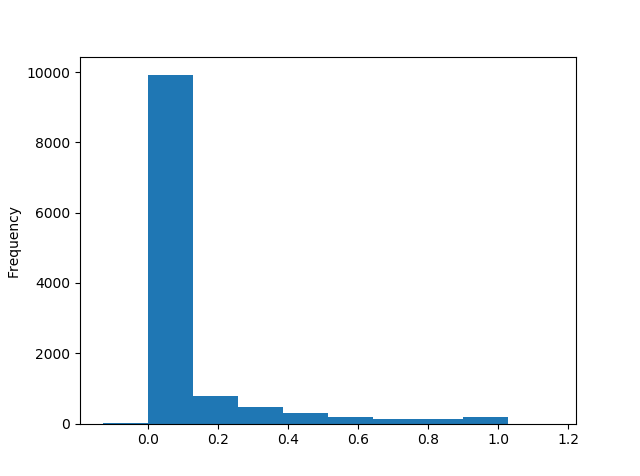
# Question 1

|  |  |  |  |
| --- | --- | --- | --- |
| **Research question** | **Univariate** | **Bivariate** | **Multivariate** |
| 1. Can source of funding be used to predict the successes or failure of a charity? | - Summary table of funding metrics (mean, median, SD, etc)  - Survived table  - Histogram income growth | - Correlation between public funding and income growth | - Logistic model, funding sources predicting survival  - Linear model, all funding sources predicting income growth |

## Univariate

|  |  |  |
| --- | --- | --- |
|  | **Income 2011-2012** | **Income 2018** |
| **Count** | 12150 | 10800 |
| **Mean** | 4105832 | 5282766 |
| **Std** | 18152440 | 27329450 |
| **Median** | 872054 | 939600 |
| **Min** | 25004 | 0 |
| **Max** | 738502000 | 1076900000 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Absolute income growth** | **Ratio of income growth** | **Funding general public** | **Proportion funding general public** | **Funding government** | **Proportion funding government** |
| **Count** | 10800 | 10800 | 12150 | 12150 | 12150 | 12150 |
| **Mean** | 964572 | 2.196 | 290782 | 0.088 | 4714 | 0.001 |
| **Std** | 13439110 | 31.819 | 2556495 | 0.195 | 201744 | 0.0229 |
| **Median** | 45955 | 1.133 | 72 | 0.000 | 0 | 0 |
| **Min** | -191060500 | 0 | 0 | 0 | 0 | 0 |
| **Max** | 840853700 | 1726.456 | 150168000 | 1.158 | 19190000 | 0.902 |



## Bivariate

Correlation between **Funding general public** and **Absolute income growth**: 0.124

Correlation between **Proportion funding government** and **Ratio of** **income growth**: -0.002

Correlation between **Proportion funding general public** and **Ratio of income growth**: -0.010

Small, change direction, ratio better

## Multivariate

|  |  |  |  |
| --- | --- | --- | --- |
| **Dependent**: Ratio income growth | **Coef.** | **Std error** | **P>|t|** |
| Proportion funding general public | -1.718 | 1.584 | 0.278 |
| Proportion funding government | -3.061 | 15.765 | 0.846 |
| Constant | 2.350 | 0.337 | 0.000 |

R-squared 0.000 Prob = 0.546 AIC = 105400 BIC = 105400

|  |  |  |  |
| --- | --- | --- | --- |
| **Dependent**: Survived | **Coef.** | **Std error** | **P>|t|** |
| Proportion funding general public | 0.035 | 0.149 | 0.816 |
| Proportion funding government | -2.279 | 0.871 | 0.009 |
| Constant | 2.081 | 0.032 | 0.000 |

R-squared 0.001 AIC =8476.8192 BIC =8499.0344

Could use full with income as control by require a lot of transformation