两次列联表分析，将满意程度为1（最满意）的划分为哑变量0，将大于等于2的划分为哑变量1。讲的时候注明一下我们的顺序变量哪边更大，免得解释相关性的时候引起歧义。

一、先对总体满意程度和与家人共进晚餐的重要程度（1为最重要）做列联表分析，

结果如下：（最好手动输到表格中，SAS中输出的表格实在太难看）

1. 列联表（counts以及expected counts）：

| **Table of satiselect by Dinner\_Impor** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **satiselect** | **Dinner\_Impor(Dinner\_Impor)** | | | | |
| **1** | **2** | **3** | **4** | **Total** |
| **0** | |  | | --- | | 28 | | 21.436 | | |  | | --- | | 6 | | 12.342 | | |  | | --- | | 4 | | 3.5726 | | |  | | --- | | 0 | | 0.6496 | | |  | | --- | | 38 | |  | |
| **1** | |  | | --- | | 38 | | 44.564 | | |  | | --- | | 32 | | 25.658 | | |  | | --- | | 7 | | 7.4274 | | |  | | --- | | 2 | | 1.3504 | | |  | | --- | | 79 | |  | |
| **Total** | |  | | --- | | 66 | | |  | | --- | | 38 | | |  | | --- | | 11 | | |  | | --- | | 2 | | |  | | --- | | 117 | |

2. 列联表的独立性检验：

| **Statistic** | **DF** | **Value** | **Prob** |
| --- | --- | --- | --- |
| **Chi-Square** | 3 | 8.8409 | 0.0315 |
| **Likelihood Ratio Chi-Square** | 3 | 9.9760 | 0.0188 |
| **Mantel-Haenszel Chi-Square** | 1 | 3.9825 | 0.0460 |
| **Phi Coefficient** |  | 0.2749 |  |
| **Contingency Coefficient** |  | 0.2651 |  |
| **Cramer's V** |  | 0.2749 |  |

可以看到p值很小，因此可以认为二者并不独立。

3. 相关系数：（这个摘几个就好了）

| **Statistic** | **Value** | **ASE** |
| --- | --- | --- |
| **Gamma** | 0.4086 | 0.1683 |
| **Kendall's Tau-b** | 0.2056 | 0.0858 |
| **Stuart's Tau-c** | 0.2051 | 0.0862 |
| **Somers' D C|R** | 0.2338 | 0.0969 |
| **Somers' D R|C** | 0.1808 | 0.0769 |
| **Pearson Correlation** | 0.1853 | 0.0862 |
| **Spearman Correlation** | 0.2140 | 0.0891 |
| **Lambda Asymmetric C|R** | 0.0000 | 0.0000 |
| **Lambda Asymmetric R|C** | 0.0000 | 0.0000 |
| **Lambda Symmetric** | 0.0000 | 0.0000 |
| **Uncertainty Coefficient C|R** | 0.0435 | 0.0242 |
| **Uncertainty Coefficient R|C** | 0.0676 | 0.0376 |
| **Uncertainty Coefficient Symmetric** | 0.0529 | 0.0294 |

可以看到是正相关的

二、再对总体满意程度和与房屋面积大小（1为最小）做列联表分析，

结果如下：

1. 列联表：

| **Table of satiselect by House\_Area** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **satiselect** | **House\_Area(House\_Area)** | | | | | | |
| **1** | **2** | **3** | **4** | **5** | **6** | **Total** |
| **0** | |  | | --- | | 3 | | 2.5983 | | |  | | --- | | 4 | | 5.5214 | | |  | | --- | | 7 | | 8.4444 | | |  | | --- | | 8 | | 8.7692 | | |  | | --- | | 11 | | 8.4444 | | |  | | --- | | 5 | | 4.2222 | | |  | | --- | | 38 | |  | |
| **1** | |  | | --- | | 5 | | 5.4017 | | |  | | --- | | 13 | | 11.479 | | |  | | --- | | 19 | | 17.556 | | |  | | --- | | 19 | | 18.231 | | |  | | --- | | 15 | | 17.556 | | |  | | --- | | 8 | | 8.7778 | | |  | | --- | | 79 | |  | |
| **Total** | |  | | --- | | 8 | | |  | | --- | | 17 | | |  | | --- | | 26 | | |  | | --- | | 27 | | |  | | --- | | 26 | | |  | | --- | | 13 | | |  | | --- | | 117 | |

2. 独立性检验：

| **Statistic** | **DF** | **Value** | **Prob** |
| --- | --- | --- | --- |
| **Chi-Square** | 5 | 2.5363 | 0.7710 |
| **Likelihood Ratio Chi-Square** | 5 | 2.5301 | 0.7720 |
| **Mantel-Haenszel Chi-Square** | 1 | 1.0504 | 0.3054 |
| **Phi Coefficient** |  | 0.1472 |  |
| **Contingency Coefficient** |  | 0.1457 |  |
| **Cramer's V** |  | 0.1472 |  |

不能拒绝是相互独立的。

3. 相关性系数：

| **Statistic** | **Value** | **ASE** |
| --- | --- | --- |
| **Gamma** | -0.1558 | 0.1379 |
| **Kendall's Tau-b** | -0.0934 | 0.0830 |
| **Stuart's Tau-c** | -0.1113 | 0.0991 |
| **Somers' D C|R** | -0.1269 | 0.1127 |
| **Somers' D R|C** | -0.0687 | 0.0613 |
| **Pearson Correlation** | -0.0952 | 0.0938 |
| **Spearman Correlation** | -0.1050 | 0.0933 |
| **Lambda Asymmetric C|R** | 0.0333 | 0.0825 |
| **Lambda Asymmetric R|C** | 0.0000 | 0.0000 |
| **Lambda Symmetric** | 0.0234 | 0.0582 |
| **Uncertainty Coefficient C|R** | 0.0063 | 0.0079 |
| **Uncertainty Coefficient R|C** | 0.0172 | 0.0215 |
| **Uncertainty Coefficient Symmetric** | 0.0092 | 0.0115 |

有轻微的负相关，但不明显（房屋面积越大，幸福程度略高）。