and R)	Rank based on P(A)	Rank based on P(R)	Rank based on P(A and R)	Sum of Ranks
Deborah Gaines	8799	48	9	0.0055	0.1875	0.0010	4	3	4	11
Patrick Dinkelacker	6001	19	4	0.0032	0.2105	0.0007	3	4	3	10
Penelope Cunningham	2729	7	1	0.0026	0.1429	0.0004	2	2	2	6
Ronald Panioto	12970	32	3	0.0025	0.0938	0.0002	1	1	1	3

4.   DATA ANALYSIS OF MUNICIPAL COURT

Judge	Sum of Disposed	Sum of Appealed	Sum of Reversed	P(A)	P(R)	P(A and R)	Rank based on P(A)	Rank based on P(R)	Rank based on P(A and R)	Sum of Ranks
Albert Mestemaker	4975	28	9	0.0056	0.3214	0.0018	16	17	19	52
Beth Mattingly	2971	13	1	0.0044	0.0769	0.0003	10	3	3	16
David Davis	7736	43	5	0.0056	0.1163	0.0006	15	5	6	26
David Stockdale	5371	22	4	0.0041	0.1818	0.0007	7	11	9	27
Deidra Hair	2532	5	0	0.0020	0.0000	0.0000	3	1	1	5

Dennis Helmick	7900	29	5	0.0037	0.1724	0.0006	6	9	5	20
Jack Rosen	7790	41	13	0.0053	0.3171	0.0017	13	15	17	45
James Patrick Kenney	2798	6	1	0.0021	0.1667	0.0004	4	8	4	16
John A. West	2797	4	2	0.0014	0.5000	0.0007	2	20	8	30
Joseph Luebbers	4698	25	8	0.0053	0.3200	0.0017	14	16	18	48
Karla Grady	5253	6	0	0.0011	0.0000	0.0000	1	1	1	3
Leslie Isaiah Gaines	5282	35	13	0.0066	0.3714	0.0025	19	18	20	57
Mark Painter	2239	7	3	0.0031	0.4286	0.0013	5	19	16	40
Mark Schweikert	5403	33	6	0.0061	0.1818	0.0011	18	11	15	44
Melba Marsh	8219	34	7	0.0041	0.2059	0.0009	8	13	12	33
Mike Allen	6149	43	4	0.0070	0.0930	0.0007	20	4	7	31
Nadine Allen	7812	34	6	0.0044	0.1765	0.0008	9	10	11	30
Timothy Black	7954	41	6	0.0052	0.1463	0.0008	12	6	10	28
Timothy Hogan	2308	13	2	0.0056	0.1538	0.0009	17	7	13	37
William Mallory	8277	38	9	0.0046	0.2368	0.0011	11	14	14	39

5. JUDGES WITH MAXIMUM EFFICIENCY WITH LOWEST PROBABILITY OF APPEALS AND REVERSALS

Based on the above Data Analysis, below are the judges who displayed the maximum efficiency in rendering judgements.

Court	Judge
Common Court	Ralph Winkler
Domestic Court	Ronald Panioto
Municipal Court	Karla Grady and Deidra Hair

INFERENCE – BASED ON DETAILED APPROACH

It is interesting to note that the ranking of judges still remain the same. However, as per the detailed approach, whilst considering the Municipal court judges Deidra and Karla their have probabilities of appeal 0.0020 and 0.0011 respectively showing Deidra holds greater probability for appeal which in turn could cascade as a greater chance for reversal as well.