

# Fairfluence Report

The dataset used to create this report:  
<https://huggingface.co/datasets/scikit-learn/adult-census-income>

## Dataset Summary

Metric	Value
Number of Columns	15
Number of Records	32561
Total Cells	488415
Missing Cells	0
Missing Percentage	0.00%
Duplicate Records	24
Duplicate Percentage	0.07%
Memory Usage	18070.45 KB
Average Record Size	568.29 Bytes

## Column Type Summary

Column Type	Count
Categorical Columns	10
Numeric Columns	5
Text Columns	0

## Alerts

Level	Message
Info	Column "age" has no missing values
Info	Column "workclass" has no missing values
Info	Column "fnlwgt" has no missing values
Info	Column "education" has no missing values
Info	Column "education.num" has no missing values
Info	Column "marital.status" has no missing values
Info	Column "occupation" has no missing values
Info	Column "relationship" has no missing values
Info	Column "race" has no missing values
Info	Column "sex" has no missing values
Info	Column "capital.gain" has no missing values
Info	Column "capital.loss" has no missing values
Info	Column "hours.per.week" has no missing values
Info	Column "native.country" has no missing values

Info	Column "income" has no missing values
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Quality Results

F1 Score Report

F1 Score (Original)	F1 Score (Statistic)	F1 Score (Influence)
0.8769	0.8778	0.8752

Outlier Summary

Influence Outliers (Count)	Influence Outliers (%)	Mahalanobis Outliers (Count)	Mahalanobis Outliers (%)	Overlap (Count)
1995	6.127	2031	6.2375	335

Fairness Results

Top Patterns

Pattern Column 1	Pattern Value 1	Support	Responsibility	Interestingness
income	>50K	0.2408	70.0882	291.034
occupation	Exec-managerial	0.1246	16.4371	131.9015
marital.status	Divorced	0.1381	12.9041	93.4465
relationship	Unmarried	0.1068	8.9784	84.0958
education	Masters	0.0536	2.9717	55.4887

Fairness (No Influence)

Sensitive Feature	DPD	DPD Fair	EOD	EOD Fair	PPV Diff	PPV Fair
age	0.4516	False	1.0	False	0.2778	False
marital.status	0.4897	False	0.5088	False	0.2974	False
occupation	0.4988	False	0.9048	False	0.2019	False
race	0.192	False	0.4596	False	0.0783	True
sex	0.1775	False	0.0962	True	0.1042	False
native.country	1.0	False	1.0	False	1.0	False

Fairness (With Influence)

Influence Group	Positive Group	Mean (Positive)	Mean (Other)	Mean Difference	Influence Fair	Cohen Fair
income	>50K	-0.00000980	0.00000307	-0.00001287	False	True
occupation	Exec-managerial	-0.00000444	0.00000059	-0.00000504	False	True
marital.status	Divorced	-0.00000315	0.00000047	-0.00000361	False	True
relationship	Unmarried	-0.00000283	0.00000030	-0.00000313	False	True

education	Masters	-0.00000187	0.00000007	-0.00000194	False	True
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