**QUESTION 5\_1**

**Code: Nonparametric One-Way ANOVA**

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\* Task code generated by SAS Studio 3.8

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\* Generated on '1/11/22, 8:39 AM'

\* Generated by 'u45209732'

\* Generated on server 'ODAWS01-USW2.ODA.SAS.COM'

\* Generated on SAS platform 'Linux LIN X64 3.10.0-1062.9.1.el7.x86\_64'

\* Generated on SAS version '9.04.01M6P11072018'

\* Generated on browser 'Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/96.0.4664.110 Safari/537.36'

\* Generated on web client 'https://odamid-usw2.oda.sas.com/SASStudio/main?locale=en\_US&zone=GMT-05%253A00&https%3A%2F%2Fodamid-usw2.oda.sas.com%2FSASStudio%2Findex='

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\*/

ods noproctitle;

**proc** **npar1way** data=WORK.TRAIN wilcoxon plots(only)=(wilcoxonboxplot);

class Policy\_Sales\_Channel;

var Response;

**run**;

**Log: Nonparametric One-Way ANOVA**

Notes (2)

1 OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;

NOTE: ODS statements in the SAS Studio environment may disable some output features.

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76 \* Task code generated by SAS Studio 3.8

77 \*

78 \* Generated on '1/11/22, 8:39 AM'

79 \* Generated by 'u45209732'

80 \* Generated on server 'ODAWS01-USW2.ODA.SAS.COM'

81 \* Generated on SAS platform 'Linux LIN X64 3.10.0-1062.9.1.el7.x86\_64'

82 \* Generated on SAS version '9.04.01M6P11072018'

83 \* Generated on browser 'Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko)

83 ! Chrome/96.0.4664.110 Safari/537.36'

84 \* Generated on web client

84 ! 'https://odamid-usw2.oda.sas.com/SASStudio/main?locale=en\_US&zone=GMT-05%253A00&https%3A%2F%2Fodamid-usw2.oda.sas.com%2FS

84 ! ASStudio%2Findex='

85 \*

86 \*/

87

88 ods noproctitle;

89

90 proc npar1way data=WORK.TRAIN wilcoxon plots(only)=(wilcoxonboxplot);

91 class Policy\_Sales\_Channel;

92 var Response;

93 run;

NOTE: PROCEDURE NPAR1WAY used (Total process time):

real time 2.46 seconds

user cpu time 1.34 seconds

system cpu time 0.43 seconds

memory 509445.18k

OS Memory 621288.00k

Timestamp 01/11/2022 01:39:33 PM

Step Count 70 Switch Count 3

Page Faults 0

Page Reclaims 135990

Page Swaps 0

Voluntary Context Switches 10195

Involuntary Context Switches 25

Block Input Operations 0

Block Output Operations 12000

94

95 OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;

107

**Results: Nonparametric One-Way ANOVA**

| **Wilcoxon Scores (Rank Sums) for Variable Response Classified by Variable Policy\_Sales\_Channel** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Policy\_Sales\_Channel** | **N** | **Sum of Scores** | **Expected Under H0** | **Std Dev Under H0** | **Mean Score** |
| **Average scores were used for ties.** | | | | | |
| **26** | 79700 | 1.63539E10 | 1.51872E10 | 15688833.7 | 205193.746 |
| **152** | 134784 | 2.3271E10 | 2.56838E10 | 18444071.9 | 172654.351 |
| **160** | 21779 | 3731962188 | 4150097345 | 8954659.9 | 171355.994 |
| **124** | 73995 | 1.5039E10 | 1.41001E10 | 15259292.0 | 203242.986 |
| **14** | 622 | 116003334 | 118525210 | 1557214.7 | 186500.536 |
| **13** | 1865 | 364230488 | 355385075 | 2692044.1 | 195297.849 |
| **30** | 1410 | 265478502 | 268682550 | 2342139.0 | 188282.626 |
| **156** | 10661 | 2220222887 | 2031506855 | 6361301.6 | 208256.532 |
| **163** | 2893 | 651397560 | 551275615 | 3348324.6 | 225163.346 |
| **157** | 6684 | 1459419573 | 1273669620 | 5063887.3 | 218345.238 |
| **122** | 9930 | 1988049740 | 1892211150 | 6145393.7 | 200206.419 |
| **19** | 222 | 40738935.5 | 42303210 | 930803.4 | 183508.718 |
| **22** | 332 | 58940381 | 63264260 | 1138119.3 | 177531.268 |
| **15** | 888 | 163336851 | 169212840 | 1859978.5 | 183937.895 |
| **154** | 5993 | 1282906933 | 1141996115 | 4799415.2 | 214067.568 |
| **16** | 523 | 96020552.5 | 99660265 | 1428106.6 | 183595.703 |
| **52** | 1055 | 198309768 | 201035525 | 2026899.8 | 187971.344 |
| **155** | 1234 | 281593828 | 235144870 | 2191600.2 | 228195.970 |
| **11** | 1203 | 221721486 | 229237665 | 2163985.2 | 184307.137 |
| **151** | 3885 | 672819649 | 740306175 | 3875061.1 | 173183.951 |
| **125** | 1026 | 195747622 | 195509430 | 1998924.1 | 190787.155 |
| **25** | 1848 | 379300211 | 352145640 | 2679806.7 | 205249.032 |
| **61** | 579 | 107479852 | 110331345 | 1502509.1 | 185630.142 |
| **1** | 1074 | 186242208 | 204656070 | 2045018.9 | 173409.877 |
| **86** | 48 | 9168927 | 9146640 | 432913.6 | 191019.313 |
| **31** | 631 | 135991920 | 120240205 | 1568421.7 | 215518.098 |
| **150** | 312 | 66648542 | 59453160 | 1103335.1 | 213617.122 |
| **23** | 422 | 81610561 | 80414210 | 1282991.1 | 193389.955 |
| **60** | 517 | 96541788.5 | 98516935 | 1419902.4 | 186734.601 |
| **21** | 148 | 27032254 | 28202140 | 760071.6 | 182650.365 |
| **121** | 64 | 14321335.5 | 12195520 | 499875.1 | 223770.867 |
| **3** | 523 | 117743766 | 99660265 | 1428106.6 | 225131.483 |
| **139** | 143 | 26386808.5 | 27249365 | 747127.1 | 184523.136 |
| **12** | 783 | 156070794 | 149204565 | 1746796.4 | 199324.130 |
| **29** | 843 | 161148377 | 160637865 | 1812345.2 | 191160.590 |
| **55** | 1264 | 247355601 | 240861520 | 2217992.8 | 195692.722 |
| **7** | 1598 | 301866519 | 304506890 | 2492780.1 | 188902.703 |
| **47** | 63 | 12058036 | 12004965 | 495955.1 | 191397.397 |
| **127** | 110 | 19916436 | 20961050 | 655302.2 | 181058.509 |
| **153** | 607 | 108350362 | 115666885 | 1538353.7 | 178501.420 |
| **78** | 23 | 4417263.5 | 4382765 | 299680.7 | 192054.935 |
| **158** | 492 | 107987258 | 93753060 | 1385192.2 | 219486.296 |
| **89** | 14 | 2721909 | 2667770 | 233810.5 | 194422.071 |
| **32** | 21 | 3892309 | 4001655 | 286355.6 | 185348.048 |
| **8** | 1515 | 277127313 | 288690825 | 2427444.9 | 182922.318 |
| **10** | 264 | 53668525 | 50306520 | 1014984.7 | 203289.867 |
| **120** | 769 | 140962843 | 146536795 | 1731141.5 | 183306.687 |
| **65** | 59 | 10627018 | 11242745 | 479954.8 | 180118.949 |
| **4** | 509 | 104541359 | 96992495 | 1408888.7 | 205385.774 |
| **42** | 132 | 27024817 | 25153260 | 717826.9 | 204733.462 |
| **83** | 4 | 668800 | 762220 | 124978.6 | 167200.000 |
| **136** | 185 | 38554180 | 35252675 | 849744.6 | 208400.973 |
| **24** | 750 | 144264896 | 142916250 | 1709664.4 | 192353.194 |
| **18** | 167 | 29065727 | 31822685 | 807367.1 | 174046.269 |
| **56** | 65 | 13154654 | 12386075 | 503764.6 | 202379.292 |
| **48** | 20 | 3534554.5 | 3811100 | 279454.8 | 176727.725 |
| **106** | 52 | 10981054 | 9908860 | 450588.4 | 211174.115 |
| **54** | 100 | 19768872 | 19055500 | 624814.4 | 197688.720 |
| **93** | 28 | 5253263.5 | 5335540 | 330651.9 | 187616.554 |
| **116** | 154 | 29178781 | 29345470 | 775319.3 | 189472.604 |
| **91** | 158 | 31943680.5 | 30107690 | 785319.7 | 202175.193 |
| **45** | 47 | 9192281.5 | 8956085 | 428380.9 | 195580.457 |
| **9** | 169 | 31496226.5 | 32203795 | 812185.1 | 186368.204 |
| **145** | 174 | 33475553.5 | 33156570 | 824106.7 | 192388.239 |
| **147** | 184 | 37243653 | 35062120 | 847446.0 | 202411.158 |
| **44** | 101 | 20698290 | 19246055 | 627929.8 | 204933.564 |
| **109** | 175 | 33261644.5 | 33347125 | 826470.4 | 190066.540 |
| **37** | 152 | 28272717.5 | 28964360 | 770270.3 | 186004.720 |
| **140** | 107 | 19224281.5 | 20389385 | 646307.1 | 179666.182 |
| **107** | 54 | 9409909 | 10289970 | 459170.6 | 174257.574 |
| **128** | 137 | 25383608.5 | 26106035 | 731291.0 | 185281.814 |
| **131** | 121 | 22898963 | 23057155 | 687276.9 | 189247.628 |
| **114** | 23 | 4417263.5 | 4382765 | 299680.7 | 192054.935 |
| **118** | 18 | 3009600 | 3429990 | 265114.8 | 167200.000 |
| **159** | 51 | 8717754.5 | 9718305 | 446235.4 | 170936.363 |
| **119** | 103 | 18174372.5 | 19627165 | 634114.8 | 176450.218 |
| **105** | 3 | 501600 | 571665 | 108234.8 | 167200.000 |
| **135** | 101 | 18602190.5 | 19246055 | 627929.8 | 184180.104 |
| **62** | 6 | 1193754.5 | 1143330 | 153066.5 | 198959.083 |
| **138** | 124 | 23019454 | 23628820 | 695741.9 | 185640.758 |
| **129** | 44 | 7928463.5 | 8384420 | 414485.4 | 180192.352 |
| **88** | 34 | 6065909 | 6478870 | 364357.8 | 178409.088 |
| **92** | 24 | 4584463.5 | 4573320 | 306125.8 | 191019.313 |
| **111** | 68 | 13084590.5 | 12957740 | 515256.8 | 192420.449 |
| **113** | 104 | 18722681.5 | 19817720 | 637184.8 | 180025.784 |
| **73** | 13 | 2364154.5 | 2477215 | 225305.7 | 181858.038 |
| **36** | 52 | 11933826.5 | 9908860 | 450588.4 | 229496.663 |
| **28** | 3 | 692154.5 | 571665 | 108234.8 | 230718.167 |
| **35** | 75 | 14445545 | 14291625 | 541122.9 | 192607.267 |
| **59** | 127 | 25998262.5 | 24200485 | 704105.1 | 204710.728 |
| **53** | 32 | 6684281.5 | 6097760 | 353479.9 | 208883.797 |
| **148** | 77 | 14398836 | 14672735 | 548288.9 | 186997.870 |
| **133** | 85 | 14974218 | 16197175 | 576061.7 | 176167.271 |
| **108** | 38 | 6544154.5 | 7241090 | 385192.8 | 172214.592 |
| **64** | 89 | 15833572.5 | 16959395 | 589457.2 | 177905.309 |
| **39** | 10 | 1862554.5 | 1905550 | 197607.0 | 186255.450 |
| **94** | 46 | 9406190.5 | 8765530 | 423799.8 | 204482.402 |
| **132** | 62 | 11128618 | 11814410 | 492003.9 | 179493.839 |
| **46** | 16 | 2675200 | 3048880 | 249953.3 | 167200.000 |
| **81** | 14 | 3103018 | 2667770 | 233810.5 | 221644.143 |
| **103** | 72 | 13753390.5 | 13719960 | 530192.1 | 191019.313 |
| **90** | 26 | 5681081.5 | 4954430 | 318625.0 | 218503.135 |
| **51** | 12 | 2196954.5 | 2286660 | 216467.0 | 183079.542 |
| **27** | 3 | 692154.5 | 571665 | 108234.8 | 230718.167 |
| **146** | 16 | 2675200 | 3048880 | 249953.3 | 167200.000 |
| **63** | 19 | 3367354.5 | 3620545 | 272379.2 | 177229.184 |
| **96** | 16 | 2675200 | 3048880 | 249953.3 | 167200.000 |
| **40** | 15 | 2889109 | 2858325 | 242016.6 | 192607.267 |
| **66** | 18 | 3200154.5 | 3429990 | 265114.8 | 177786.361 |
| **100** | 8 | 1718709 | 1524440 | 176745.5 | 214838.625 |
| **95** | 9 | 1504800 | 1714995 | 187466.7 | 167200.000 |
| **123** | 1 | 357754.5 | 190555 | 62489.6 | 357754.500 |
| **98** | 21 | 3701754.5 | 4001655 | 286355.6 | 176274.024 |
| **75** | 2 | 334400 | 381110 | 88373.5 | 167200.000 |
| **69** | 6 | 1193754.5 | 1143330 | 153066.5 | 198959.083 |
| **130** | 22 | 4059509 | 4192210 | 293093.9 | 184523.136 |
| **134** | 10 | 1672000 | 1905550 | 197607.0 | 167200.000 |
| **49** | 14 | 2721909 | 2667770 | 233810.5 | 194422.071 |
| **97** | 13 | 2364154.5 | 2477215 | 225305.7 | 181858.038 |
| **38** | 10 | 1672000 | 1905550 | 197607.0 | 167200.000 |
| **17** | 16 | 3246863.5 | 3048880 | 249953.3 | 202928.969 |
| **110** | 11 | 2029754.5 | 2096105 | 207251.7 | 184523.136 |
| **80** | 14 | 3103018 | 2667770 | 233810.5 | 221644.143 |
| **71** | 5 | 836000 | 952775 | 139730.2 | 167200.000 |
| **117** | 7 | 1170400 | 1333885 | 165330.5 | 167200.000 |
| **58** | 9 | 1695354.5 | 1714995 | 187466.7 | 188372.722 |
| **20** | 27 | 5086063.5 | 5144985 | 324694.2 | 188372.722 |
| **76** | 4 | 668800 | 762220 | 124978.6 | 167200.000 |
| **104** | 5 | 836000 | 952775 | 139730.2 | 167200.000 |
| **87** | 7 | 1551509 | 1333885 | 165330.5 | 221644.143 |
| **84** | 1 | 167200 | 190555 | 62489.6 | 167200.000 |
| **137** | 8 | 1337600 | 1524440 | 176745.5 | 167200.000 |
| **126** | 5 | 836000 | 952775 | 139730.2 | 167200.000 |
| **68** | 4 | 859354.5 | 762220 | 124978.6 | 214838.625 |
| **67** | 4 | 668800 | 762220 | 124978.6 | 167200.000 |
| **101** | 7 | 1551509 | 1333885 | 165330.5 | 221644.143 |
| **115** | 4 | 668800 | 762220 | 124978.6 | 167200.000 |
| **57** | 5 | 1026554.5 | 952775 | 139730.2 | 205310.900 |
| **82** | 4 | 668800 | 762220 | 124978.6 | 167200.000 |
| **79** | 6 | 1003200 | 1143330 | 153066.5 | 167200.000 |
| **112** | 2 | 334400 | 381110 | 88373.5 | 167200.000 |
| **99** | 7 | 1170400 | 1333885 | 165330.5 | 167200.000 |
| **70** | 4 | 668800 | 762220 | 124978.6 | 167200.000 |
| **2** | 4 | 859354.5 | 762220 | 124978.6 | 214838.625 |
| **34** | 3 | 501600 | 571665 | 108234.8 | 167200.000 |
| **33** | 3 | 501600 | 571665 | 108234.8 | 167200.000 |
| **74** | 2 | 334400 | 381110 | 88373.5 | 167200.000 |
| **102** | 3 | 501600 | 571665 | 108234.8 | 167200.000 |
| **149** | 1 | 167200 | 190555 | 62489.6 | 167200.000 |
| **43** | 1 | 357754.5 | 190555 | 62489.6 | 357754.500 |
| **6** | 3 | 501600 | 571665 | 108234.8 | 167200.000 |
| **50** | 2 | 334400 | 381110 | 88373.5 | 167200.000 |
| **144** | 1 | 167200 | 190555 | 62489.6 | 167200.000 |
| **143** | 1 | 167200 | 190555 | 62489.6 | 167200.000 |
| **41** | 1 | 167200 | 190555 | 62489.6 | 167200.000 |

| **Kruskal-Wallis Test** | | |
| --- | --- | --- |
| **Chi-Square** | **DF** | **Pr > ChiSq** |
| 26446.9635 | 154 | <.0001 |

Chart

Description automatically generated