

3.25 作业

1.3 (1) 全国居民

	全国居民	农村居民	城镇居民
\bar{x}	1117.	747.8136	2336.4091
S^2	1031680.2857	399673.3377	4536136.4437
S	1015.7166	632.1976	2129.82075
$\frac{S}{\bar{x}} = CV$	0.9093	0.8453	0.91158
偏差 g_1	0.9536	0.9422	0.9030
偏差 g_2	-0.6206	-0.616043	-0.7118

(2) 全国居民

	全国居民	农村居民	城镇居民
M	727.5	530.5	1499.5
$M_{0.25} = Q_1$	311	246	603
$M_{0.75} = Q_3$	1331	855	3027
$Q_3 - Q_1 = R_1$	1020	609	2424
$\frac{1}{4}Q_1 + \frac{1}{2}M + \frac{1}{4}Q_3 = M'$	774.25	540.5	1657.25

1.4 (1)

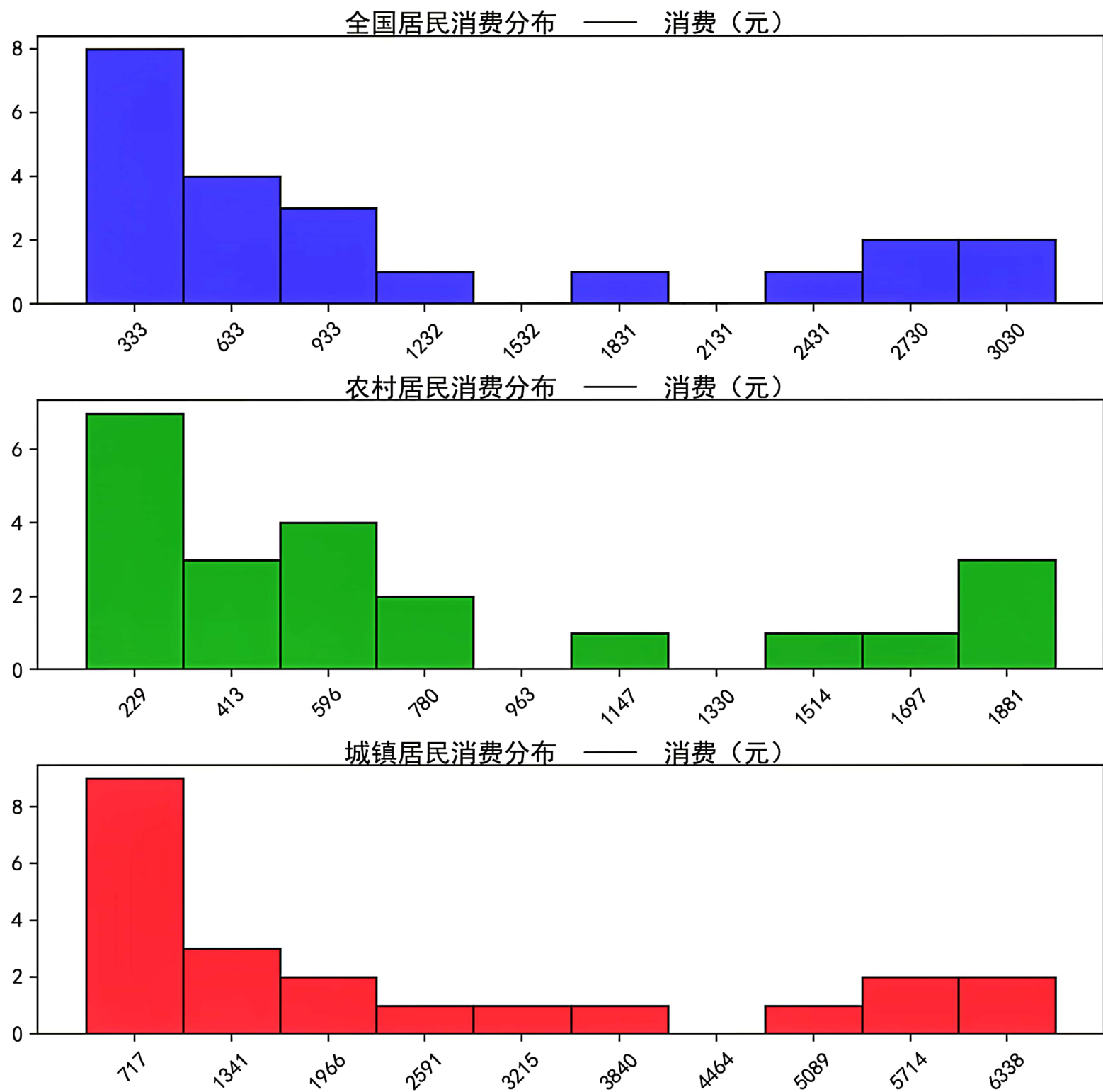
	11月	1-11月
\bar{x}	19.1665	246.1932
S^2	392.03075	54275.99825
S	19.7998	232.9721
$\frac{S}{\bar{x}} = CV$	1.03304	0.9463
g_1	2.39197	1.8220
g_2	6.804995	3.521676

(2) M

M	14.77	179.41
$M_{0.25} = Q_1$	6.24	103.81
$M_{0.75} = Q_3$	19.82	268.2
$Q_3 - Q_1 = R_1$	13.58	164.39

Figure 1

— □ ×



城市的茎叶图

茎 | 叶

40 | 5
 43 | 4
 49 | 6
 56 | 2
 57 | 6
 60 | 3
 66 | 2
 80 | 2
 92 | 0
 108 | 9
 143 | 1
 156 | 8
 168 | 6
 192 | 5
 235 | 6
 302 | 7
 389 | 1
 487 | 4
 543 | 0
 579 | 6
 621 | 7
 665 | 1

农村的茎叶图

茎 | 叶

13 | 8
 15 | 8
 17 | 8
 19 | 9
 22 | 1
 24 | 6
 28 | 3
 34 | 7
 37 | 6
 41 | 7
 50 | 8
 55 | 3
 57 | 1
 62 | 1
 71 | 8
 85 | 5
 111 | 8
 143 | 4
 176 | 8
 187 | 6
 189 | 5
 197 | 3

全国的茎叶图

茎 | 叶

18 | 4
 20 | 7
 23 | 6
 26 | 2
 28 | 4
 31 | 1
 35 | 4
 43 | 7
 48 | 5
 55 | 0
 69 | 3
 76 | 2
 80 | 3
 89 | 6
 107 | 0
 133 | 1
 174 | 6
 233 | 6
 264 | 1
 283 | 4
 297 | 2
 318 | 0

3.28 作业.

1.3 (3). 直方图, PT画

(4) 茎叶图 PT画

(5) $Q_1 - 1.5R_1 < \quad < Q_3 + 1.5R_1$

全国: $311 - \frac{3}{2} \times 1020 < \quad < 1331 + \frac{3}{2} \times 1020$

$\Rightarrow -1119 < \quad < 2861$

异常值: 2972, 3180

农村: $246 - 609 \times \frac{3}{2} < \quad < 855 + 609 \times \frac{3}{2}$

$\Rightarrow -0 < \quad < 1768.5$

异常值: 1876, 1895 1973.

城镇: $603 - 2424 \times \frac{3}{2} < \quad < 3027 + 2424 \times \frac{3}{2}$

$\Rightarrow -0 < \quad < 6663$

无异常值.

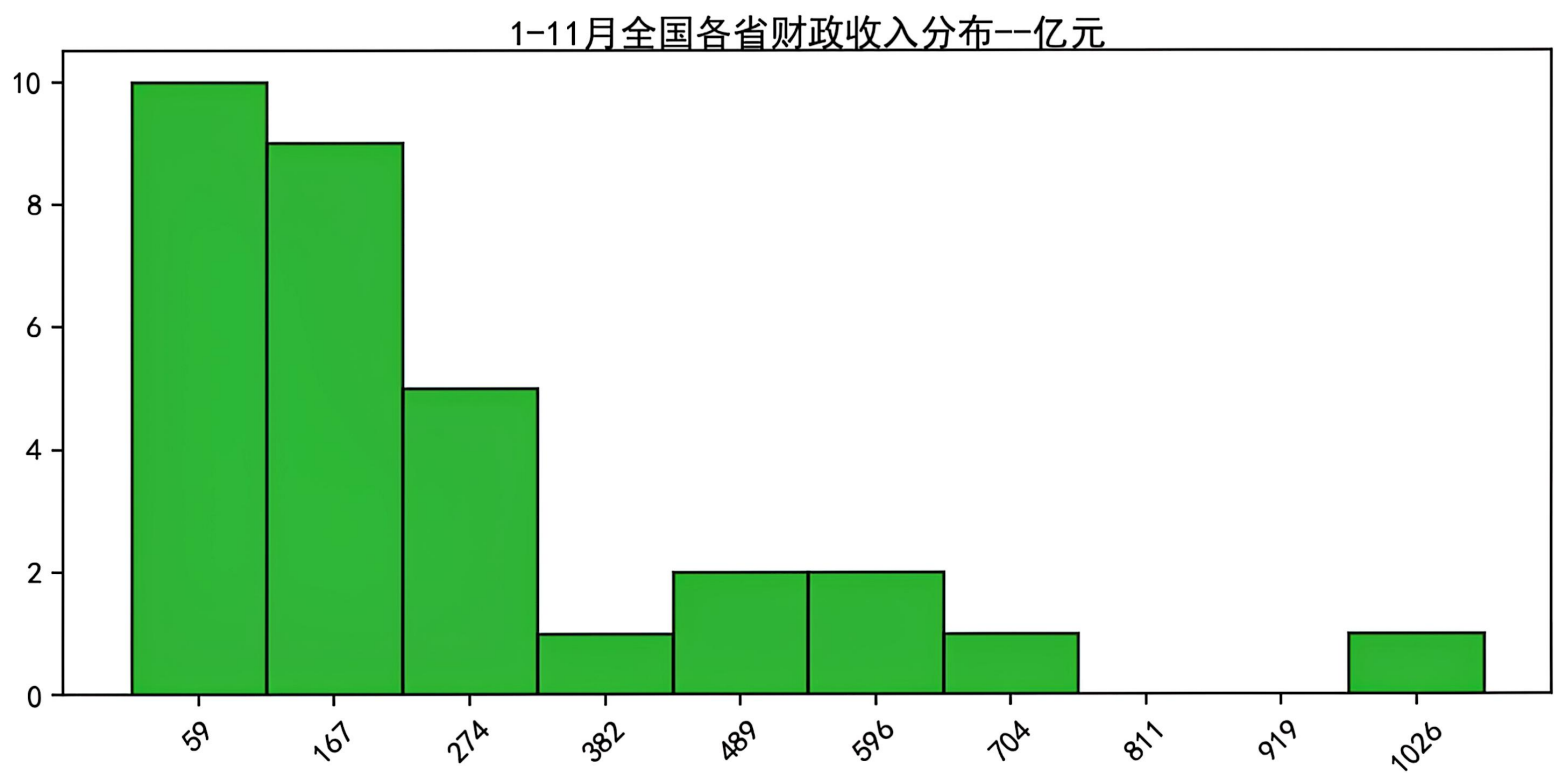
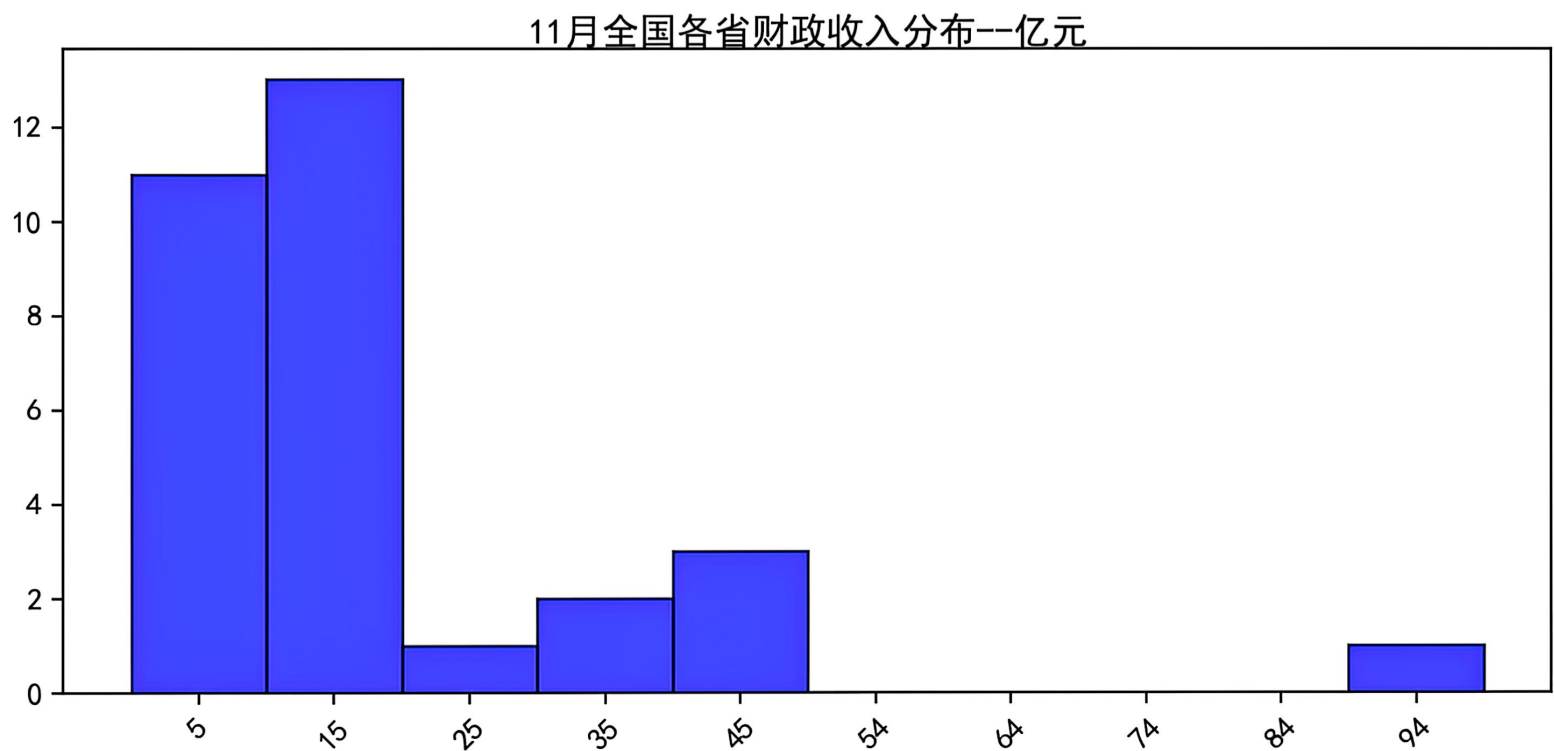
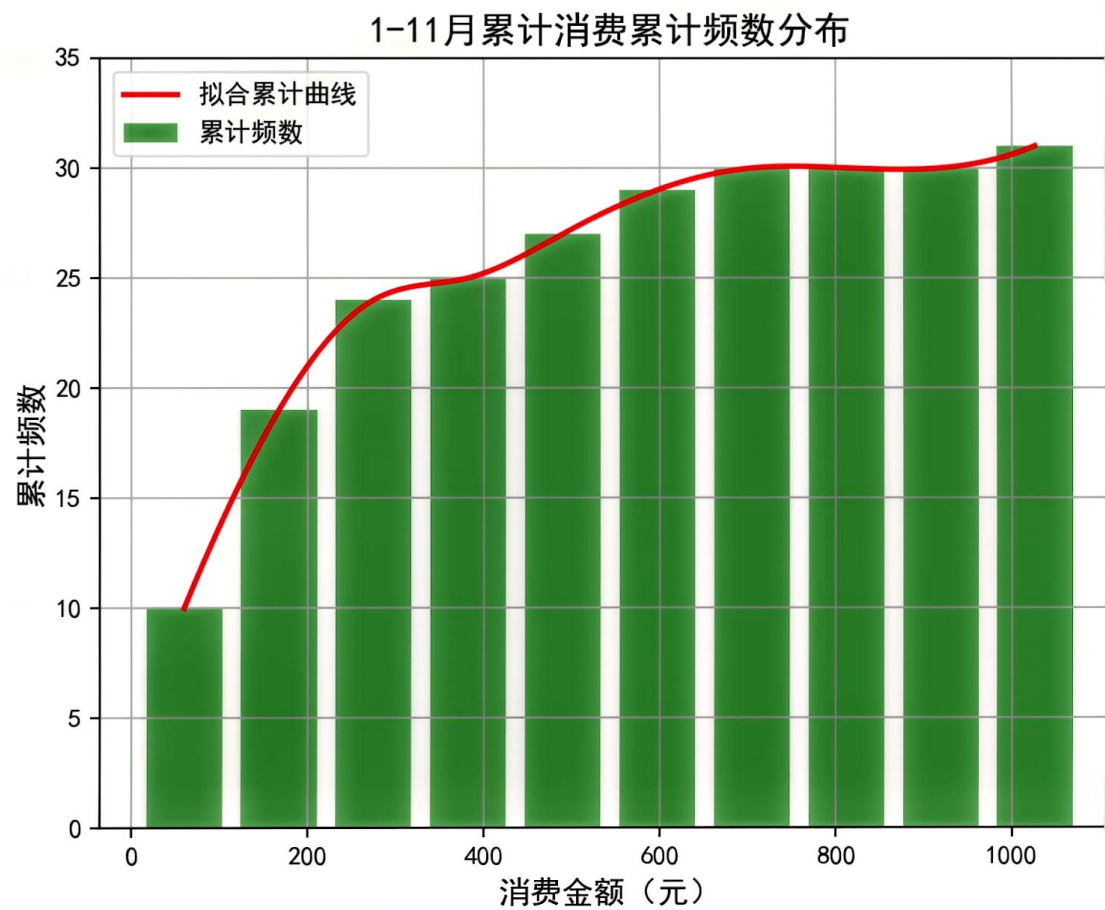
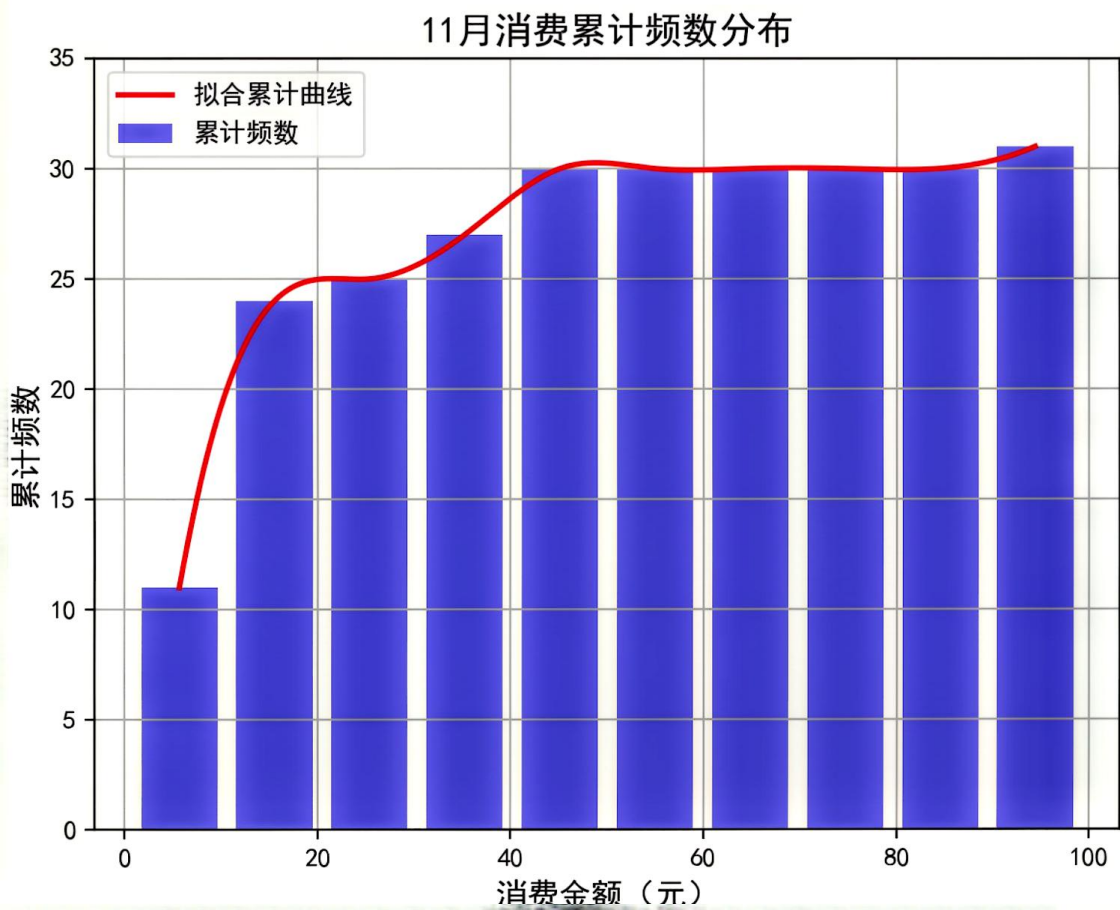


Figure 1



1.4 (5) Pearson 相关系数. $S_{x_1x_2} = 4506.6848886$

$$r_{x_1x_2} = \frac{S_{x_1x_2}}{\sqrt{S_{x_1x_1}} \sqrt{S_{x_2x_2}}} = 0.9769953 \Rightarrow \text{正相关}$$

Spearman 相关系数

$$r_{x_1x_2} = 1 - \frac{6}{n(n^2-1)} \sum_{i=1}^n (R_i - S_i)^2$$

其中 $n=31$, R_i, S_i 分别为对应的秩统计量.

$$R = [26, 10, 19, 12, 9, 20, 7, 8, 30, 29, 27, 17, 21, 13, 28, 23, 22, \\ 18, 31, 16, 6, 11, 25, 15, 24, 1, 14, 5, 2, 3, 4]$$

$$S = [26, 15, 23, 13, 6, 25, 9, 18, 30, 29, 27, 16, 21, 11, 28, 22, \\ 20, 19, 31, 14, 4, 10, 24, 7, 17, 1, 12, 5, 2, 3, 8]$$

$$\Rightarrow r_{x_1x_2} = 0.93467742$$