



NCVO Financial Research Task

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Objective



Merge Dataset

Charity Commission
register and UK-CAT
classification
categories



Summary Table

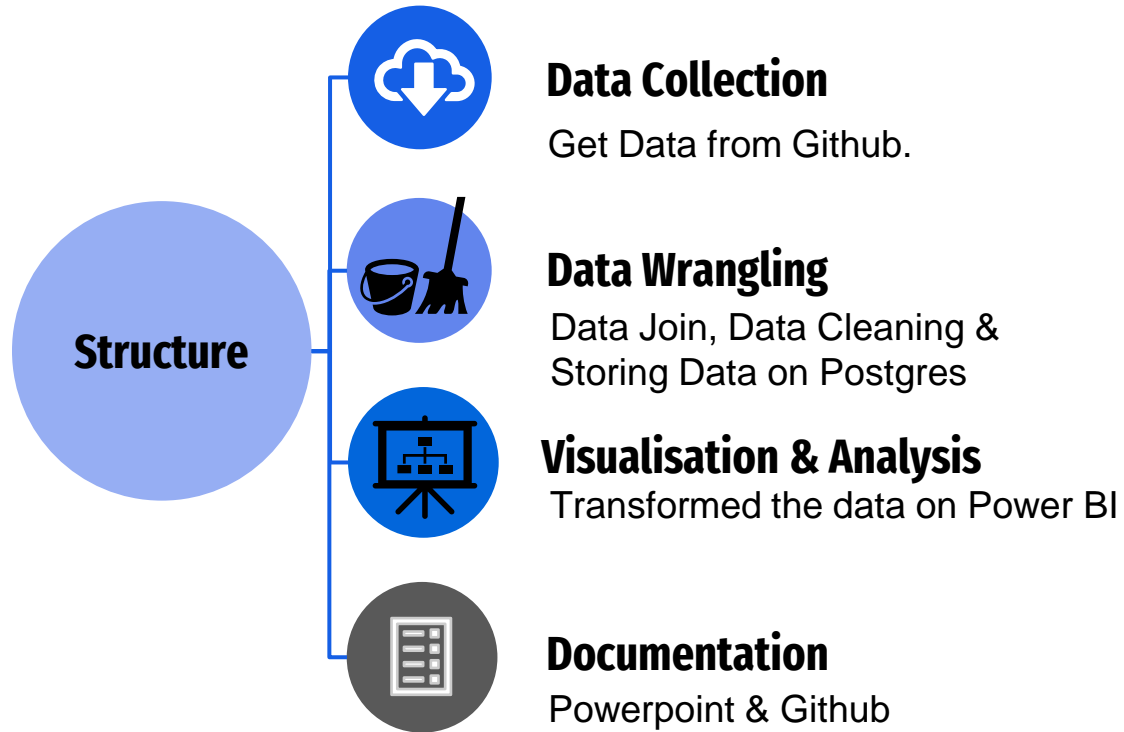
Number of Charity,
Annual Income
(Average Minimum
& Maximum)



Data Visualisation

Distributions &
Clear Insights

Methodology



Actions

- ☐ Downloading Charity Commission Register Data
- ☐ Accessing UK-CAT Classification Data
- ☐ Exploratory Data Analysis (EDA)

```
import random
%config InlineBackend.figure_format = 'retina'
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
from datetime import datetime
import warnings
warnings.filterwarnings('ignore')
import statistics
from scipy import stats

import requests
import zipfile
import io
```



Data Collection

Actions

- ❑ Splitting the org_id Column from the UK-CAT dataset
- ❑ Creating a Function to Extract the Main Category
- ❑ Filtering Out Active Charities
- ❑ Merge UK-CAT& Charity Commission Register Dataset
- ❑ Investigate duplicates

charity_reporting_status	14528
latest_acc_fin_period_start_date	23812
latest_acc_fin_period_end_date	23812
latest_income	23812
latest_expenditure	23812
charity_contact_address1	15205
charity_contact_address2	15457
charity_contact_address3	87354
charity_contact_address4	213665
charity_contact_address5	307370
charity_contact_postcode	16843
charity_contact_phone	16078
charity_contact_email	70368
charity_contact_web	163145
charity_company_registration_number	296955
charity_insolvent	0
charity_in_administration	0
charity_previously_excepted	14528
charity_is_cdf_or_cif	348454
charity_is_cio	14528
cio_is_dissolved	14528
date_cio_dissolution_notice	348343
charity_activities	20441
charity_gift_aid	23102
charity_has_land	21588
org_id	118123
ukcat_code	118123
org_id_prefix	118123
org_id_chc	118123
main_category	118123



Data Wrangling

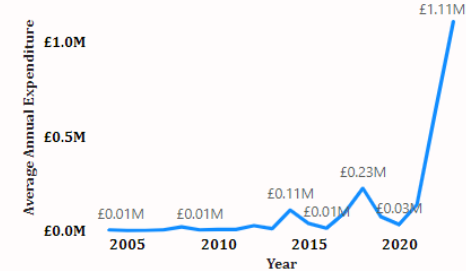
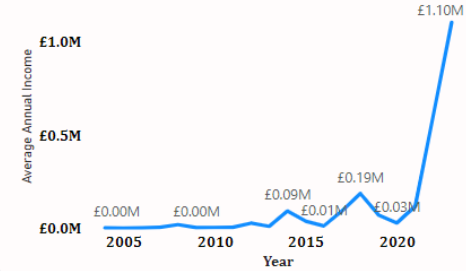
Summary

Global

Overview

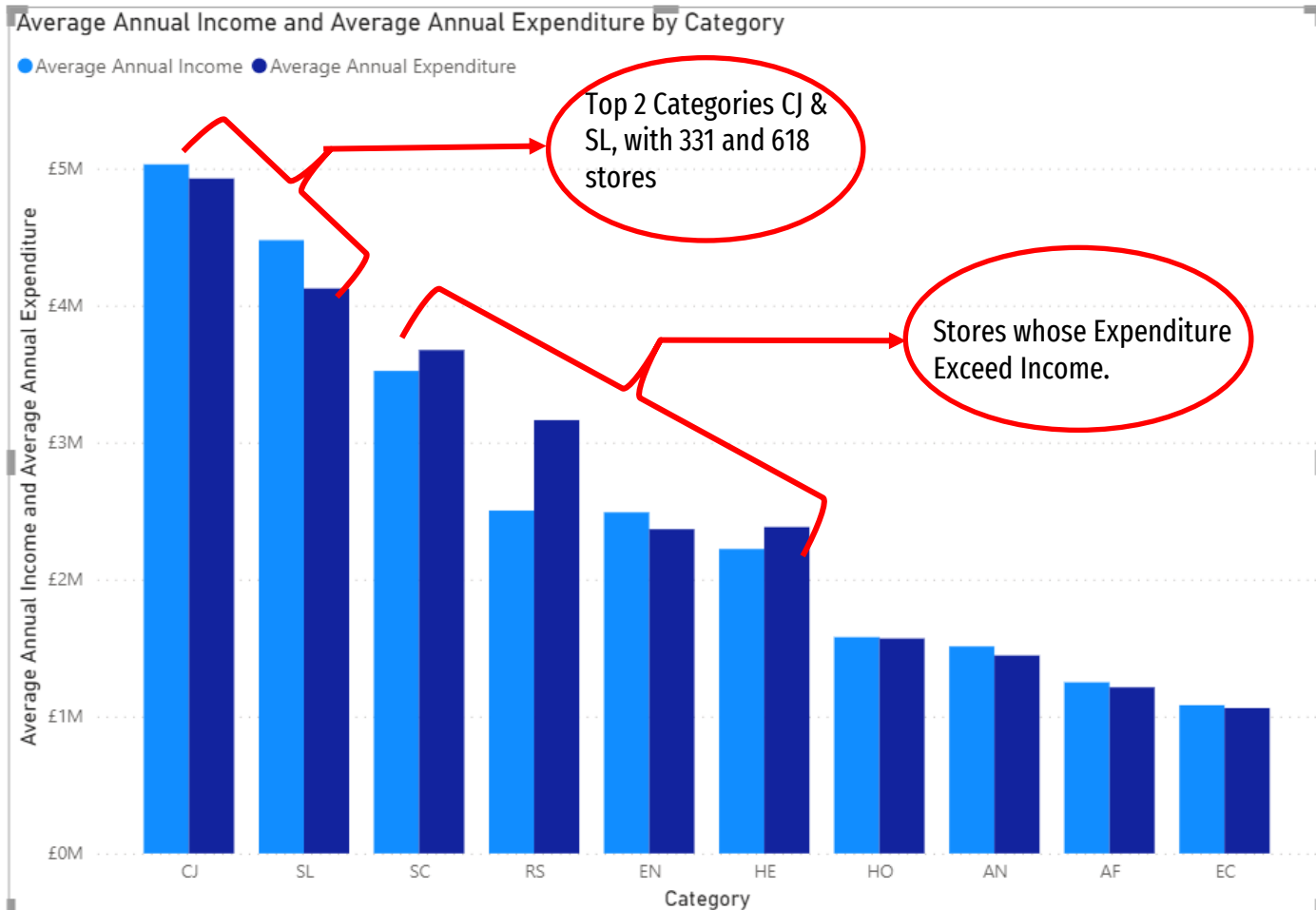
Category	No of Charity	Avg. Income	Min. Income	Max. Annual Income
AF	1114	£1,249,029.752	£0	£280,413,000
AN	1482	£1,511,134.5237	£0	£164,702,000
AR	13957	£637,980.1229	£0	£873,334,827
AS	24405	£137,295.6029	£0	£280,413,000
BE	34599	£866,892.249	£0	£381,300,000
CA	15473	£715,475.1813	£0	£502,291,234
CC	4629	£289,176.5514	£0	£280,413,000
CJ	331	£5,029,947.0122	£0	£315,250,409
CV	12092	£496,702.3738	£0	£1,147,196,000
EC	3163	£1,081,751.6137	£0	£400,600,000
ED	41129	£841,336.8598	£0	£873,334,827
EN	526	£2,489,785.7262	£0	£164,702,000
FA	11421	£85,718.2741	£0	£132,687,000
HE	7721	£2,222,230.15	£0	£1,238,400,000
HO	5324	£1,578,536.5509	£0	£439,000,000
HR	4653	£535,333.3833	£0	£231,800,000
LE	10866	£233,823.0681	£0	£216,112,000
PR	659	£766,000.1098	£0	£52,000,000
RL	21135	£621,938.2574	£0	£465,841,000
RS	3095	£2,502,644.3629	£0	£502,291,234
SC	1111	£3,522,264.4914	£0	£315,250,409
SL	618	£4,476,569.7557	£0	£439,000,000
SO	511	£1,042,492.0685	£0	£73,796,527
SW	10359	£565,917.7657	£0	£400,600,000

Average Annual Income by Year

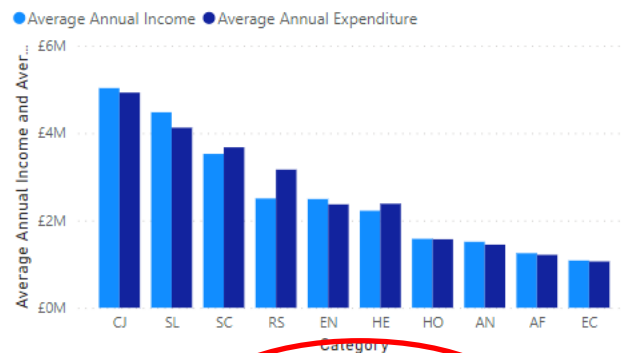


Summary & Visualisation

Analysis



Average Annual Income and Average Annual Expenditure by Category



charity_type	Count of charity_name
Charitable company	2492
CIO	29
Other	17179
Trust	3336
Total	23037

Category No of Charity

AF	1114
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AR	13957
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FA	11421
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SL	618
SO	511
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CJ Category Top Profitable Top CJ Category profitable Stores



SL Category top Profitable



Opportunity

- ❑ Improve the quality of data inputted by frontline staff, through Training.
- ❑ Get more numeric and category data (e.g. Staff numbers) for further drill-down analysis into the root cause of high expenditure.
- ❑ Explore the Time series Model In machine learning.

Challenges

- ❑ Due to inconsistencies in the data format, some lines were skipped during the process of formatting from Text to Pandas.
- ❑ 80% of columns have missing values.

Opportunities & Challenges



Thanks!

Do you have any Questions?