ECON4225 Homework 1

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Part 1: Overview of the Dataset

Question 1: household and variable count

This dataset has 9066 households and 38 variables, including the household ID.

```
## [1] "rows: 9066"
```

```
##  [1] "ID"               "AGE_HEAD"         "AGE_SPOUSE"       "SEX_HEAD"
##  [5] "SEX_SPOUSE"       "EDU_HEAD"         "EDU_SPOUSE"       "OCC_HEAD"
##  [9] "OCC_SPOUSE"       "STATE"            "MARITAL"          "HOUSEHOLD_SIZE"
## [13] "CHILDREN"         "SPOUSE_PRESENT"   "WEIGHT"           "INCOME"
## [17] "HEAD_LABOR"       "SPOUSE_LABOR"     "WEEKS_HEAD"       "WEEKS_SPOUSE"
## [21] "WEEKS_OUT_HEAD"   "WEEKS_OUT_SPOUSE" "EXP"              "GAS"
## [25] "FOOD_HOME"        "FOOD_DELIV"       "FOOD_OUT"         "RENT"
## [29] "EDUC_EXP"         "CHILDCARE"        "TRIPS"            "WEALTH"
## [33] "HOUSE_VALUE"      "MORTGAGE"         "MORT_PAY"         "HOME_EQUITY"
## [37] "BUSINESS_VAL"     "PROPERTY_TAX"
```

Question 2

The average age of the household head is 46.25. The highest age is 102 and the lowest age is 18.

```
## [1] "Mean age: 46.25"
```

```
## [1] "Highest age: 102"
```

```
## [1] "Lowest age: 18"
```

Question 3: Income

The average household income is $78,265.69. This is substantially lower the $142k reported by the SCF in 2022 (Section 1.2, slide 9). One possible reason for this difference is that the SCF surveys a small sample, focusing on high-income individuals, resulting in a less representative mean. The PSID has a larger sample, with less emphasis on the top of the income distribution.

```
## [1] "Mean household income: 78265.69"
```

Question 4: income range

The household incomes in the dataset have a wide range: the lowest is -$267,900 and the highest is $2,125,100. The households with negative income are likely in debt.

```
## [1] "Lowest household income: -267900"
```

```
## [1] "Highest household income: 2125100"
```

Question 5: spouse age

Of the 4,523 households with a spouse of the household head present, the average age of the spouse is 45.64 years.

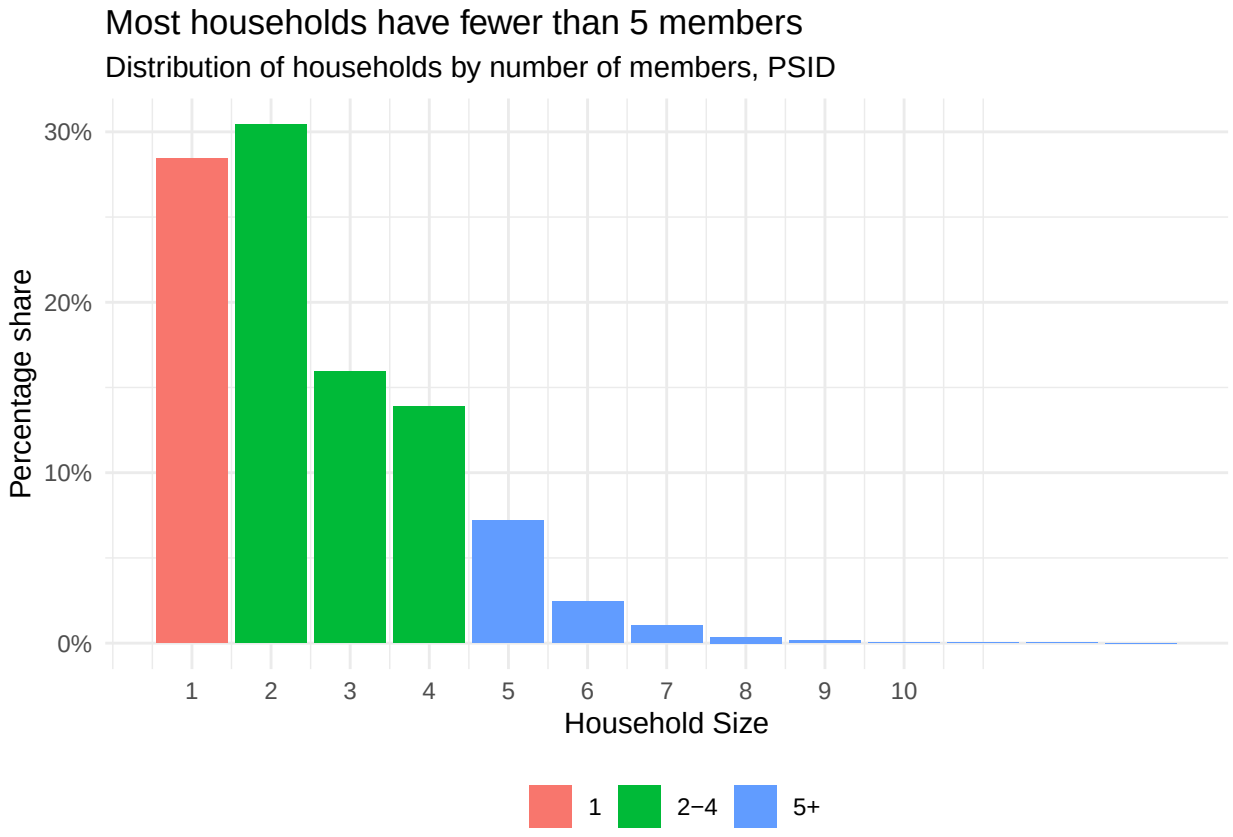
```
## [1] "Mean spouse age: 45.64"
```

Question 6: household members

Households with only 1 member make up 28.45% of the data. Households with 5 or more members make up 11.29%. Compared to the histogram shown in class, the PSID has fewer 2-member households and more 3-5 member households. In both datasets, about 28% of households have one member. The PSID dataset has a smaller share of two-member households: only 30.43% compared to the nearly 35% shown on slide 2 [what dataset is this?]. PSID has a slightly larger share of households with 3 members: 15.95%, compared to the slide's 15%; a 13.88% share of 4-member households, compared to the slide's 12.5%; and a 7.2% share of 5-member households, compared to just past 5% in the slide.

Table 1: Percentage share of PSID households by size

size_group	count	pct
1	2579	28.45
2–4	5463	60.26
5+	1024	11.29



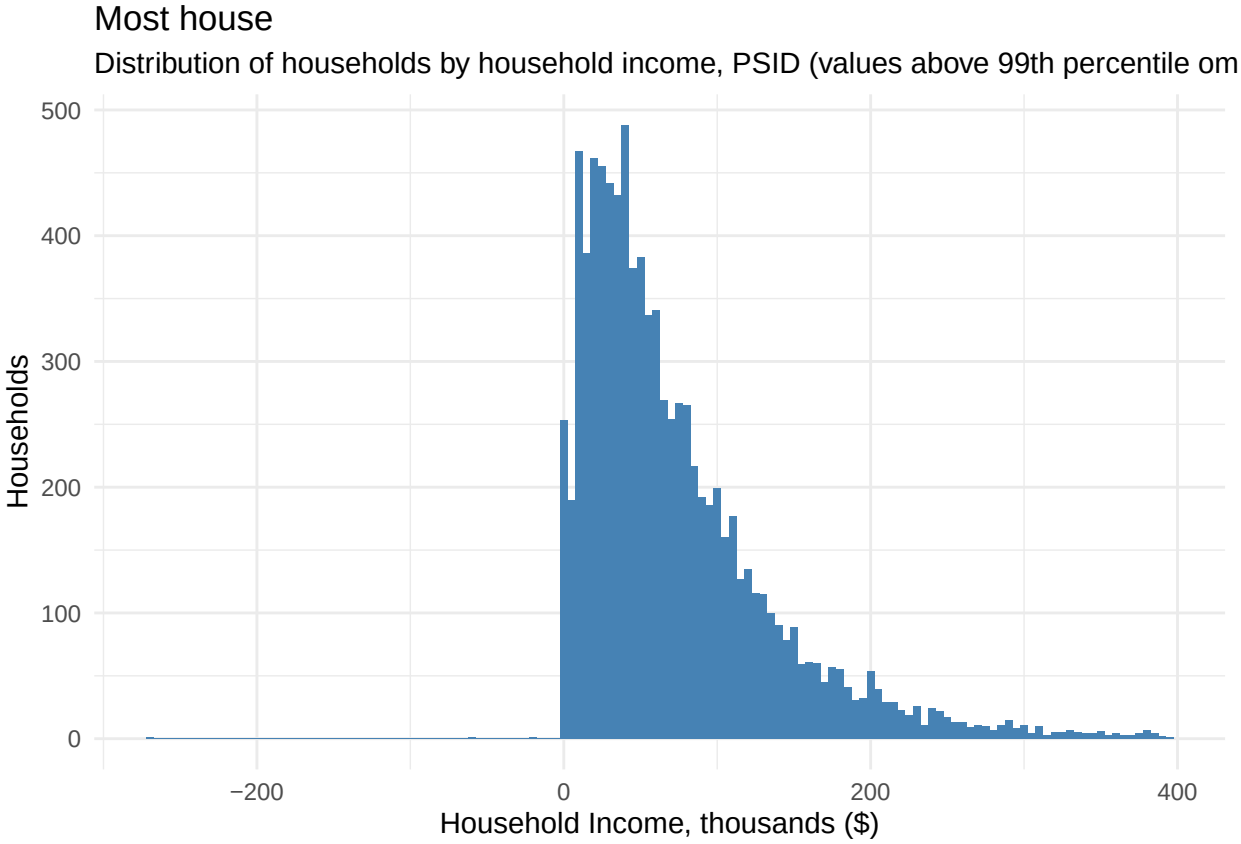
Part 2: Income Distribution

Question 1

The following histogram shows the distribution of household incomes in the PSID, with values above the 99th percentile removed. The distribution is right-skewed, as the median of $55,090 is lower than the mean of $78,266. The majority of households earn less than $100,682, which is the 75th percentile. A small minority of households surveyed have higher household incomes, up to $2.13 million.

Table 2: Distribution of Household Incomes

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
-267900	28000	55090	78266	100681	2125100



Question 2

- Lorenz Curve of household income
- Description of lorenz curve findings

Question 3

- Coefficient of variation
- Compare to SCF

Question 4

- Income adjusted for number of household heads (filter only for households with spouses, divide income by 2)
- Lorenz curve of adjusted income alongside regular income
- Conclusions from comparison

Question 5

- 30th, 50th, 90th, 99th percentile of income
- 90-30, 90-50, 30-10, 99-50 ratios
- Interpretation of ratios
- Comparison with SCF

Question 6

- Share of income by quintile
- Average income by quintile
- Interpretation of results
- Comparison with SCF (lecture)

Question 7

- Average income and income share for top 1%
- Comparison with SCF

Part 3: Labor Income

Question 1

- Create variable of total labor income of household
- Earnings and share of earnings for each quintile

Question 2

- Compare distribution of household earnings vs income
- Compare share of quintiles
- Coefficient of variation
- Lorenz curve of labor earnings and total household income
- Compare relative inequality in labor earnings vs total household income

Question 3

- Create variable of share of labor earnings in total household income
- Average share of labor earnings

Question 4

- Average share of labor earnings by quintile of income distribution
- Share of labor earnings for top 1%
- Compare both to SCF
- Comment on differences

Question 5

- Filter by households where household head has positive work weeks and positive earnings
- Weekly wage of household head
- Variance of log of earnings, wages, weeks worked
- Relative contribution of hours and wages to inequality in labor earnings?
- Caveats to this calculation?

Question 6

- Regression of log wages of household head on age, age^2, education, occupation
- Residuals
- Variance of residuals
- Share of inequality explained by age, education and occupation?