Family Income and Expenditure Analysis in the Philippines

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Objectives

- Analyze the distribution of household incomes across different regions in the Philippines, identifying the highest and lowest income regions, and comparing these to the national average.
- Examine household expenditure patterns across different regions, focusing on identifying the highest and lowest expenditure regions, and comparing these to the national average.
- Investigate the average expenditure per expenditure type to determine which categories have the highest and lowest spending.
- Build an interactive and aesthetically pleasing dashboard.

Data Overview

The dataset used in this project was retrieved from Kaggle. It originally has 60 columns but after data cleaning and preprocessing, it now only consists of four columns: Total Household Income, Region, Expenditure Type, and Expenditure. The “Total Household Income” column contains the total income of each household, the “Region” column contains the regions in the Philippines (e.g., NCR), the “Expenditure Type” column specifies the type of expenditure (e.g., Meat Expenditure), and the “Expenditure” column contains the amount spent on each type of expenditure.

Tools

- **Excel:** For initial data exploration and data cleaning
- **SQL (BigQuery):** For in-depth data analysis
- **Power BI:** For the data visualization and dashboard making

DATA CLEANING

Initial Dataset:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
1	p			Main Sour	Agricultur	Bread anc	Total Rice	Meat Expe	Total Fish	Fruit Expe	Vegetable	Restaurar	Alcoholic	Tobacco E	Clothing, I	Housing a	Imputed H	Medical C	Transport	Communi	Education	Miscellan	Special Or	Crop Farm	Total Inco	Household	Household	Household	Household
2	480332	CAR	117848	Wage/Sala	0	42140	38300	24676	16806	3325	13460	3000	0	0	4607	63636	30000	3457	4776	2880	36200	34056	7200	19370	44370	Female	49	Single	Teacher Ti
3	198235	CAR	67766	Wage/Sala	0	17329	13008	17434	11073	2035	7833	2360	960	2132	8230	41370	27000	3520	12900	5700	29300	9150	1500	0	0	Male	40	Married	Transport
4	82785	CAR	61609	Wage/Sala	1	34182	32001	7783	2590	1730	3795	4545	270	4525	2735	14340	7200	70	324	420	425	6450	500	0	0	Male	39	Married	Grade 3
5	107589	CAR	78189	Wage/Sala	0	34030	28659	10914	10812	690	7887	6280	480	0	1390	16638	6600	60	6840	660	300	3762	500	15580	15580	Male	52	Married	Elementar
6	189322	CAR	94625	Wage/Sala	0	34820	30167	18391	11309	1395	11260	6400	1040	0	4620	31122	16800	140	6996	2100	0	8472	1000	18887	75687	Male	65	Married	Elementar
7	152883	CAR	73326	Wage/Sala	0	29065	25190	15336	8572	2614	9035	0	180	240	1930	22782	6600	95	4044	1500	0	5394	600	0	0	Male	46	Married	Second Ye
8	198621	CAR	104644	Wage/Sala	0	40892	36312	12968	12310	2565	15620	6200	1920	0	7930	24126	12000	340	12696	1848	0	6126	6400	72290	72290	Male	45	Married	Third Year
9	134961	CAR	95644	Other sou	1	37168	28156	14640	15896	3365	10520	1130	480	0	4085	40776	19800	75	4140	3000	50	5562	1500	51840	51840	Male	33	Married	Business
10	171152	CAR	67348	Other sou	0	23117	15845	11464	6685	1370	5235	10550	0	0	2780	8370	4200	200	7200	1800	8000	6510	500	0	0	Female	17	Single	First Year
11	625753	CAR	158721	Enterpren	0	56003	43239	26488	25678	3880	11360	15620	0	0	7740	65730	27000	1786	5160	7200	13180	15210	4000	0	312974	Male	53	Married	High Scho
12	147005	CAR	79530	Enterpren	1	36588	30167	11174	7674	1709	7920	2590	1268	910	5610	25668	15000	49	3678	1080	750	7134	1500	65660	94140	Male	49	Married	Other Proj
13	253130	CAR	111250	Wage/Sala	0	46521	39217	20548	15841	1475	7565	3320	2080	1820	8230	16398	6600	123	2940	5520	250	9858	5500	52260	89760	Male	35	Married	High Scho
14	101111	CAR	88523	Enterpren	1	40531	36200	14322	8344	2200	6790	3850	1040	0	6140	11130	6000	89	480	1500	960	5148	0	49745	49745	Male	38	Married	Elementar
15	128214	CAR	62262	Enterpren	1	26874	23130	10034	6971	2050	7770	300	0	0	2149	35154	18000	78	14628	1200	0	5130	2000	32475	58875	Male	53	Married	Humanitie
16	91525	CAR	45487	Other sou	1	19668	16142	5430	6670	1860	6410	0	0	0	395	24180	15000	77	960	0	0	2202	0	33540	33540	Male	75	Single	Elementar
17	171742	CAR	70892	Other sou	0	30594	26768	10336	7900	1503	6819	3320	0	0	5045	22920	12000	121	1980	264	375	5310	1000	19240	19240	Female	36	Widowed	First Year
18	95385	CAR	83790	Wage/Sala	1	41701	36200	11226	8806	1434	6408	1751	1208	910	1105	18552	9000	80	1440	420	470	6834	1000	35475	35475	Male	67	Widowed	Grade 6
19	142843	CAR	85370	Wage/Sala	0	44006	38213	9840	9317	1231	7265	2755	0	780	1640	16698	7800	61	1680	1080	350	11364	2000	37893	37893	Male	57	Married	High Scho
20	88170	CAR	64705	Enterpren	1	31984	28659	8048	7625	1625	6085	0	520	0	3610	20100	6600	147	1500	660	0	4674	1000	42190	42190	Female	63	Widowed	Elementar
21	97018	CAR	82334	Enterpren	1	27283	22503	10162	12370	2380	8190	4520	1820	0	2060	11550	4800	1445	7440	840	215	3768	1500	49658	77838	Male	40	Married	Elementar
22	123015	CAR	73459	Enterpren	1	32692	28520	6638	11734	2120	6100	5750	1280	2715	6390	19410	7200	610	8010	1320	8060	4428	1500	72315	72315	Male	60	Married	High Scho
23	100900	CAR	67830	Enterpren	1	32678	28964	7510	7746	1410	4730	4520	960	780	2030	14556	4800	50	7200	1200	800	3924	1000	55510	55510	Male	62	Married	Grade 4
24	153312	CAR	164860	Other sou	0	43076	38372	11884	15699	4510	5015	11740	570	0	7540	15222	7800	102	9000	1080	5960	5826	2000	27410	59410	Male	45	Married	Engineerir
25	96814	CAR	64696	Wage/Sala	0	30820	27150	8276	9565	1490	4535	2310	390	0	4905	12990	6600	570	1560	660	200	3492	3000	0	0	Male	41	Married	Second Ye
26	91785	CAR	57112	Enterpren	1	18215	16078	9562	7555	1550	4988	5820	820	1606	3610	22350	13200	160	9480	840	225	3468	2000	36115	46115	Male	43	Married	Grade 3

	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF
1	Household	Household	Household	Type of Hc	Total Num	Members	Members	Total num	Type of Bu	Type of Ro	Type of Wa	House Flo	House Age	Number o	Tenure Stz	Toilet Faci	Electricity	Main Sour	Number o	Number o	Number o	Number o	Number o	Number o	Number o	Number o	Number o	Number o	Number o
2	With Job/E	General el	Worked fo	Extended f	4	0	1	1	Single hou	Strong ma	Strong	80	75	3	Own or ov	Water-sea	1	Own use,	1	1	0	1	1	0	0	0	2	1	0
3	With Job/E	Transport	Worked fo	Single Fan	3	0	1	2	Single hou	Strong ma	Strong	42	15	2	Own or ov	Water-sea	1	Own use,	1	1	1	0	1	0	0	0	3	1	0
4	With Job/E	Farmhanc	Worked fo	Single Fan	6	0	4	3	Single hou	Light mate	Light	35	12	1	Own or ov	Water-sea	0	Shared, fa	0	0	0	0	0	0	0	0	0	0	0
5	With Job/E	Rice farme	Employer	Single Fan	3	0	3	2	Single hou	Light mate	Light	30	15	1	Own or ov	Closed pit	1	Own use,	1	0	0	0	0	0	0	0	1	0	0
6	With Job/E	General m	Self-empl	Single Fan	4	0	0	2	Single hou	Light mate	Quite Stro	54	16	3	Own or ov	Water-sea	1	Own use,	1	0	0	1	0	0	0	0	3	0	0
7	With Job/E	Heavy truc	Worked fo	Single Fan	4	0	0	3	Single hou	Mixed but	Strong	40	7	2	Own or ov	Water-sea	1	Own use,	1	0	0	0	1	0	0	0	4	0	0
8	With Job/E	Rice farme	Employer	Extended f	5	1	0	1	Single hou	Strong ma	Strong	35	18	1	Own or ov	Water-sea	1	Own use,	1	0	1	0	0	0	0	0	2	0	0
9	With Job/E	Rice farme	Employer	Extended f	5	1	1	0	Single hou	Strong ma	Strong	35	48	2	Own or ov	Water-sea	1	Own use,	1	1	0	0	1	0	0	0	2	0	0
10	No Job/Bu	NA	NA	Single Fan	2	0	2	0	Single hou	Strong ma	Light	35	8	1	Own or ov	Water-sea	1	Shared, tu	1	0	0	0	0	0	0	0	2	0	0
11	With Job/E	Hog raisir	Self-empl	Extended f	6	0	0	1	Single hou	Strong ma	Strong	70	12	3	Own or ov	Water-sea	1	Own use,	1	0	1	1	0	0	1	0	4	1	0
12	With Job/E	General m	Employer	Single Fan	4	1	1	1	Single hou	Strong ma	Strong	40	9	2	Own or ov	Water-sea	1	Own use,	1	1	0	1	0	0	0	0	1	0	0
13	With Job/E	Farmhanc	Worked fo	Single Fan	7	0	3	5	Single hou	Strong ma	Light	35	17	3	Own or ov	Water-sea	1	Own use,	1	1	0	0	0	0	0	0	6	0	0
14	With Job/E	Rice farme	Employer	Single Fan	7	1	4	2	Single hou	Light mate	Light	35	5	1	Own or ov	Water-sea	0	Own use,	0	0	0	0	0	0	0	0	1	0	0
15	No Job/Bu	NA	NA	Extended f	3	0	1	0	Single hou	Strong ma	Strong	50	43	3	Own or ov	Water-sea	1	Own use,	1	0	0	0	1	0	0	0	1	0	0
16	No Job/Bu	NA	NA	Single Fan	2	0	0	0	Single hou	Strong ma	Strong	35	77	1	Rent-free l	Closed pit	1	Own use,	1	0	0	0	0	0	0	0	0	0	0
17	No Job/Bu	NA	NA	Single Fan	4	1	2	0	Single hou	Strong ma	Strong	40	35	1	Own or ov	Water-sea	1	Own use,	1	0	0	0	0	0	0	0	0	0	0
18	With Job/E	Rice farme	Employer	Extended f	5	1	1	1	Single hou	Strong ma	Quite Stro	50	25	1	Own or ov	Water-sea	1	Protected	1	0	0	0	0	0	0	0	1	0	0
19	With Job/E	Rice farme	Employer	Single Fan	8	1	3	1	Single hou	Strong ma	Light	35	20	1	Own or ov	Closed pit	1	Own use,	1	0	0	0	0	0	0	0	2	0	0
20	With Job/E	Rice farme	Employer	Extended f	4	1	0	3	Single hou	Strong ma	Light	40	1	2	Own hous	Water-sea	1	Shared, fa	1	0	0	0	0	0	0	0	1	0	0
21	With Job/E	Rice farme	Employer	Single Fan	5	2	2	1	Single hou	Mixed but	Very Light	25	7	0	Own or ov	Closed pit	1	Shared, tu	1	0	0	0	0	0	0	0	1	0	0
22	With Job/E	Rice farme	Self-empl	Extended f	4	0	0	2	Single hou	Strong ma	Very Light	30	6	1	Own or ov	Water-sea	1	Own use,	1	0	0	0	0	0	0	0	1	0	0
23	With Job/E	Rice farme	Self-empl	Single Fan	4	0	1	2	Single hou	Light mate	Light	35	36	1	Own hous	Water-sea	1	Tubed/pip	1	0	0	0	0	0	0	0	2	0	0
24	With Job/E	General m	Self-empl	Single Fan	6	1	1	1	Single hou	Strong ma	Light	35	22	1	Own or ov	Water-sea	1	Shared, tu	1	0	0	0	0	0	0	0	1	0	0
25	With Job/E	Heavy truc	Worked fo	Single Fan	5	2	1	1	Single hou	Mixed but	Light	20	7	1	Own or ov	Water-sea	1	Shared, tu	0	0	0	0	0	0	0	0	1	0	0
26	With Job/E	Rice farme	Self-empl	Single Fan	3	0	1	1	Single hou	Strong ma	Strong	24	45	0	Own or ov	Water-sea	1	Shared, tu	1	1	0	0	0	0	0	0	2	0	0
27	With Job/E	Vegetable	Self-empl	Single Fan	3	0	1	1	Single hou	Strong ma	Very Light	35	16	1	Own hous	Water-sea	1	Shared, tu	1	1	0	0	0	0	0	0	2	0	0
28	No Job/Bu	NA	NA	Single Fan	2	0	0	0	Single hou	Strong ma	Strong	25	1	1	Own or ov	Water-sea	1	Shared, tu	0	0	0	0	0	0	0	0	0	0	0
29	With Job/E	General m	Self-empl	Extended f	3	0	0	0	Single hou	Strong ma	Strong	32	7	2	Own or ov	Water-sea	1	Shared, tu	1	0	0	1	0	0	0	0	2	0	0
30	With Job/E	Vegetable	Self-empl	Extended f	6	1	1	2	Single hou	Strong ma	Strong	30	13	1	Own or ov	Closed pit	0	Lake, river	0	0	0	0	0	0	0	0	1	0	0
31	With Job/E	Rice farme	Self-empl	Single Fan	6	0	4	0	Single hou	Strong ma	Strong	35	1	1	Own or ov	Closed pit	1	Lake, river	0	0	1	1	0	0	0	0	3	0	0
32	With Job/E	Rice farme	Self-empl	Single Fan	2	0	0	0	Single hou	Strong ma	Strong	30	14	1	Own or ov	Closed pit	0	Shared, tu	0	0	0	0	0	0	0	0	0	0	0
33	With Job/E	Rice farme	Self-empl	Single Fan	6	1	3	2	Single hou	Light mate	Light	25	3	0	Own or ov	Closed pit	0	Unprotect	0	0	0	0	0	0	0	0	1	0	0
34	With Job/E	General m	Self-empl	Single Fan	2	0	0	0	Single hou	Strong ma	Light	36	13	1	Own or ov	Closed pit	1	Protected	0	0	0	0	0	0	0	0	1	0	0
35	With Job/E	Stocks cle	Worked fo	Single Fan	4	2	0	1	Single hou	Strong ma	Light	30	11	1	Own or ov	Closed pit	1	Protected	0	0	0	0	0	0	0	0	2	0	0
36	With Job/E	Rice farme	Self-empl	Single Fan	5	0	2	2	Single hou	Strong ma	Quite Stro	30	9	0	Own or ov	Water-sea	1	Shared, tu	1	0	0	0	0	0	0	0	2	0	0
37	With Job/E	Rice farme	Employer	Extended f	5	1	0	4	Single hou	Strong ma	Light	30	16	1	Own or ov	Water-sea	1	Protected	1	0	0	0	0	0	0	0	1	0	0

Cleaned Dataset:

The dataset was streamlined by removing unnecessary columns, retaining only Total Household Income, Region, Expenditure Type, and Expenditure. Using Power Query, the expenditure types were unpivoted into two new columns: Expenditure Type and Expenditure. Data was ensured to be free of extra spaces or spelling errors, and data types were corrected for SQL compatibility.

	A	B	C	D
1	total_household_income	region	expenditure_type	expenditure
2	480332	CAR	Bread and Cereals Expenditure	42140
3	480332	CAR	Total Rice Expenditure	38300
4	480332	CAR	Meat Expenditure	24676
5	480332	CAR	Total Fish and marine products Expenditure	16806
6	480332	CAR	Fruit Expenditure	3325
7	480332	CAR	Vegetables Expenditure	13460
8	480332	CAR	Restaurant and hotels Expenditure	3000
9	480332	CAR	Alcoholic Beverages Expenditure	0
10	480332	CAR	Tobacco Expenditure	0
11	480332	CAR	Clothing, Footwear and Other Wear Expenditure	4607
12	480332	CAR	Housing and water Expenditure	63636
13	480332	CAR	Imputed House Rental Value	30000
14	480332	CAR	Medical Care Expenditure	3457
15	480332	CAR	Transportation Expenditure	4776
16	480332	CAR	Communication Expenditure	2880
17	480332	CAR	Education Expenditure	36200
18	480332	CAR	Miscellaneous Goods and Services Expenditure	34056
19	480332	CAR	Special Occasions Expenditure	7200
20	480332	CAR	Crop Farming and Gardening expenses	19370
21	198235	CAR	Bread and Cereals Expenditure	17329
22	198235	CAR	Total Rice Expenditure	13008
23	198235	CAR	Meat Expenditure	17434
24	198235	CAR	Total Fish and marine products Expenditure	11073
25	198235	CAR	Fruit Expenditure	2035
26	198235	CAR	Vegetables Expenditure	7833
27	198235	CAR	Restaurant and hotels Expenditure	2360
28	198235	CAR	Alcoholic Beverages Expenditure	960
29	198235	CAR	Tobacco Expenditure	2132
30	198235	CAR	Clothing, Footwear and Other Wear Expenditure	8230
31	198235	CAR	Housing and water Expenditure	41370
32	198235	CAR	Imputed House Rental Value	27000
33	198235	CAR	Medical Care Expenditure	3520
34	198235	CAR	Transportation Expenditure	12900
35	198235	CAR	Communication Expenditure	5700
36	198235	CAR	Education Expenditure	29300
37	198235	CAR	Miscellaneous Goods and Services Expenditure	9150

DATA ANALYSIS

Note: The data analysis was conducted using SQL (BigQuery), and the visualizations were created using Power BI.

Average Household Income per Region

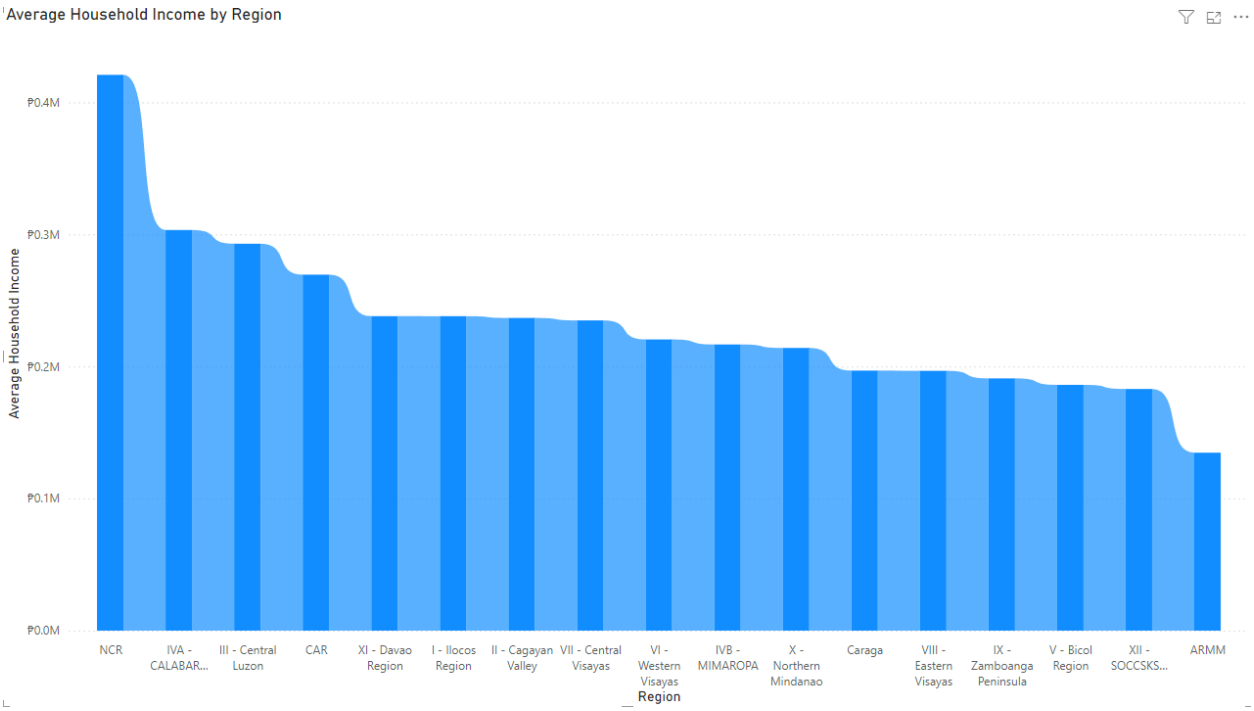
Query:

```sql
SELECT region, AVG(total_household_income) AS average_household_income
FROM `projects.family_income_and_expenditure`
GROUP BY region
ORDER BY average_household_income DESC;
```

Result:

Row	region	average_household_income
1	NCR	420861.86150121031
2	IVA - CALABARZON	303360.53604036744
3	III - Central Luzon	292965.18164967682
4	CAR	269540.48463768046
5	XI - Davao Region	238115.89125102296
6	I - Ilocos Region	238110.08432708486
7	II - Cagayan Valley	236778.22172149658
8	VII - Central Visayas	234909.31404958604
9	VI - Western Visayas	220481.26025955856
10	IVB - MIMAROPA	216685.12489991979
11	X - Northern Mindanao	214057.77954424953
12	Caraga	196907.37654320934
13	VIII - Eastern Visayas	196736.581086863
14	IX - Zamboanga Peninsula	191000.90827740551
15	V - Bicol Region	186105.49271844488
16	XII - SOCCSKSARGEN	182984.80254476974
17	ARMM	134746.81761565793

Visualization:



Findings:

1. The National Capital Region (NCR) has the highest average household income, totaling PHP 420,862.
2. The Autonomous Region in Muslim Mindanao (ARMM) has the lowest average household income, amounting to PHP 134,747.

Comparison of the Highest/Lowest Average Household Income to National Average Income

Query:

```sql
WITH overall_average_income AS (
  SELECT AVG(total_household_income) AS national_average_income
  FROM `projects.Family Income and Expenditure`
),
average_income_per_region AS (
  SELECT region, AVG(total_household_income) AS average_household_income
  FROM `projects.Family Income and Expenditure`
  GROUP BY region
)

SELECT average.region,
  CASE
    WHEN average.region = "NCR" THEN
    ((average.average_household_income - overall.national_average_income) / overall.national_average_income) * 100
    ELSE
    NULL
    END AS ncr_percent_difference,
  CASE
    WHEN average.region = "ARMM" THEN
    ((overall.national_average_income - average.average_household_income) / overall.national_average_income) * 100
    ELSE
    NULL
    END AS armm_percent_difference
FROM overall_average_income AS overall
JOIN average_income_per_region AS average
ON 1 = 1
WHERE average.region IN ("NCR", "ARMM");
```

Result:

Row	region	ncr_percent_difference	armm_percent_difference
1	ARMM	*null*	45.569065741893056
2	NCR	70.007015530843447	*null*

Findings:

1. The average household income of NCR is 70.01% higher than the national average household income.
2. The average household income of ARMM is 45.57% lower than the national average household income.

Difference Between the Average Household Income of NCR and ARMM

Query:

```
WITH ARMM_average_income AS (
  SELECT AVG(total_household_income) AS average_income
  FROM `projects.Family Income and Expenditure`
  WHERE region = "ARMM"
),

NCR_average_income AS (
  SELECT AVG(total_household_income) AS average_income
  FROM `projects.Family Income and Expenditure`
  WHERE region = "NCR"
)

SELECT ((ncr.average_income - armm.average_income) / armm.average_income) * 100 AS percent_difference
FROM ARMM_average_income AS armm
CROSS JOIN NCR_average_income AS ncr;
```

Result:

Row	percent_difference
1	212.33528846792228

Findings:

1. The average household income of NCR is 212.34% higher than that of ARMM, showing a significant disparity where NCR's average household income is more than double that of ARMM.

Average Household Expenditure per Region

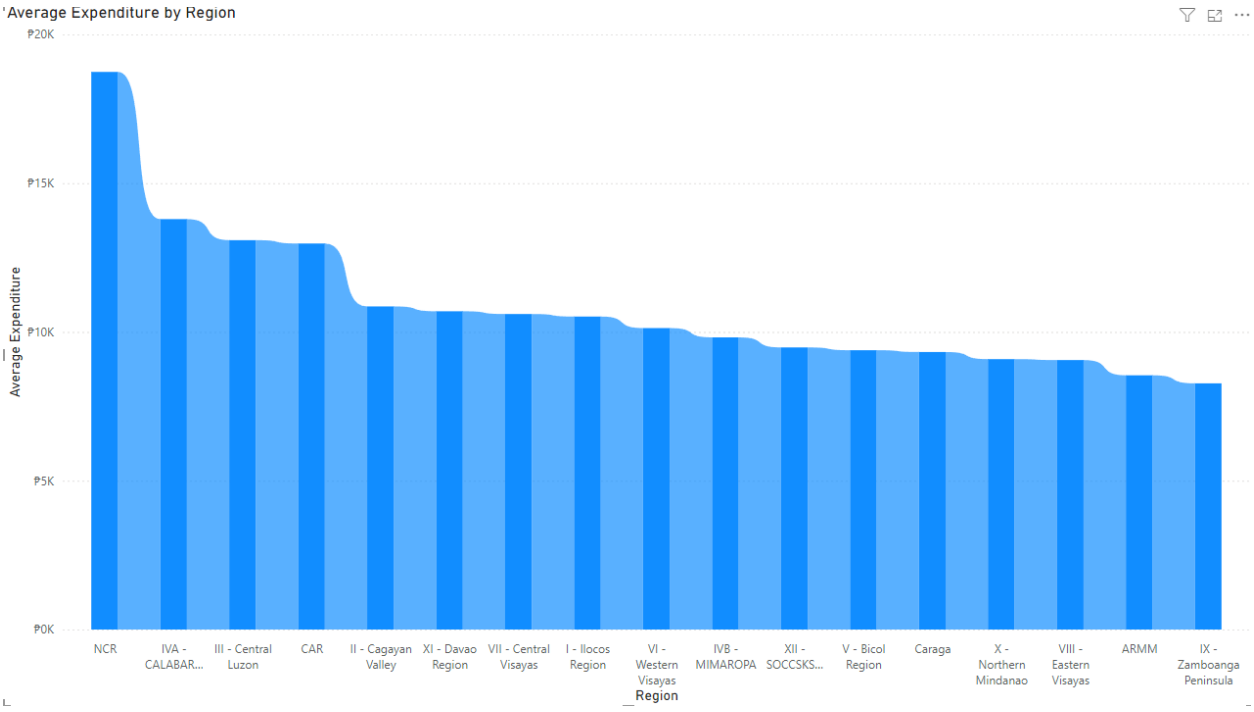
Query:

```
SELECT region, AVG(expenditure) AS average_expenditure
FROM `projects.family_income_and_expenditure`
GROUP BY region
ORDER BY average_expenditure DESC;
```

Result:

Row	region	average_expenditure
1	NCR	18740.114846438209
2	IVA - CALABARZON	13793.288563190859
3	III - Central Luzon	13084.8345771751
4	CAR	12973.429748283739
5	II - Cagayan Valley	10858.369132610816
6	XI - Davao Region	10696.041464044354
7	VII - Central Visayas	10603.698564593253
8	I - Ilocos Region	10518.311283959396
9	VI - Western Visayas	10130.727334822466
10	IVB - MIMAROPA	9818.353251021972
11	XII - SOCCSKSARGEN	9480.7198521752016
12	V - Bicol Region	9386.89024442171
13	Caraga	9326.6404690176278
14	X - Northern Mindanao	9087.0556438792137
15	VIII - Eastern Visayas	9056.50823142584
16	ARMM	8543.4683929574785
17	IX - Zamboanga Peninsula	8273.0707935947521

Visualization:



Findings:

1. NCR has the highest average expenditure at PHP 18,740.
2. Region IX – Zamboanga Peninsula has the lowest average expenditure at PHP 8,273.

Comparison of the Highest/Lowest Average Expenditure to National Average Expenditure

Query:

```sql
WITH overall_average_expenditure AS (
  SELECT AVG(expenditure) AS national_average_expenditure
  FROM `projects.Family Income and Expenditure`
),
average_expenditure_per_region AS (
  SELECT region, AVG(expenditure) AS average_expenditure
  FROM `projects.Family Income and Expenditure`
  GROUP BY region
)

SELECT average.region,
  CASE
    WHEN average.region = "NCR" THEN
    ((average.average_expenditure - overall.national_average_expenditure) / overall.national_average_expenditure) * 100
    ELSE
    NULL
    END AS ncr_percent_difference,
  CASE
    WHEN average.region = "IX - Zamboanga Peninsula" THEN
    ((overall.national_average_expenditure - average.average_expenditure) / overall.national_average_expenditure) * 100
    ELSE
    NULL
    END AS zamboanga_percent_difference
FROM overall_average_expenditure AS overall
JOIN average_expenditure_per_region AS average
ON 1 = 1
WHERE average.region IN ("NCR", "IX - Zamboanga Peninsula");
```

Result:

Row	region	ncr_percent_difference	zamboanga_percent_difference
1	NCR	63.9596158591738	*null*
2	IX - Zamboanga Peninsula	*null*	27.617865717009966

Findings:

1. The average expenditure of NCR is 63.96% higher than the national average expenditure.
2. The average expenditure of Region IX – Zamboanga Peninsula is 27.62% lower than the national average expenditure.

Difference Between the Average Expenditure of NCR and Region IX – Zamboanga Peninsula

Query:

```
WITH Zamboanga_average_expenditure AS (
  SELECT AVG(expenditure) AS average_expenditure
  FROM `projects.Family Income and Expenditure`
  WHERE region = "IX - Zamboanga Peninsula"
),

NCR_average_expenditure AS (
  SELECT AVG(expenditure) AS average_expenditure
  FROM `projects.Family Income and Expenditure`
  WHERE region = "NCR"
)

SELECT ((ncr.average_expenditure - zamboanga.average_expenditure) / zamboanga.average_expenditure) * 100 AS percent_difference
FROM Zamboanga_average_expenditure AS zamboanga
CROSS JOIN NCR_average_expenditure AS ncr;
```

Result:

Row	percent_difference
1	126.519454673920...

Findings:

1. The average expenditure in NCR is 126.52% higher than in Region IX – Zamboanga Peninsula. Similar to the income disparity, this result highlights a significant difference in expenditures between the two regions.

Average Expenditure per Expenditure Type

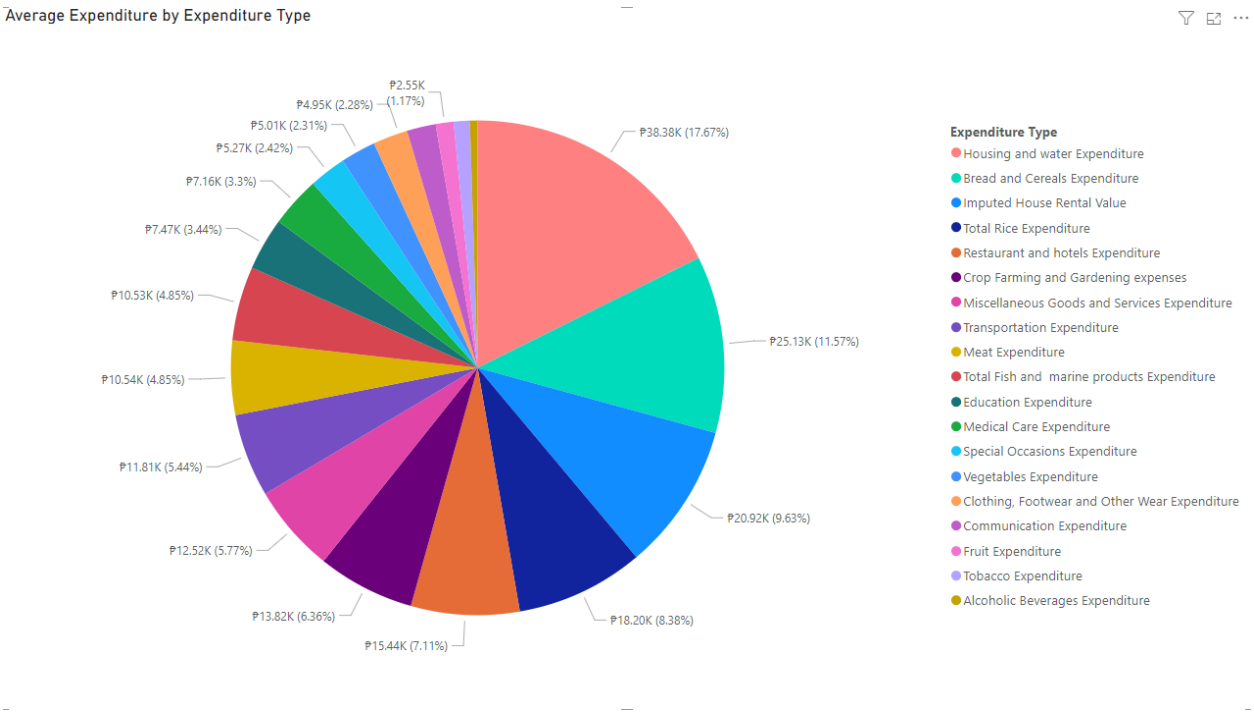
Query:

```
SELECT expenditure_type, AVG(expenditure) as average_expenditure
FROM `projects.Family Income and Expenditure`
GROUP BY expenditure_type
ORDER BY average_expenditure DESC;
```

Result:

Row	expenditure_type	average_expenditure
1	Housing and water Expenditure	38375.467793183387
2	Bread and Cereals Expenditure	25133.72364240318
3	Imputed House Rental Value	20921.544627382875
4	Total Rice Expenditure	18195.825004814014
5	Restaurant and hotels Expendit...	15436.566074523351
6	Crop Farming and Gardening e...	13816.859715000839
7	Miscellaneous Goods and Serv...	12522.07163489304
8	Transportation Expenditure	11806.344454072751
9	Meat Expenditure	10540.072573656849
10	Total Fish and marine product...	10529.318337184613
11	Education Expenditure	7473.5004814172889
12	Medical Care Expenditure	7160.2309358752264
13	Special Occasions Expenditure	5265.7260013478926
14	Vegetables Expenditure	5006.9185682649231
15	Clothing, Footwear and Other ...	4954.6210764490488
16	Communication Expenditure	4095.49205661473
17	Fruit Expenditure	2550.4749903716688
18	Tobacco Expenditure	2294.7361833236932
19	Alcoholic Beverages Expenditure	1085.0681205468966

Visualization:



Findings:

1. Families allocate the highest expenditure to Housing and Water, averaging PHP 38,375.
2. Families allocate the lowest expenditure to Alcoholic Beverages, averaging only PHP 1,085.

Summary of Findings

The National Capital Region (NCR) exhibits the highest average household income at PHP 420,862, significantly surpassing the Autonomous Region in Muslim Mindanao (ARMM), which records the lowest at PHP 134,747. NCR's average income is 70.01% higher than the national average, whereas ARMM's is 45.57% lower. The income disparity between NCR and ARMM is stark, with NCR's income being 212.34% higher. Similarly, NCR leads in average expenditure at PHP 18,740, while Region IX – Zamboanga Peninsula reports the lowest at PHP 8,273. NCR's expenditure exceeds the national average by 63.96%, while Region IX lags by 27.62%. The expenditure gap between NCR and Region IX stands at 126.52%. On average, families spend the most on Housing and Water (PHP 38,375) and the least on Alcoholic Beverages (PHP 1,085).

Conclusion

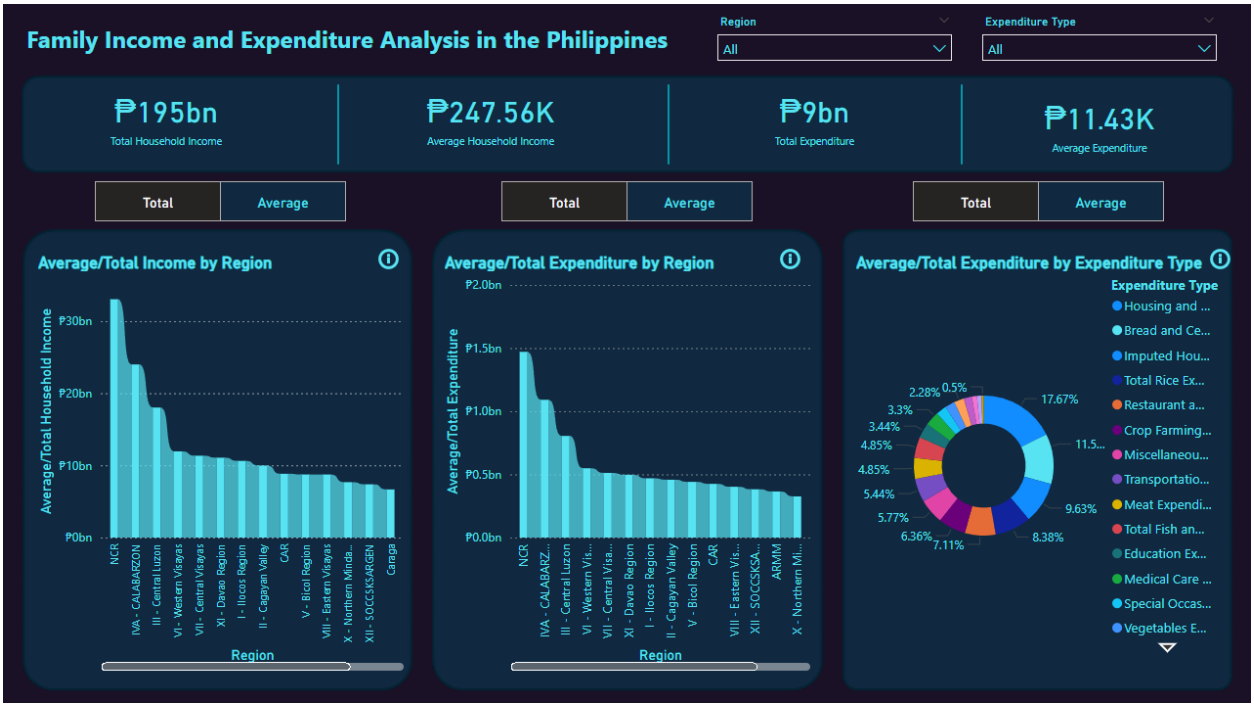
The data highlights significant regional disparities in both income and expenditure across the Philippines, with the National Capital Region consistently showing higher averages compared to other regions. The big differences, especially between NCR and ARMM or Region IX, show the economic divide within the country.

Insights

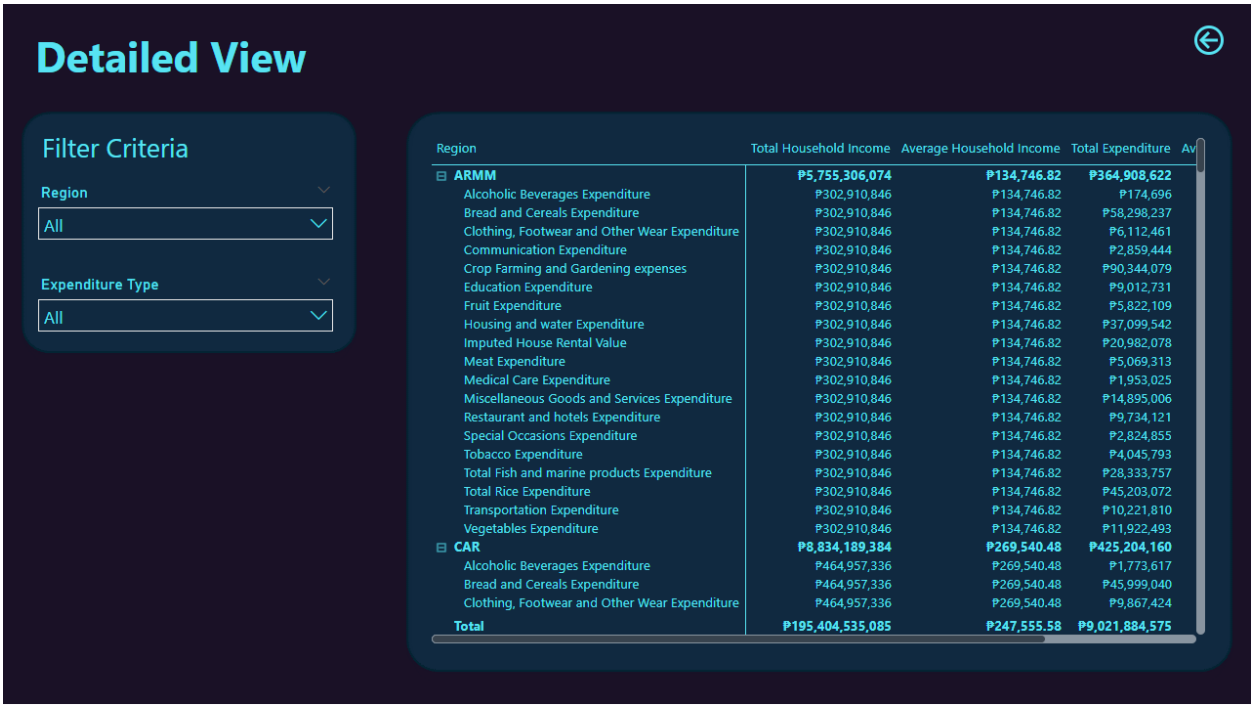
1. The significant income and expenditure disparities between regions like NCR and ARMM highlight a notable economic divide, which likely leads to unequal access to opportunities and resources.
2. The high spending in NCR indicates a higher cost of living, potentially driven by factors such as urbanization, housing costs, and infrastructure development, which may not be as prevalent in other regions.
3. These findings can help policymakers create targeted economic strategies to reduce regional inequalities. This could include investing in infrastructure, education, and healthcare in less affluent areas to promote economic growth.
4. The differences in expenditure categories, especially the high spending on Housing and Water and the low spending on Alcoholic Beverages, demonstrate varying priorities and living conditions. This information could assist businesses in customizing their services and products to meet regional demands.
5. The government and non-profit organizations can use this data to develop social programs that cater to the specific needs of regions with lower incomes and expenditures, fostering inclusive growth and development.

DASHBOARD

Summary Page:



Detail Page:



Region	Total Household Income	Average Household Income	Total Expenditure	Av
ARMM	**₱5,755,306,074**	**₱134,746.82**	**₱364,908,622**	
Alcoholic Beverages Expenditure	₱302,910,846	₱134,746.82	₱174,696	
Bread and Cereals Expenditure	₱302,910,846	₱134,746.82	₱58,298,237	
Clothing, Footwear and Other Wear Expenditure	₱302,910,846	₱134,746.82	₱6,112,461	
Communication Expenditure	₱302,910,846	₱134,746.82	₱2,859,444	
Crop Farming and Gardening expenses	₱302,910,846	₱134,746.82	₱90,344,079	
Education Expenditure	₱302,910,846	₱134,746.82	₱9,012,731	
Fruit Expenditure	₱302,910,846	₱134,746.82	₱5,822,109	
Housing and water Expenditure	₱302,910,846	₱134,746.82	₱37,099,542	
Imputed House Rental Value	₱302,910,846	₱134,746.82	₱20,982,078	
Meat Expenditure	₱302,910,846	₱134,746.82	₱5,069,313	
Medical Care Expenditure	₱302,910,846	₱134,746.82	₱1,953,025	
Miscellaneous Goods and Services Expenditure	₱302,910,846	₱134,746.82	₱14,895,006	
Restaurant and hotels Expenditure	₱302,910,846	₱134,746.82	₱9,734,121	
Special Occasions Expenditure	₱302,910,846	₱134,746.82	₱2,824,855	
Tobacco Expenditure	₱302,910,846	₱134,746.82	₱4,045,793	
Total Fish and marine products Expenditure	₱302,910,846	₱134,746.82	₱28,333,757	
Total Rice Expenditure	₱302,910,846	₱134,746.82	₱45,203,072	
Transportation Expenditure	₱302,910,846	₱134,746.82	₱10,221,810	
Vegetables Expenditure	₱302,910,846	₱134,746.82	₱11,922,493	
CAR	**₱8,834,189,384**	**₱269,540.48**	**₱425,204,160**	
Alcoholic Beverages Expenditure	₱464,957,336	₱269,540.48	₱1,773,617	
Bread and Cereals Expenditure	₱464,957,336	₱269,540.48	₱45,999,040	
Clothing, Footwear and Other Wear Expenditure	₱464,957,336	₱269,540.48	₱9,867,424	
Total	**₱195,404,535,085**	**₱247,555.58**	**₱9,021,884,575**	