

DATA-DRIVEN ANALYSIS OF EMPLOYMENT CONDITIONS AND FOOD SECURITY IN THE UNITED STATES (2022)

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AGENDA

- Introduction
- Data Sources
- Data Pipeline
- Exploratory Data Analysis(EDA)
- Key Insights
- Conclusion
- Limitations and Future Scope



MOTIVATION

Current Landscape of Food Insecurity and Employment in the United States

Food Insecurity:

- 2022: 12.8% of households (17.0 million)
- 2023: 13.5% of households (18.0 million)
- 2024: 47.4 million individuals

Employment:

- 2022 & 2023 : Unemployment Rate: 3.7%
- 2024: Unemployment Rate : 4.2%
- Unemployed Individuals: 6.3 million



RESEARCH QUESTION

How do employment conditions affect household food security in the United States in 2022?



DATA SOURCES



DATASET 1:

- **Job and Employment Conditions Dataset (HC-237)**
- Employment type, hours worked, wages, and insurance acceptance.



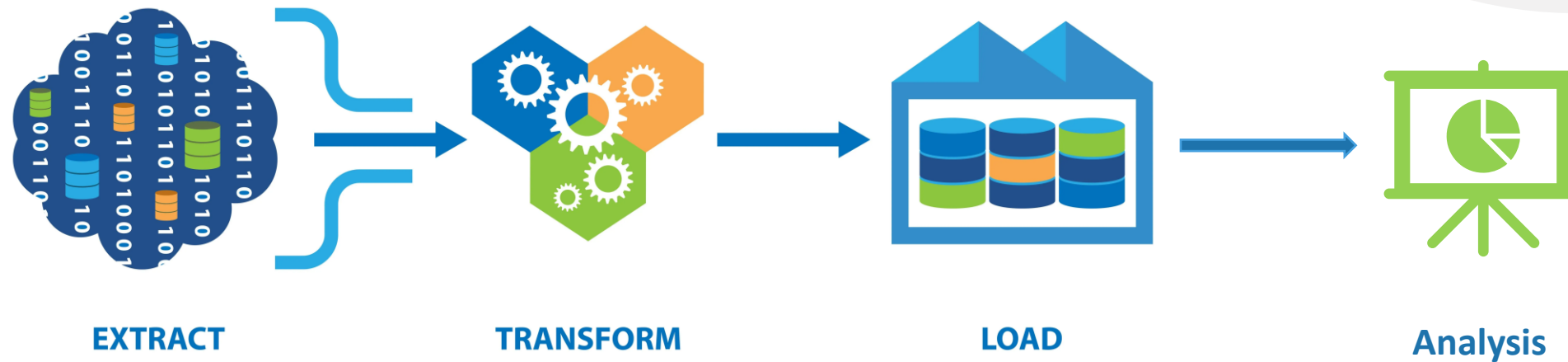
DATASET 2:

- **Food Security Dataset (HC-240)**
- Concerns about food running out, skipping meals, and affordability.



DATA PIPELINE

Python
ETL Pipeline Architecture



PIPELINE OUTPUT

Merged Dataset

dwelling_unit_id	job_type	hours_per_week	gross_pay	daily_wage	offered_insurance_accepted	food_out_worry	food_not_last	could_not_afford_meal	meal_skip	food_weight
2460006	2	43	-1.000000	-1	-1	3	3	3	-1	16027.953624
2460006	2	43	-1.000000	-1	-1	3	3	3	-1	16027.953624
2460006	2	43	-1.000000	-1	-1	3	3	3	-1	16027.953624
2460010	2	40	-1.000000	-1	-1	3	3	3	-1	21919.533067
2460010	2	40	110000.000000	-1	-1	3	3	3	-1	21919.533067
2460010	2	40	110000.000000	-1	-1	3	3	3	-1	21919.533067
2460010	2	40	115000.000000	-1	-1	3	3	3	-1	21919.533067
2460018	2	40	-1.000000	-1	-1	3	3	3	-1	11351.424224
2460018	2	40	-1.000000	-1	-1	3	3	3	-1	11351.424224
2460018	2	40	-1.000000	-1	-1	3	3	3	-1	11351.424224

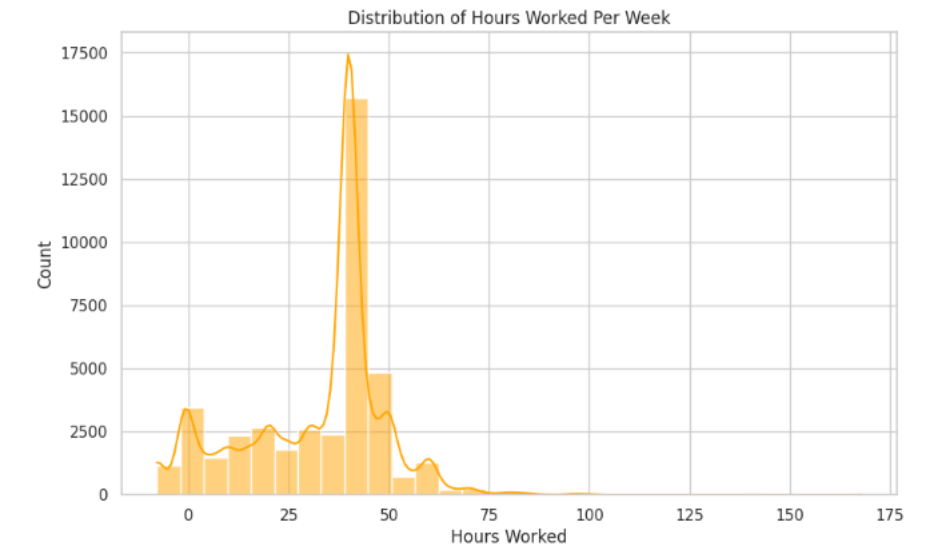
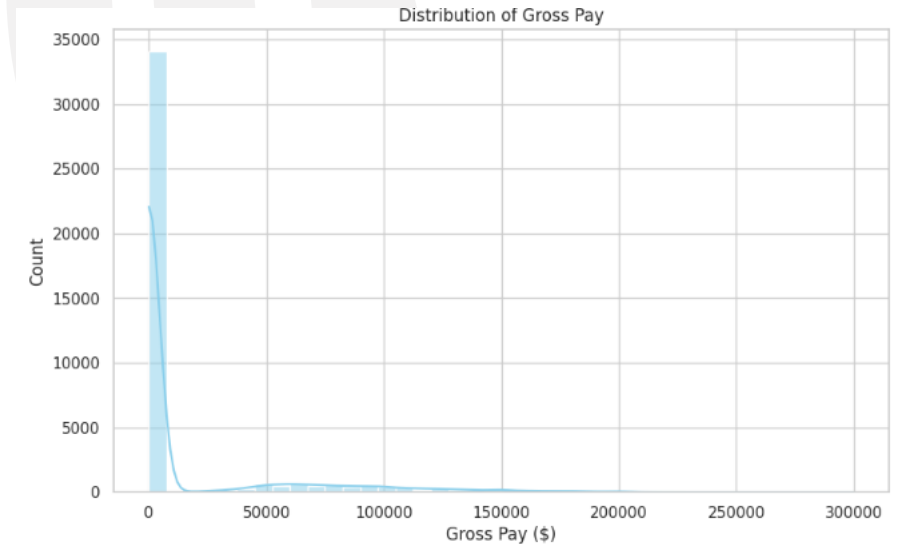
EXPLORATORY DATA ANALYSIS(EDA)

Distribution of Gross Pay:

- Observation: Most respondents earn low salaries; higher earnings are rare.

Distribution of Hours Worked Per Week:

- Observation: Standard 40-hour workweek dominates, few extreme outliers.



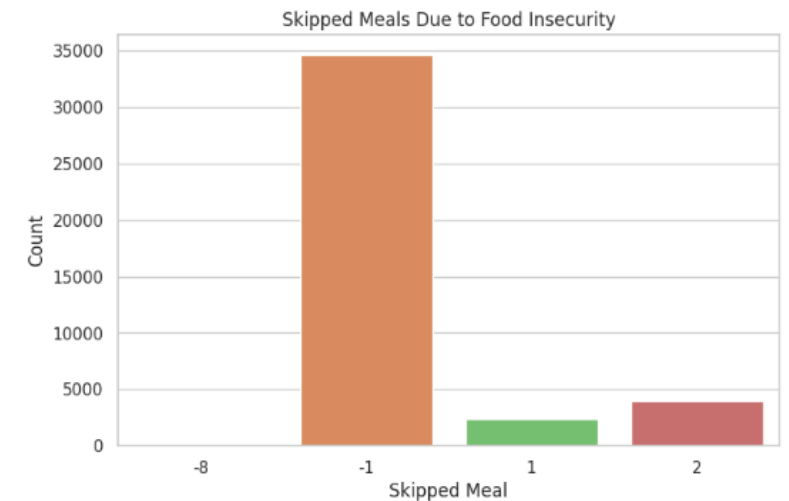
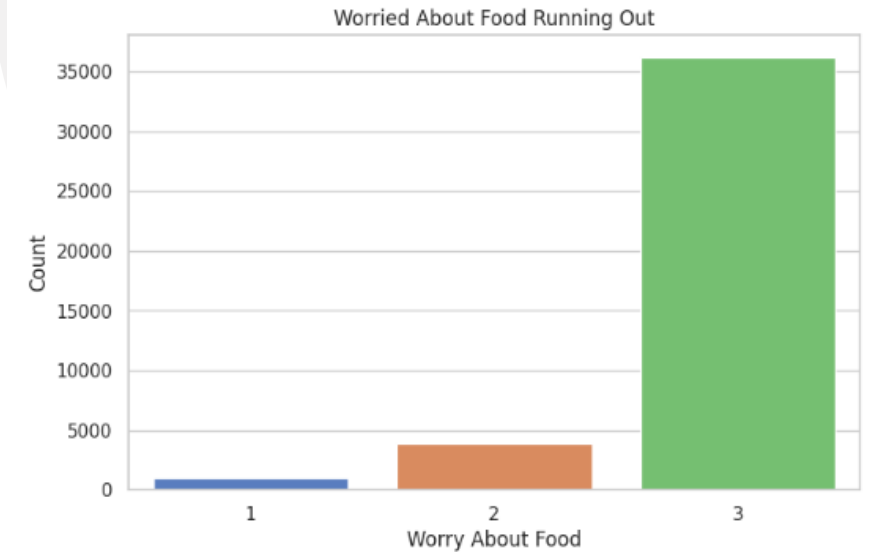
EXPLORATORY DATA ANALYSIS(EDA)

Worry About Food Running Out:

- High levels of concern about food availability.

Skipped Meals:

- Financial constraints caused meal skipping in a significant number of households



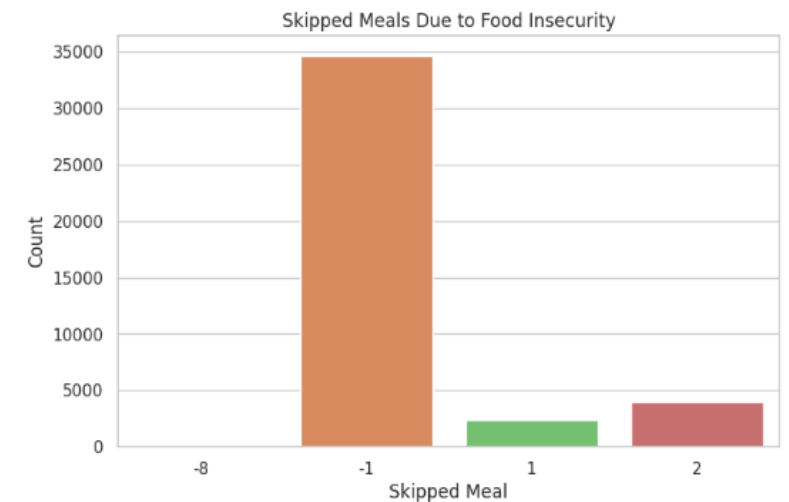
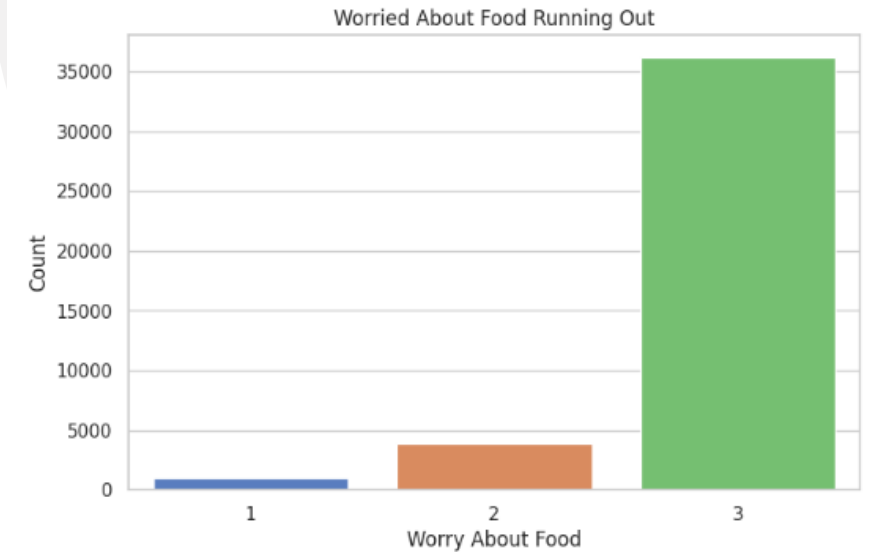
EXPLORATORY DATA ANALYSIS(EDA)

Gross Pay vs Skipped Meals:

- Lower wages correlated with higher food insecurity.

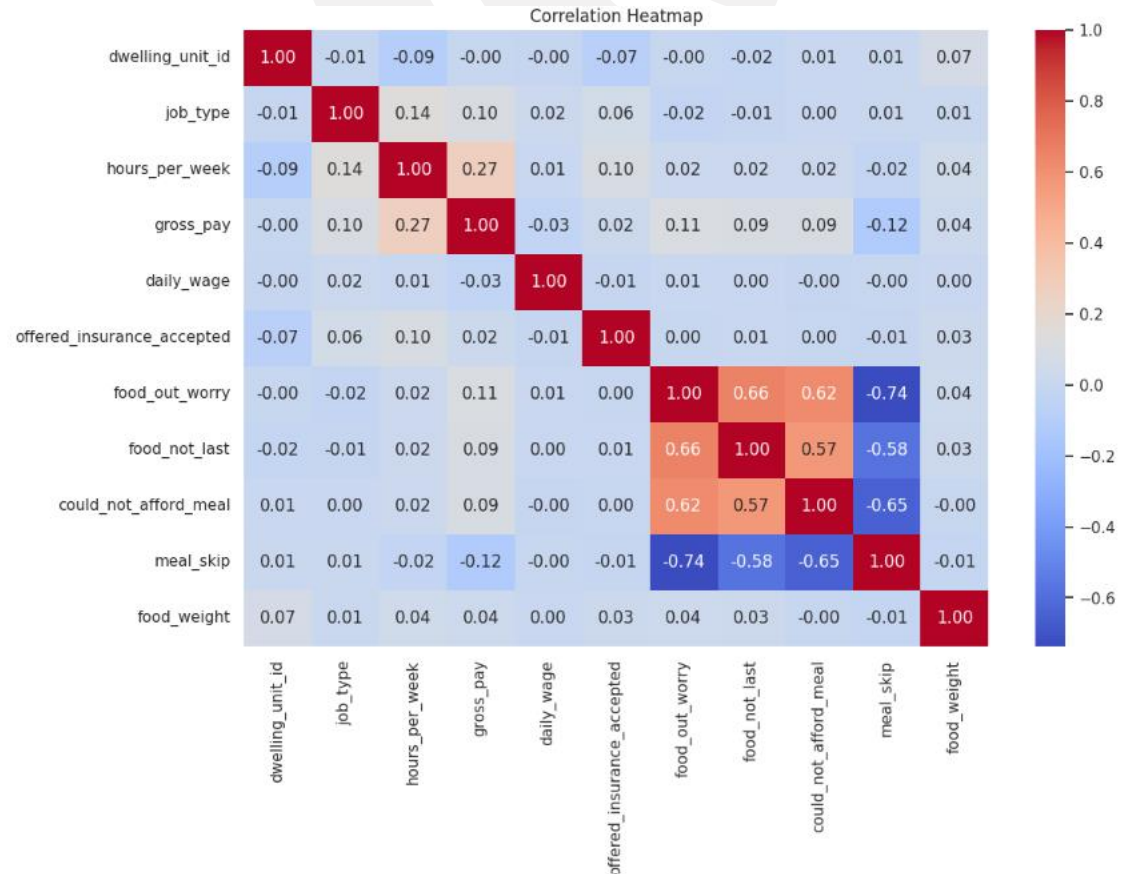
Hours Worked vs Food Worry:

- Fewer hours worked associated with increased food insecurity concerns.



CORRELATION ANALYSIS

Strong negative correlation between gross pay and food insecurity.



KEY INSIGHTS

- Higher wages reduce food insecurity risks.
- Lower working hours increase concerns about food availability.
- Employment conditions are significant predictors of food security outcomes.

CONCLUSION

- Employment metrics (wages, hours) have a direct impact on household food security.
- Policy recommendations: Focus on stable employment and wage improvement.
- Addressing food insecurity requires targeted socio-economic policies.

LIMITATIONS AND FUTURE WORK

Limitations:

Missing values, data merging issues, static nature of data.

Future Scope:

- Integration of real-time datasets.
- Inclusion of additional demographic features.
- Advanced predictive modeling techniques.

Thank You

REFERENCES

- [MEPS - HC-237 Job and Employment Conditions Dataset \(2022\)](#)
- [MEPS - HC-240 Food Security Dataset \(2022\)](#)
- <https://www.barrons.com/articles/fed-labor-market-jobs-recession-rate-cuts-c86c1dde>
- <https://www.ers.usda.gov/publications/pub-details/?pubid=107702&>