Information for Exam #4

- The exam covers chapters 8-11 and consists of 11 questions. The highest possible score is 146. This means there are 6 points of extra credit. 😊😊😊

- There is one question asking for a definition. This definition will be one of the concepts in bold print from the section 8.2 handout. (6 points)

- There is one P-value hypothesis test problem. You will be required to fill out a template for this problem. (25 points)

- There are 5 traditional method hypothesis test problems covering chapters 8-11. You will be required to fill out a template for each of these problems. (20 points, 20 points, 20 points, 20 points, 15 points)

- The remaining 4 questions are based on sections 10.2 (Correlation) and 10.3 (Regression). (20 points total)

Important

- You should be able to do ALL of the hypothesis test problems on the remaining pages of this handout using the traditional method. In addition, you should be able to do problems 1, 2, 4, 5, and 6 on page 2 and problem 8 on page 3 using both the traditional method and the P-value method.

- The problems and answers on the remaining pages of this handout were created and typed by the author of our textbook, Marty Triola. I am not responsible for any errors. If you happen to find any errors, please let me know ASAP.

- Please keep in mind that the author’s answers are based on a different set of rounding rules than we use in class.

- The answers begin on page 7 of this handout.
Chapter 8

1. **Birds and Aircraft** Environmental concerns often conflict with modern technology, as is the case with birds that pose a hazard to aircraft during takeoff. An environmental group states that incidents of bird strikes are too rare to justify killing the birds. A pilot’s group claims that among aborted takeoffs leading to aircraft going off the end of the runway, more than 5% are due to bird strikes. Use a 0.02 significance level to test that claim made by the pilot’s group. Sample data consist of 74 aborted takeoffs in which the aircraft overran the runway. Among those 74 cases, 6 were due to bird strikes (based on data from the Air Line Pilots Association and Boeing).

2. **Testing Medium** A study was conducted to determine whether a standard clerical test would need revision for use on video display terminals (VDTs). The VDT scores of 35 subjects have a mean of 170.2. Based on previous tests, it can be assumed that the population standard deviation is known to be 35.3 (based on data from "Modification of the Minnesota Clerical Test to Predict Performance on Video Display Terminals," by Silver and Bennett, *Journal of Applied Psychology*, Vol. 72, No. 1). At the 0.05 level of significance, test the claim that the mean for all subjects taking the VDT test differs from the mean of 243.5 for the standard printed version of the test. Based on the result, should the VDT test be revised?

3. **Cigarette Nicotine** The Carolina Tobacco Company has been producing its best-selling cigarettes so that they contain a mean of 49.0 mg of nicotine. Using a new production method, it is found that for 10 randomly selected cigarettes, the mean is 43.3 mg, the standard deviation is 3.8 mg, and the nicotine amounts appear to come from a normally distributed population. The sample is small because the laboratory work required to extract the nicotine is time consuming and expensive. Use a significance level of $\alpha = 0.01$ to test the claim that with the new production method, the mean nicotine content is less than 49.0 mg.

4. **Children and McDonald’s** In a *Sports Illustrated for Kids* survey of 603 children, 43% preferred McDonald’s for fast food. The next highest rating went to Taco Bell, preferred by 13% of the children. An advertising executive claims that McDonald’s is preferred by less than half of all children. Test that claim using a 0.05 significance level.

5. **Job Satisfaction** In a study of job satisfaction, 51 college administrators were given a standardized survey to measure satisfaction with their work. Their mean is 39.213. Based on previous studies, assume that $\sigma = 7.567$ (based on data from” Job Satisfaction Among Academic Administrators,” by Click, *Research in Higher Education*, Vol. 33, No. 5). Use a 0.05 significance level to test the claim that the mean for all college administrators is 47.0, the national norm for people of comparable education levels.

6. **Lawsuit Costs** According to a Harris poll, 71% of Americans believe that the cost of lawsuits is too high. If you survey 500 randomly selected Americans and find that 370 of them hold that belief, do you have sufficient evidence to reject the claim that the actual percentage is 71%? Use a significance level of $\alpha = 0.05$.

7. **Baseballs** When home runs abound in baseball, there are often charges that the new baseballs are "juiced" to travel farther. Tests of the old balls showed that when dropped 24 ft onto a concrete surface, they bounced an average of 92.84 in. In a test of a sample of 40 new balls, the bounce heights had a mean of 92.67 in. and a standard deviation of 1.79 in. (based on data from Brookhaven National Laboratory and USA Today). Use a 0.05 significance level to test the claim that the new balls have bounce heights with a mean that is different from 92.84 in. Are these new baseballs "juiced"?
8. **Engine Failure** In a study of distances traveled by buses before the first major engine failure, a sampling of 40 buses resulted in a mean of 96,700 miles. Based on previous studies, it can be assumed that the population standard deviation is 37,500 miles (based on data in *Technometrics*, Vol. 22, No. 4). Use a 0.01 significance level to test the manufacturer’s claim that the mean distance traveled before a major engine failure is more than 90,000 miles.

9. **Birth Weights** Listed below are birth weights (in kilograms) of male babies born to mothers on a special vitamin supplement (based on data from the New York State Department of Health). Based on analyses of these sample weights, it can be assumed that the weights are from a population having a normal distribution. Use a 0.05 significance level to test the claim that the mean birth weight for all male babies born to mothers given the vitamins is equal to 3.39 kg, which is the mean for the population of all male babies. Based on the result, does the vitamin supplement appear to have an effect on birth weight?

3.73 4.37 3.73 4.33 3.39 3.68 4.68 3.52

Chapter 9

*For hypothesis tests involving two independent samples, do not assume that the population standard deviations are equal.*

1. **Pretest and Posttest** A teacher proposes a course designed to increase reading speed and comprehension. To evaluate the effectiveness of this course, the teacher tests students before and after the course; the sample results follow. Use a 0.05 significance level to test the claim that the course has no effect. Assume that the differences between pretest and posttest scores are from a population having a normal distribution.

<table>
<thead>
<tr>
<th>Student</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>100</td>
<td>170</td>
<td>135</td>
<td>167</td>
<td>200</td>
<td>118</td>
<td>127</td>
<td>95</td>
<td>112</td>
<td>136</td>
</tr>
<tr>
<td>Posttest</td>
<td>136</td>
<td>160</td>
<td>120</td>
<td>169</td>
<td>200</td>
<td>140</td>
<td>163</td>
<td>101</td>
<td>138</td>
<td>129</td>
</tr>
</tbody>
</table>

2. **Advertising** The Malloy Advertising Company has prepared two different television commercials for Taylor’s women’s jeans. One commercial is humorous, and the other is serious. A test screening involves eight consumers who are asked to rate the commercials by using a standard scale with higher scores indicating more favorable responses. The results are listed below. Using a 0.05 significance level, test the claim that the differences between the ratings of the commercials have a mean of 0. Based on the results, does one commercial appear to be better? (Assume that the differences between the ratings for each consumer are from a population having a normal distribution.)

<table>
<thead>
<tr>
<th>Consumer</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humorous Commercial</td>
<td>26.2</td>
<td>20.3</td>
<td>25.4</td>
<td>19.6</td>
<td>21.5</td>
<td>28.3</td>
<td>23.7</td>
<td>24.0</td>
</tr>
<tr>
<td>Serious Commercial</td>
<td>24.1</td>
<td>21.3</td>
<td>23.7</td>
<td>18.0</td>
<td>20.1</td>
<td>25.8</td>
<td>22.4</td>
<td>21.4</td>
</tr>
</tbody>
</table>
3. **Weights of Men** As part of the National Health Survey, data were collected on the weights of men. The sample data are listed below. Using a 0.01 significance level, test the claim that the older men come from a population with a mean that is less than the mean for men in the 25-34 age bracket.

<table>
<thead>
<tr>
<th>Men Aged 25-34</th>
<th>Men Aged 65-74</th>
</tr>
</thead>
<tbody>
<tr>
<td>( n = 804 )</td>
<td>( n = 1657 )</td>
</tr>
<tr>
<td>( \bar{x} = 176 \text{ lb} )</td>
<td>( \bar{x} = 164 \text{ lb} )</td>
</tr>
<tr>
<td>( s = 35.0 \text{ lb} )</td>
<td>( s = 27.0 \text{ lb} )</td>
</tr>
</tbody>
</table>

4. **Education Pays** A study of the economic effects of education included annual incomes of women with a high school diploma and women with a college degree. A random sample of 85 women with high school diplomas has a mean annual income of $28,598 and a standard deviation of $8441. A random sample of 120 women with college diplomas has a mean of $46,765 and a standard deviation of $12,469. Using a 0.05 significance level, test the claim that women with a college degree have a higher mean annual income.

5. **Crash Tests** In low-speed crash tests of five BMW cars, the repair costs were obtained for a factory authorized repair centers and an independent repair facility. The results are listed below. Is there sufficient evidence to support the claim that the independent center has lower repair costs? Use a 0.01 significance level. (Assume that the differences between costs at the authorized repair center and the corresponding costs at the independent repair center are from a population having a normal distribution.)

<table>
<thead>
<tr>
<th>BMW Car</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorized Repair Center</td>
<td>$797</td>
<td>$671</td>
<td>$904</td>
<td>$1147</td>
<td>$418</td>
</tr>
<tr>
<td>Independent Repair Center</td>
<td>$523</td>
<td>$488</td>
<td>$928</td>
<td>$911</td>
<td>$297</td>
</tr>
</tbody>
</table>

6. **Peanut and Plain M&Ms** A random sample of 21 peanut M&M candies is selected from a normally distributed population, and each candy is weighed. The mean is 2.4658 g and the standard deviation is 0.3127 g. A random sample of 100 plain M&Ms is selected and has a mean of 0.9147 g and a standard deviation of 0.0369 g. Is there sufficient evidence to support the claim that there is a difference between the mean weight of peanut M&Ms and the mean weight of plain M&Ms? Use a 0.05 significance level.

**Chapter 10**

1. **Car Fuel Consumption and Weight** Randomly selected cars were weighed, and the highway fuel consumption amounts (in miles/gal) were determined. For 20 cars, the linear correlation coefficient is found to be \( r = -0.874 \) and the equation of the regression line is \( \hat{y} = 50.0 - 0.00628x \), where \( x \) is the weight in pounds. Also, the 20 cars have a mean weight of 3232 lb and a mean highway fuel consumption amount of 29.7 mi/gal. What is the best predicted value for the highway fuel consumption amount for a car that weighs 3500 lb? Use a 0.01 level of significance.
2. **Cigarettes and Psychiatrists**  The following table lists per capita cigarette consumption in the United States for various years, along with the percent (in percentage points) of the population admitted to mental institutions as psychiatric cases.

a. Find the value of the linear correlation coefficient $r$, and test for a linear correlation by using a 0.05 significance level.

b. Find the equation of the regression line.

c. What is the best predicted value for the percentage of psychiatric admissions, given a year in which the per capita cigarette consumption is 4000?

<table>
<thead>
<tr>
<th>Cigarette consumption</th>
<th>Psychiatric admissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>3522</td>
<td>0.20</td>
</tr>
<tr>
<td>3597</td>
<td>0.22</td>
</tr>
<tr>
<td>4171</td>
<td>0.23</td>
</tr>
<tr>
<td>4258</td>
<td>0.29</td>
</tr>
<tr>
<td>3993</td>
<td>0.31</td>
</tr>
<tr>
<td>3971</td>
<td>0.33</td>
</tr>
<tr>
<td>4042</td>
<td>0.33</td>
</tr>
<tr>
<td>4053</td>
<td>0.32</td>
</tr>
</tbody>
</table>

3. **Calories and Bicycling** Randomly selected subjects ride a bicycle at 5.5 mi/h for one minute. Their weights (in pounds) are given with the numbers of calories used (based on data from *Diet Free*, by Kuntzlemann).

a. Find the value of the linear correlation coefficient $r$, and test for a linear correlation by using a 0.05 significance level.

b. Find the equation of the regression line.

c. What is the best predicted value for the calories used, given that a 150 lb bicyclist rides at 5.5 mi/h for one minute?

<table>
<thead>
<tr>
<th>Weight (pounds)</th>
<th>Calories Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>167</td>
<td>4.23</td>
</tr>
<tr>
<td>191</td>
<td>4.69</td>
</tr>
<tr>
<td>112</td>
<td>3.21</td>
</tr>
<tr>
<td>129</td>
<td>3.47</td>
</tr>
<tr>
<td>140</td>
<td>3.72</td>
</tr>
<tr>
<td>173</td>
<td>4.45</td>
</tr>
<tr>
<td>119</td>
<td>3.36</td>
</tr>
</tbody>
</table>

4. **Discarded Paper and Household Size** A random sample consists of 10 households, and the weight (in pounds) of discarded paper and the household size (number of persons) is found for each household. The linear correlation coefficient is found to be $r = 0.469$ and the equation of the regression line is $\hat{y} = 1.64 + 0.220x$, where $x$ is the weight of discarded paper in pounds. Also, the 10 households discarded a mean weight of 9.43 lb of paper and their mean household size is 3.70 persons. What is the best predicted household size for a household that discards 5.00 lb of paper? Use a 0.01 level of significance.

5. **Duration and Heights of Geyser Eruptions** When 15 eruptions of the Old Faithful Geyser were randomly selected, their heights (in feet) and duration times (in seconds) were obtained. It was found that the linear correlation coefficient is $r = -0.349$ and the equation of the regression line is $\hat{y} = 513 - 2.07x$, where $x$ is the height in feet. Also, the 15 eruptions have a mean height of 145 ft and they have a mean duration time of 212 sec. What is the best predicted value for the duration time of an eruption with a height of 180 ft? Use a 0.05 level of significance.

6. **DWI** A study was conducted to investigate the relationship between age (in years) and BAC (blood alcohol concentration) measured when DWI jail inmates were first arrested. Sample data are given below for randomly selected subjects. (based on data from the Dutchess County STOP-DWI Program). Based on the result, does the BAC level seem to be linearly correlated to the age of the person tested?

a. Find the value of the linear correlation coefficient $r$, and test for a linear correlation by using a 0.05 significance level.
b. Find the equation of the regression line.

c. What is the best predicted value for the BAC level of a DWI jail inmate, given that the age at the time of arrest is 80.0 years?

<table>
<thead>
<tr>
<th>Age</th>
<th>BAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.2</td>
<td>0.19</td>
</tr>
<tr>
<td>43.5</td>
<td>0.20</td>
</tr>
<tr>
<td>30.7</td>
<td>0.26</td>
</tr>
<tr>
<td>53.1</td>
<td>0.16</td>
</tr>
<tr>
<td>37.2</td>
<td>0.24</td>
</tr>
<tr>
<td>21.0</td>
<td>0.20</td>
</tr>
<tr>
<td>27.6</td>
<td>0.18</td>
</tr>
<tr>
<td>46.3</td>
<td>0.23</td>
</tr>
</tbody>
</table>

Chapter 11

1. **Testing Effectiveness of Bicycle Helmets** A study was conducted of 531 persons injured in bicycle crashes, and randomly selected sample results are summarized in the table (based on data from “A Case-Control Study of the Effectiveness of Bicycle Safety Helmets in Preventing Facial Injury,” by Thompson, Thompson, Rivara, and Wolf, *American Journal of Public Health*, Vol. 80, No. 12). At the 0.05 significance level, test the claim that wearing a helmet is independent of whether facial injuries are received. Based on these results, does a helmet seem to be effective in helping to prevent facial injuries in a crash?

<table>
<thead>
<tr>
<th>Helmet Worn</th>
<th>No Helmet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facial injuries received</td>
<td>30</td>
</tr>
<tr>
<td>All injuries nonfacial</td>
<td>83</td>
</tr>
</tbody>
</table>

2. **Is Gender Independent of Confidence in Police?** A survey was conducted to determine whether there is a gender gap in the confidence people have in police, or whether the confidence levels are independent of gender. The sample results are listed in the accompanying table (based on data from the U.S. Department of Justice and the Gallup Organization). Use a 0.05 level of significance to test the claim that the confidence level in police is independent of gender. What does the result suggest about a gender gap?

<table>
<thead>
<tr>
<th>Confidence in Police</th>
<th>Great Deal</th>
<th>Some</th>
<th>Very Little or None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>115</td>
<td>56</td>
<td>29</td>
</tr>
<tr>
<td>Women</td>
<td>175</td>
<td>94</td>
<td>31</td>
</tr>
</tbody>
</table>

Answers start on the next page.
Answers - Chapter 8

1. $H_0: p = 0.05$. $H_1: p > 0.05$.
   Test statistic: $z = 1.23$. Critical value: $z = 2.05$. ($P$-value = 0.1093 and 0.1093 > 0.02.)
   Fail to reject $H_0$. There is not sufficient evidence to support the claim that among aborted takeoffs leading to aircraft going off the end of the runway, more than 5% are due to bird strikes.

2. $H_0: \mu = 243.5$. $H_1: \mu \neq 243.5$.
   Test statistic: $z = -12.28$. Critical values: $z = \pm 1.96$. ($P$-value = 0.0002 and 0.0002 < 0.05.)
   Reject $H_0$. There is sufficient evidence to support the claim that the mean for subjects from the VDT test is different from 243.5. Because the mean does appear to be different for the different medium, the VDT test should be revised so that scores reflect clerical skills and not the testing medium.

3. $H_0: \mu = 49.0$. $H_1: \mu < 49.0$.
   Test statistic: $t = -4.74$. Critical value: $t = -2.821$.
   Reject $H_0$. There is sufficient evidence to support the claim that with the new production method, the mean nicotine content is less than 49.0 mg.

   Test statistic: $z = -3.44$. Critical value: $z = -1.645$. ($P$-value = 0.0003 and 0.0003 < 0.05.)
   Reject $H_0$. There is sufficient evidence to support the claim that McDonald’s is preferred by less than half of all children.

5. $H_0: \mu = 47.0$. $H_1: \mu \neq 47.0$.
   Test statistic: $z = -7.35$. Critical values: $z = \pm 1.96$. ($P$-value = 0.0002 and 0.0002 < 0.05.)
   Reject $H_0$. There is sufficient evidence to warrant rejection of the claim that the mean for all college administrators is 47.0.

6. $H_0: p = 0.71$. $H_1: p \neq 0.71$.
   Test statistic: $z = 1.48$. Critical values: $z = \pm 1.96$. ($P$-value = 0.1388 and 0.1388 > 0.05.)
   Fail to reject $H_0$. There is not sufficient evidence to warrant rejection of the claim that 71% of Americans believe that the cost of lawsuits is too high.

7. $H_0: \mu = 92.84$ in. $H_1: \mu \neq 92.84$ in.
   Test statistic: $t = -0.60$. Critical values: $t = \pm 2.023$.
   Fail to reject $H_0$. There is not sufficient evidence to support the claim that the new baseballs have bounce heights with a mean different from 92.84 in. The new baseballs do not appear to be juiced.

8. $H_0: \mu = 90,000$ miles. $H_1: \mu > 90,000$ miles.
   Test statistic: $z = 1.13$. Critical value: $z = 2.33$. ($P$-value = 0.1292 and 0.1292 > 0.01.)
   Fail to reject $H_0$. There is not sufficient evidence to support the claim that the mean distance traveled before a major engine failure is more than 90,000 miles.

9. $H_0: \mu = 3.39$ kg. $H_1: \mu \neq 3.39$ kg.
   Test statistic: $t = 3.27$. Critical values: $t = \pm 2.365$.
   Reject $H_0$. There is sufficient evidence to warrant rejection of the claim that the mean birth weight for male babies born to mothers given the vitamin treatment is equal to 3.39 kg. The vitamin supplement does appear to have an effect on birth weight.
Answers - Chapter 9

1. $\bar{d} = -9.6$ and $s_d = 18.98654$. $H_0: \mu_d = 0$. $H_1: \mu_d \neq 0$.
   Test statistic: $t = -1.60$. Critical values: $t = \pm2.262$.
   Fail to reject $H_0$. There is not sufficient evidence to warrant rejection of the claim that the course has no effect.

2. $\bar{d} = 1.525$ and $s_d = 1.128526$. $H_0: \mu_d = 0$. $H_1: \mu_d \neq 0$.
   Test statistic: $t = 3.82$. Critical values: $t = \pm2.365$.
   Reject $H_0$. There is sufficient evidence to warrant rejection of the claim that the differences between the ratings of the commercials have a mean of 0. Because there does appear to be a difference and because the humorous commercials have generally higher ratings, it appears that the humorous commercials are better.

3. $H_0: \mu_1 = \mu_2$. $H_1: \mu_1 > \mu_2$.
   Reject $H_0$. There is sufficient evidence to support the claim that the older men have a mean weight that is less than the mean for the younger men.

4. $H_0: \mu_1 = \mu_2$. $H_1: \mu_1 < \mu_2$ (where Population 1 is the high school graduates).
   Test statistic: $t = -12.44$. Critical value: $t = -1.664$.
   Reject $H_0$. There is sufficient evidence to support the claim that women with a college degree have a higher mean annual income.

5. $\bar{d} = 158$ and $s_d = 116.8953$. $H_0: \mu_d = 0$. $H_1: \mu_d > 0$.
   Fail to reject $H_0$. There is not sufficient evidence to support the claim that the independent center has lower repair costs.

6. $H_0: \mu_1 = \mu_2$. $H_1: \mu_1 \neq \mu_2$.
   Test statistic: $t = 22.70$. Critical values: $t = \pm2.086$.
   Reject $H_0$. There is sufficient evidence to support the claim that there is a difference between the mean weight of peanut M&Ms and the mean weight of plain M&Ms.

Answers - Chapter 10

1. 28.0 mi/gal (Because the critical $r$ values are $\pm0.561$, there is a linear correlation, so use the regression equation for predictions.)

2. a. $H_0: \rho = 0$. $H_1: \rho \neq 0$.
   Test statistic: $r = 0.600$. Critical values: $r = \pm0.707$.
   Fail to reject $H_0$ and conclude that there is not sufficient evidence to support a linear correlation.

   b. $\hat{y} = -0.210 + 0.000124x$

   c. 0.279 percentage points
3. a. $H_0: \rho = 0. \ H_1: \rho \neq 0.$
   Test statistic: $r = 0.997.$ Critical values: $r = \pm 0.754.$
   Reject $H_0$ and conclude that there is a linear correlation.

b. $\hat{y} = 1.04 + 0.0193x$

c. 3.93 calories

4. 3.70 persons (Because the critical $r$ values are $\pm 0.765$, there is not sufficient evidence to support a linear correlation, so do not use the regression equation for predictions.)

5. 212 sec (Because the critical $r$ values are $\pm 0.514$, there is not sufficient evidence to support a linear correlation, so do not use the regression equation for predictions.)

6. a. $H_0: \rho = 0. \ H_1: \rho \neq 0.$
   Test statistic: $r = -0.0692.$ Critical values: $r = \pm 0.707.$
   Fail to reject $H_0$ and conclude that there is not sufficient evidence to support a linear correlation.

b. $\hat{y} = 0.214 - 0.000182x$

c. 0.21 (not 0.20)

**Answers - Chapter 11**

1. $H_0$: Wearing a helmet is independent of receiving facial injuries.
   $H_1$: Wearing a helmet is dependent of receiving facial injuries.
   Reject $H_0$
   There is sufficient evidence to warrant rejection of the claim that wearing a helmet is independent of whether facial injuries are received. Because wearing a helmet and receiving facial injuries appear to be dependent, and because the rate of facial injuries among helmet-wearers is so much less than among those not wearing helmets, it does appear that wearing a helmet is effective in helping to prevent facial injuries in a crash.

2. $H_0$: Gender is independent of the level of confidence in police.
   $H_1$: Gender is dependent of the level of confidence in police.
   Test statistic: $\chi^2 = 2.195.$ Critical value: $\chi^2 = 5.991.$
   Fail to reject $H_0$.
   There is not sufficient evidence to warrant rejection of the claim that the confidence level in police is independent of gender. Based on that result, there does not appear to be a gender gap in the confidence that people have in police.