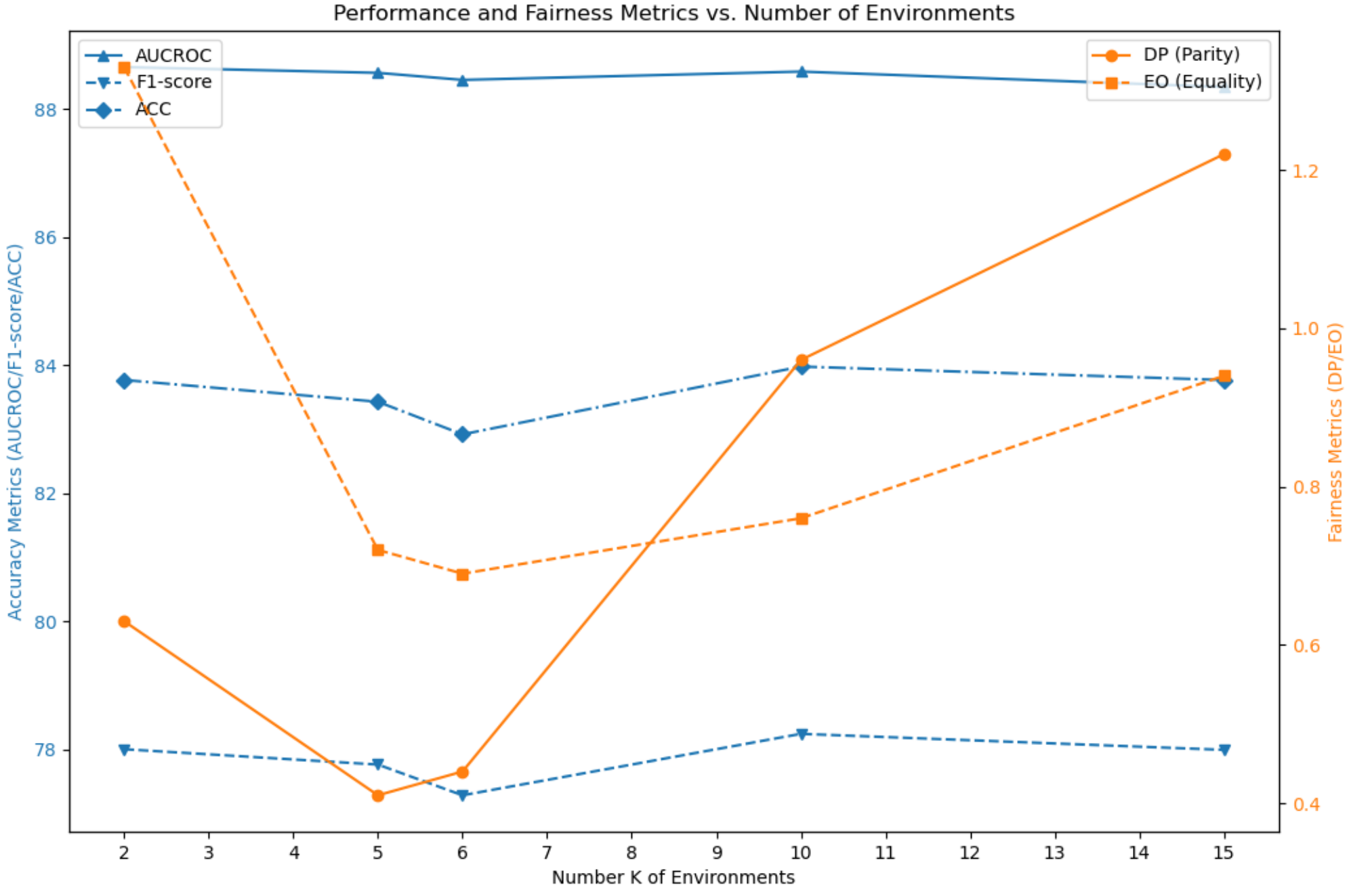
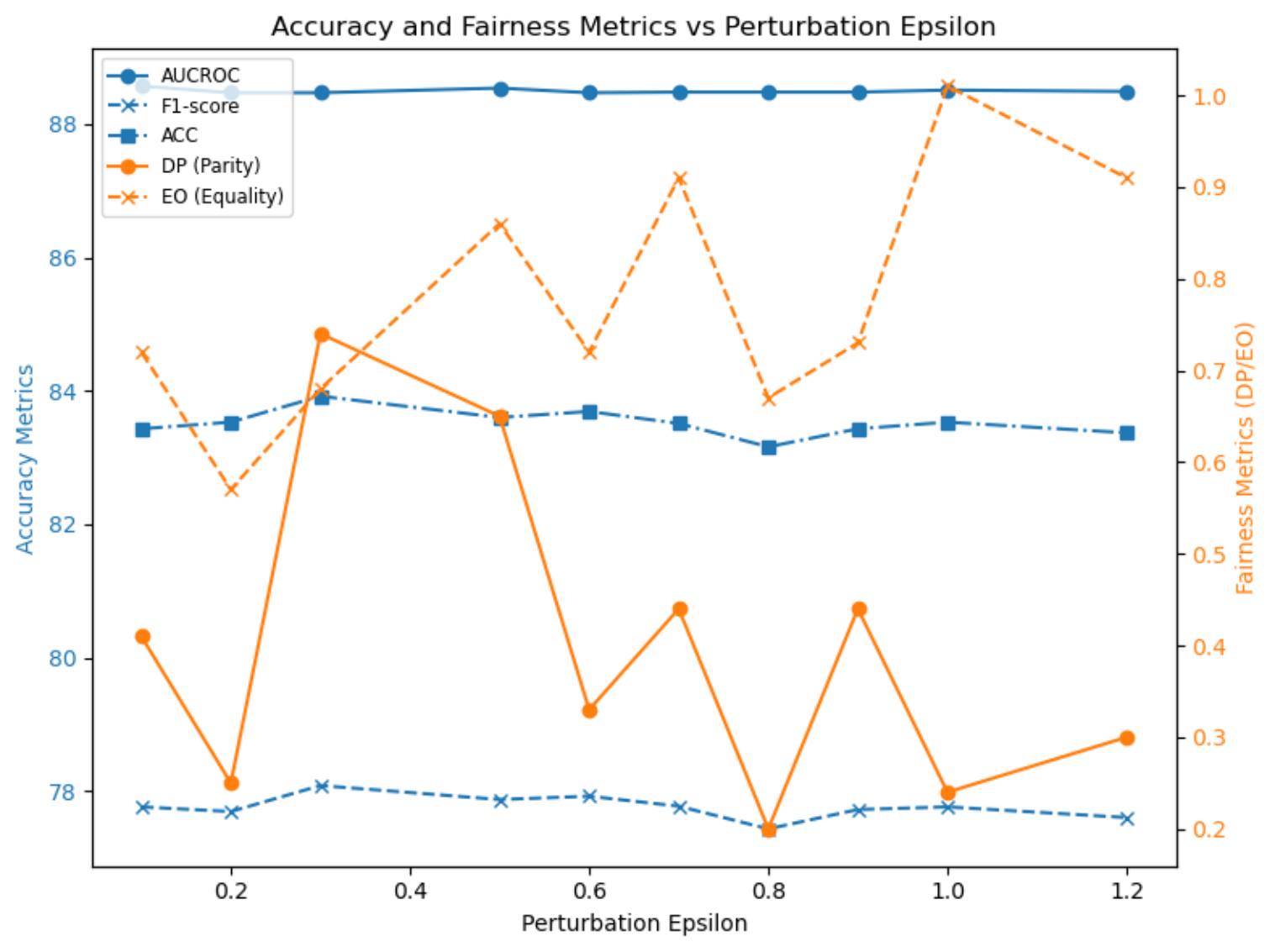
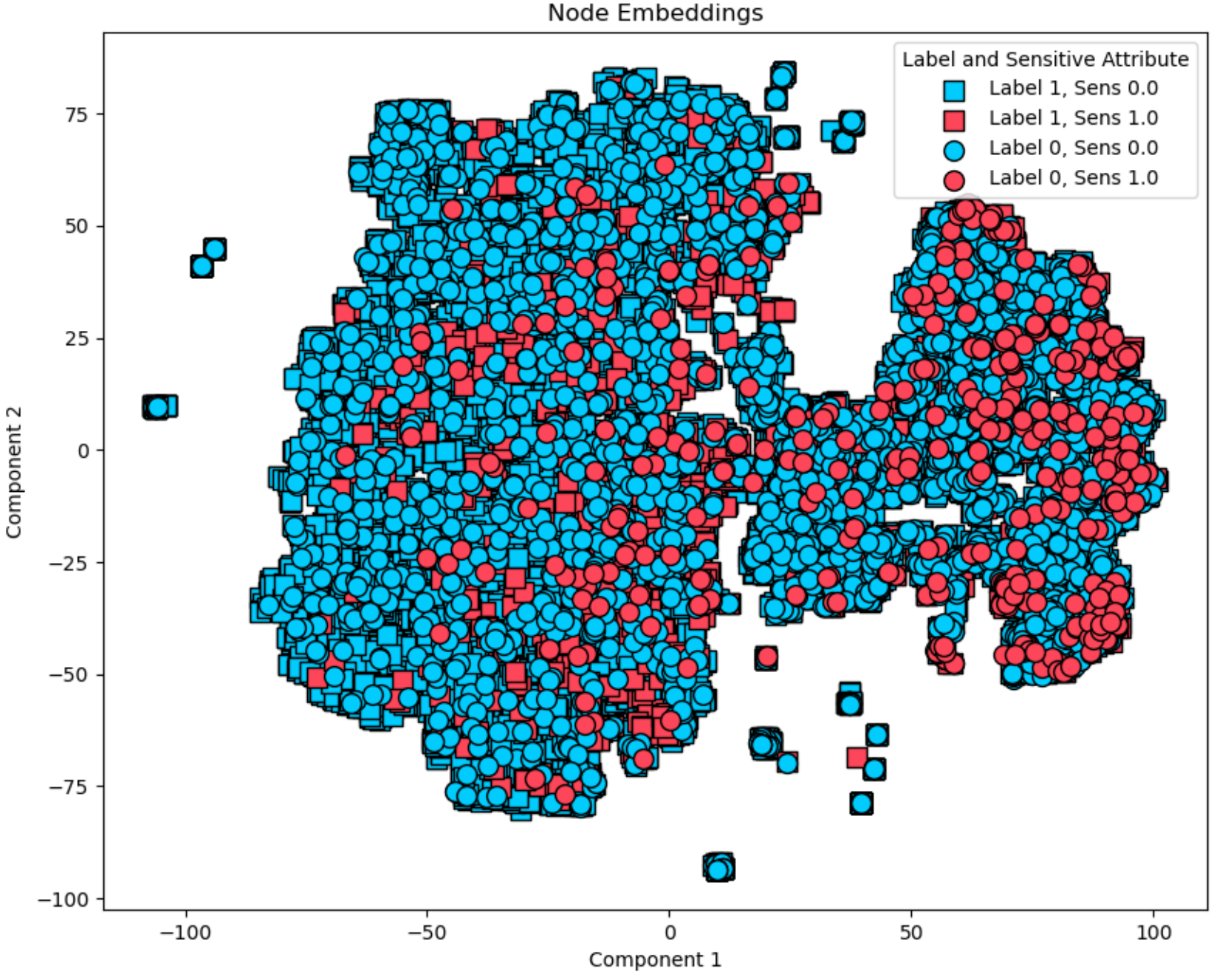
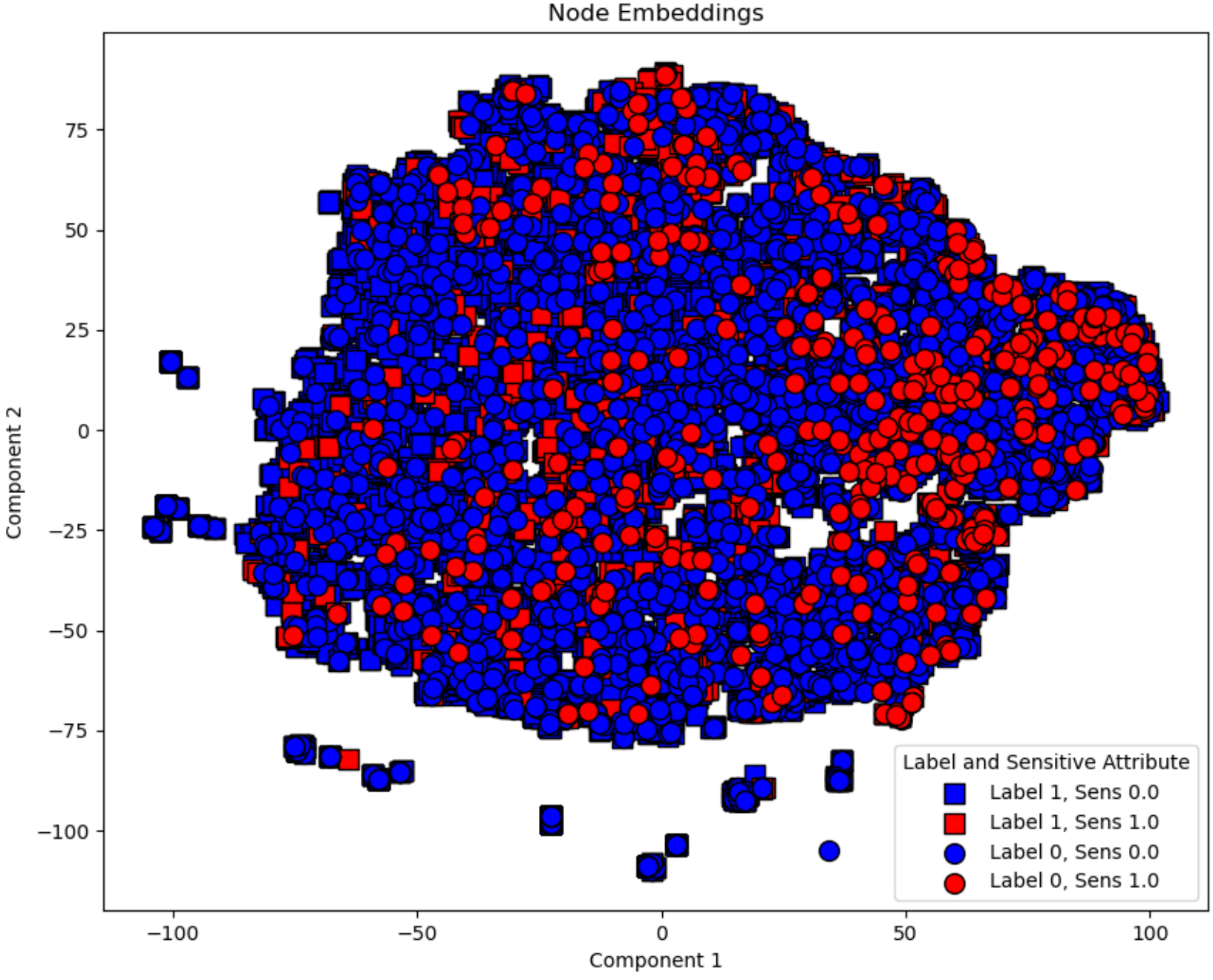
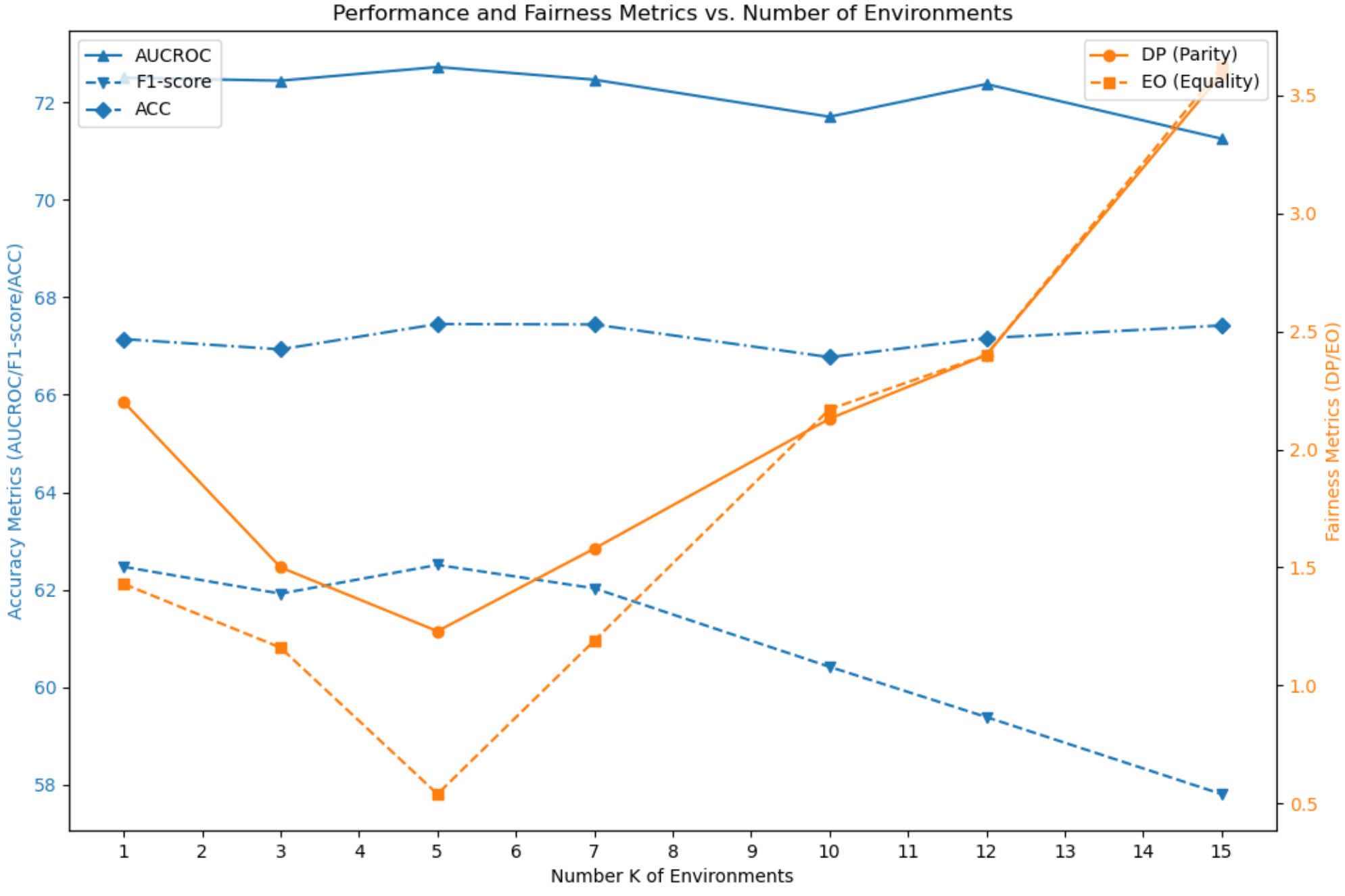
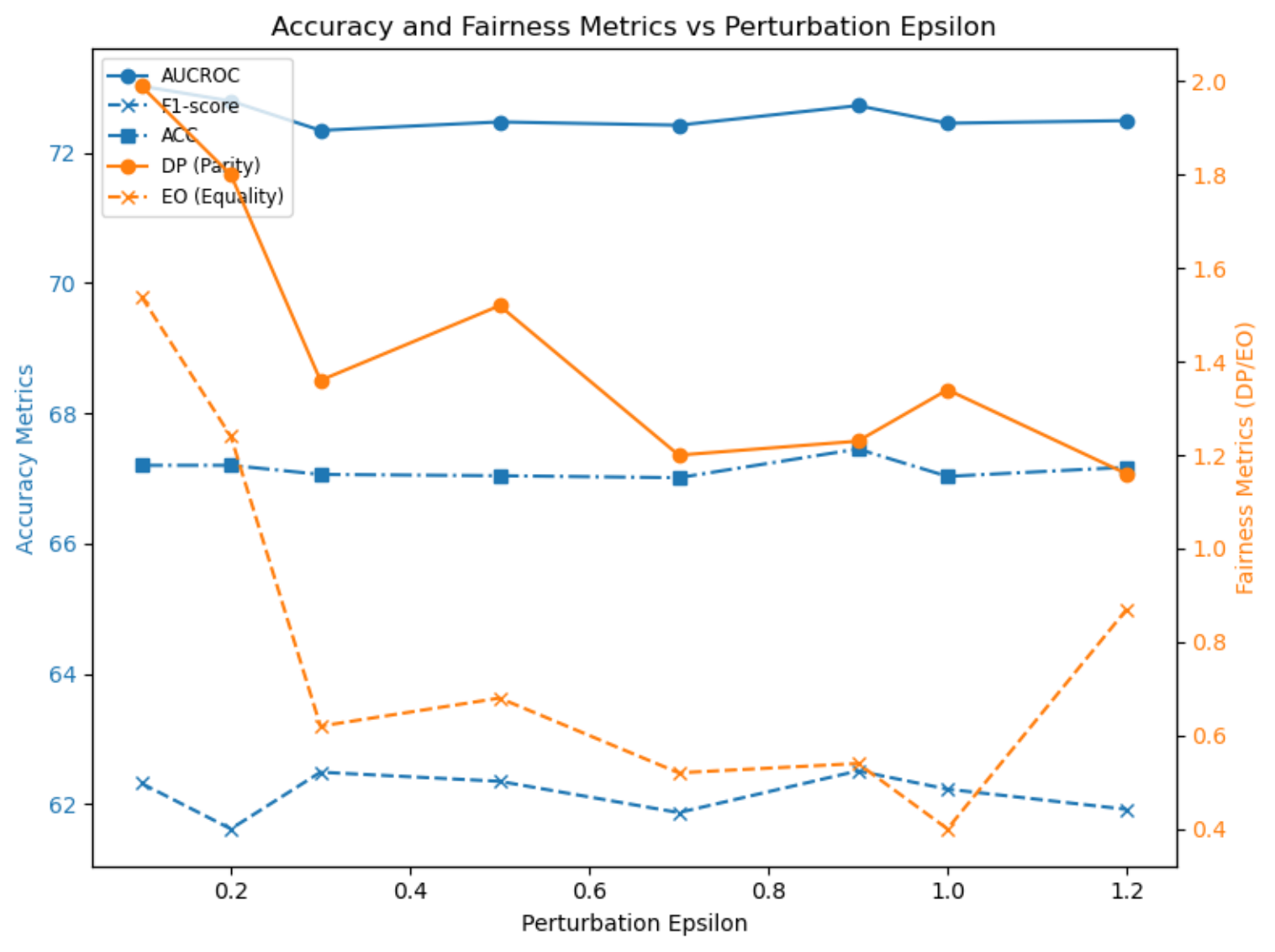

Performance and Fairness Metrics vs. Number of Environments
AUCROC
F1-score
ACC
DP (Parity)
EO (Equality)
Accuracy Metrics (AUCROC/F1-score/ACC)
Fairness Metrics (DP/EO)
Number K of Environments
88
86
84
82
80
78
1.2
1.0
0.8
0.6
0.4
2
3
4
5
6
7
8
9
10
11
12
13
14
15

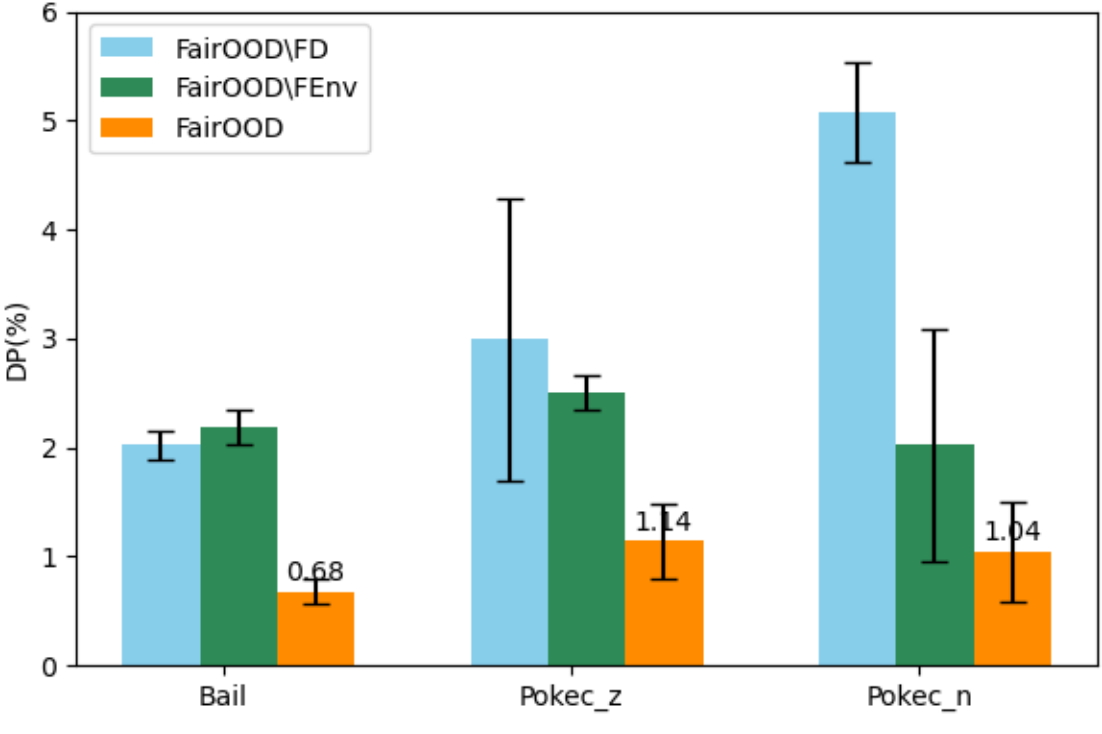

Accuracy and Fairness Metrics vs Perturbation Epsilon
AUCROC
F1-score
ACC
DP (Parity)
EO (Equality)
Accuracy Metrics
Fairness Metrics (DP/EO)
Perturbation Epsilon
88
86
84
82
80
78
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.2
0.4
0.6
0.8
1.0
1.2

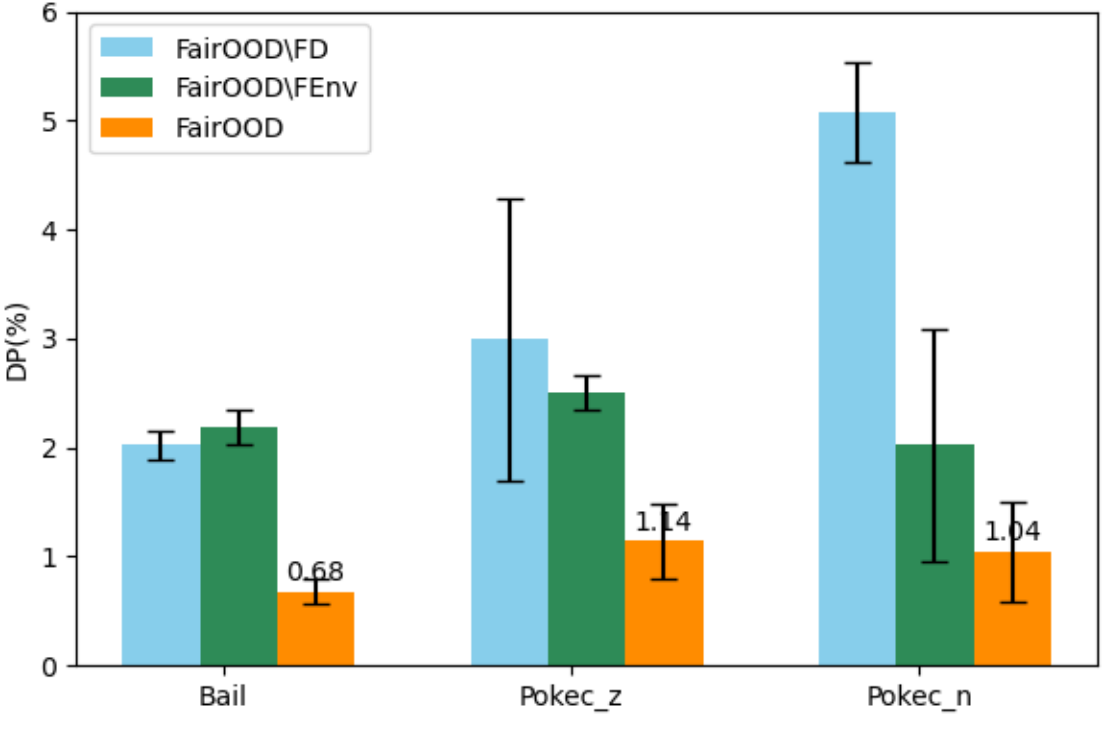

Node Embeddings
Label and Sensitive Attribute
Label 1, Sens 0.0
Label 1, Sens 1.0
Label 0, Sens 0.0
Label 0, Sens 1.0
Component 2
Component 1
75
50
25
0
−25
−50
−75
−100
−100
−50
0
50
100

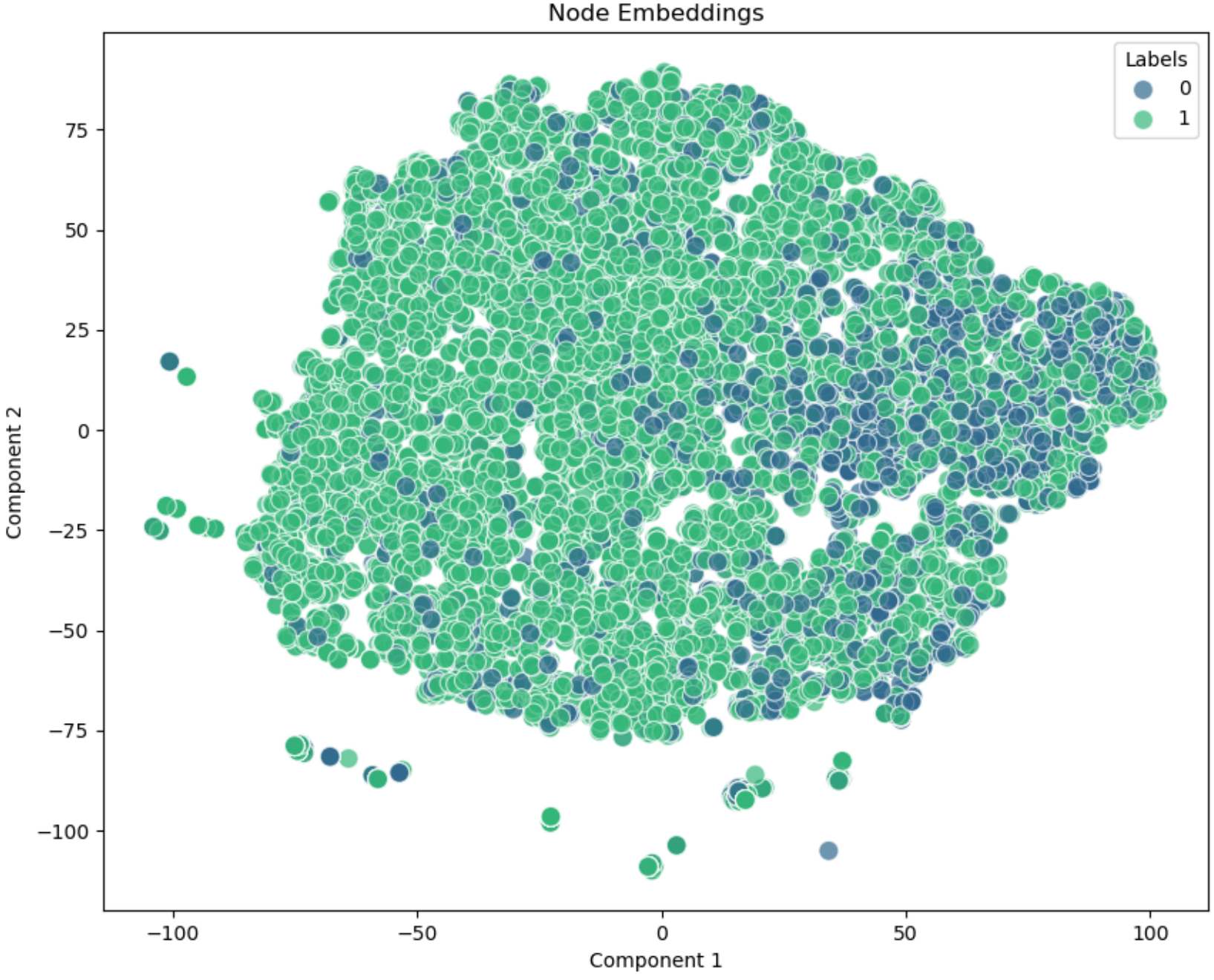

Node Embeddings
Component 2
Component 1
75
50
25
0
−25
−50
−75
−100
−100
−50
0
50
100
Label and Sensitive Attribute
Label 1, Sens 0.0
Label 1, Sens 1.0
Label 0, Sens 0.0
Label 0, Sens 1.0

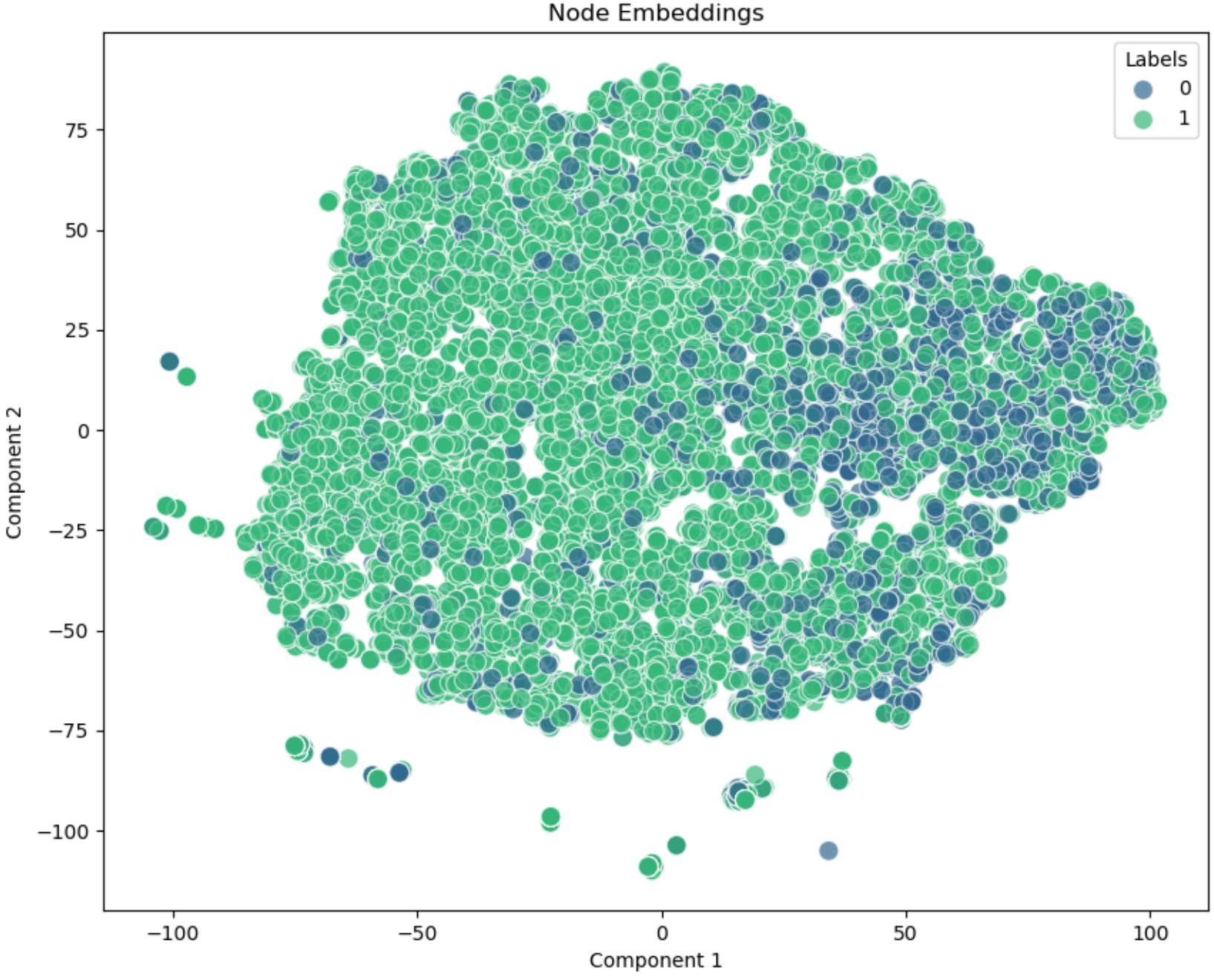

Performance and Fairness Metrics vs. Number of Environments
AUCROC
F1-score
ACC
DP (Parity)
EO (Equality)
Accuracy Metrics (AUCROC/F1-score/ACC)
Fairness Metrics (DP/EO)
Number K of Environments
72
70
68
66
64
62
60
58
3.5
3.0
2.5
2.0
1.5
1.0
0.5
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

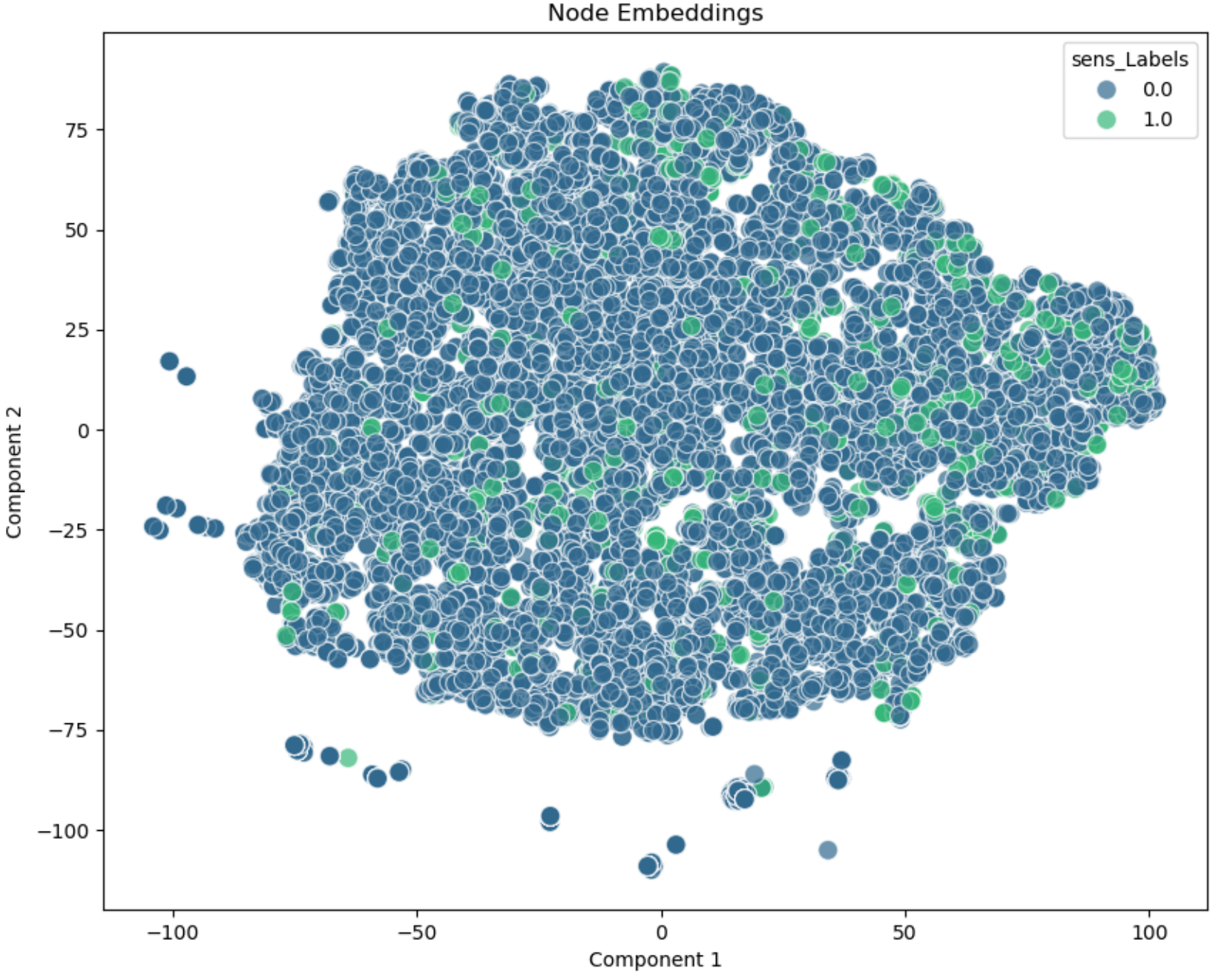

Accuracy and Fairness Metrics vs Perturbation Epsilon
AUCROC
F1-score
ACC
DP (Parity)
EO (Equality)
Accuracy Metrics
Fairness Metrics (DP/EO)
Perturbation Epsilon
72
70
68
66
64
62
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.4
0.6
0.8
1.0
1.2


FairOOD\FD
FairOOD\FEnv
FairOOD
DP(%)
0
1
2
3
4
5
6
0.68
1.14
1.04
Bail
Pokec_z
Pokec_n


FairOOD\FD
FairOOD\FEnv
FairOOD
DP(%)
0
1
2
3
4
5
6
0.68
1.14
1.04
Bail
Pokec_z
Pokec_n


Node Embeddings
Labels
0
1
75
50
25
0
−25
−50
−75
−100
Component 2
−100
−50
0
50
100
Component 1


Node Embeddings
Labels
0
1
75
50
25
0
−25
−50
−75
−100
Component 2
−100
−50
0
50
100
Component 1


Node Embeddings
sens_Labels
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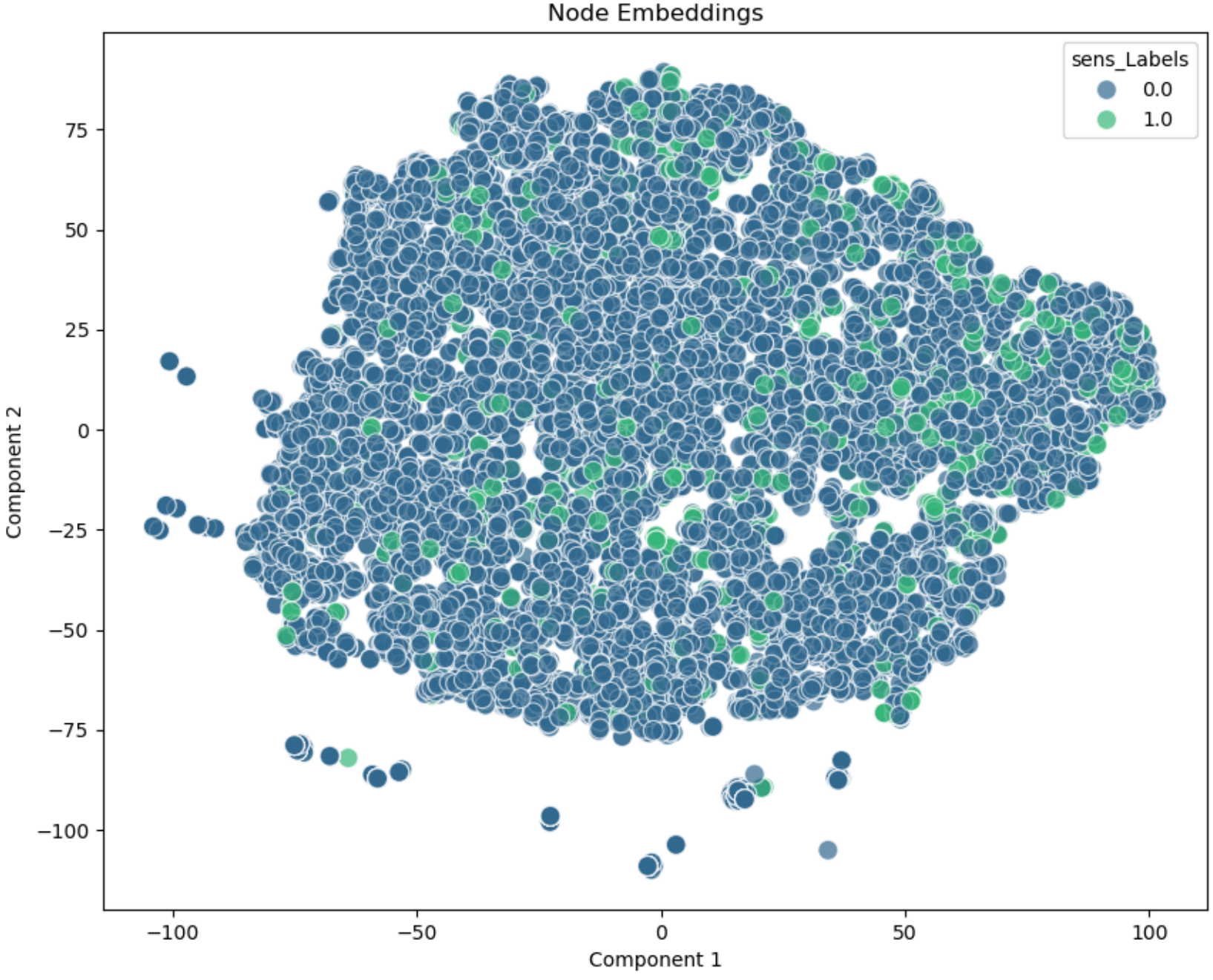
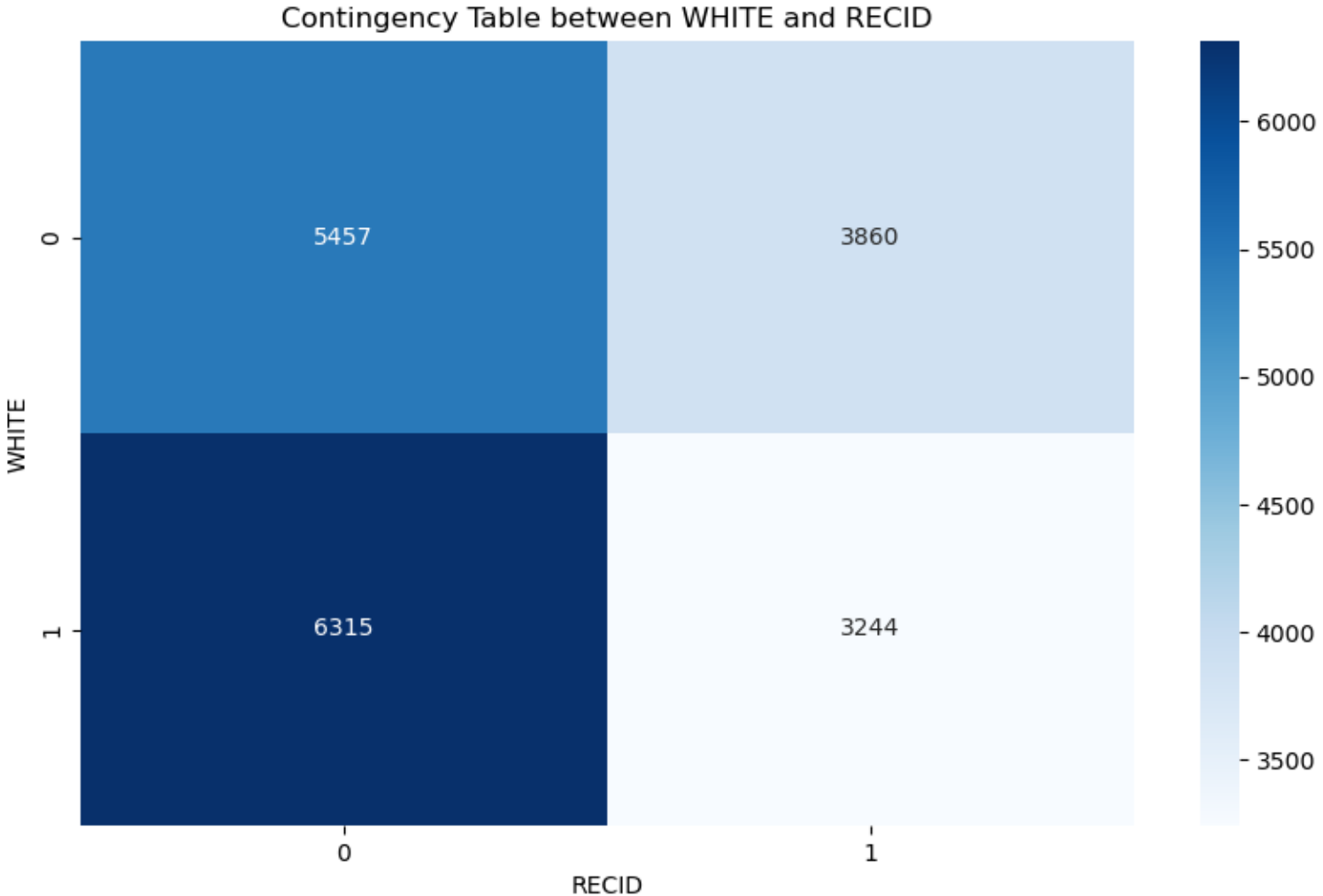
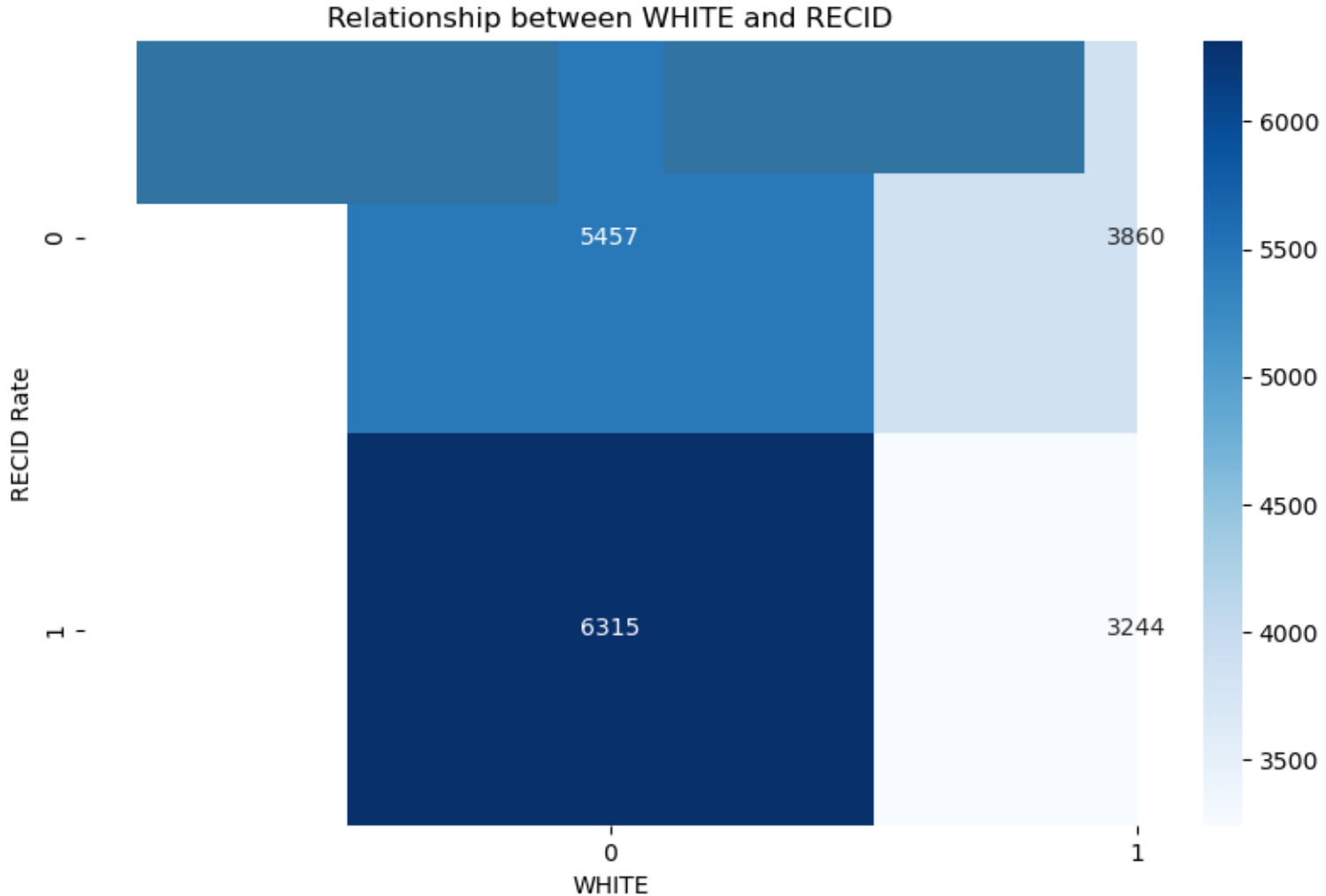
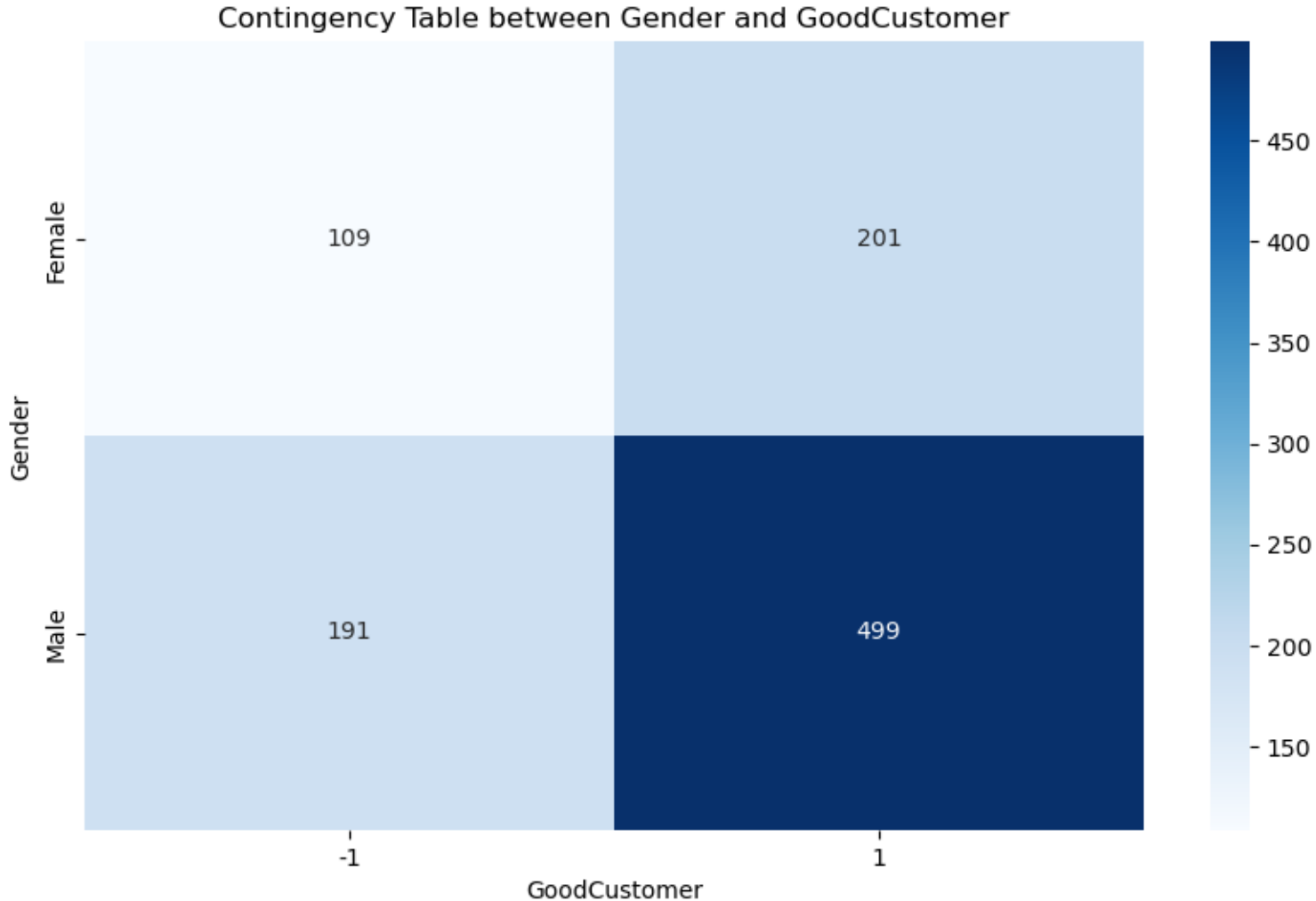
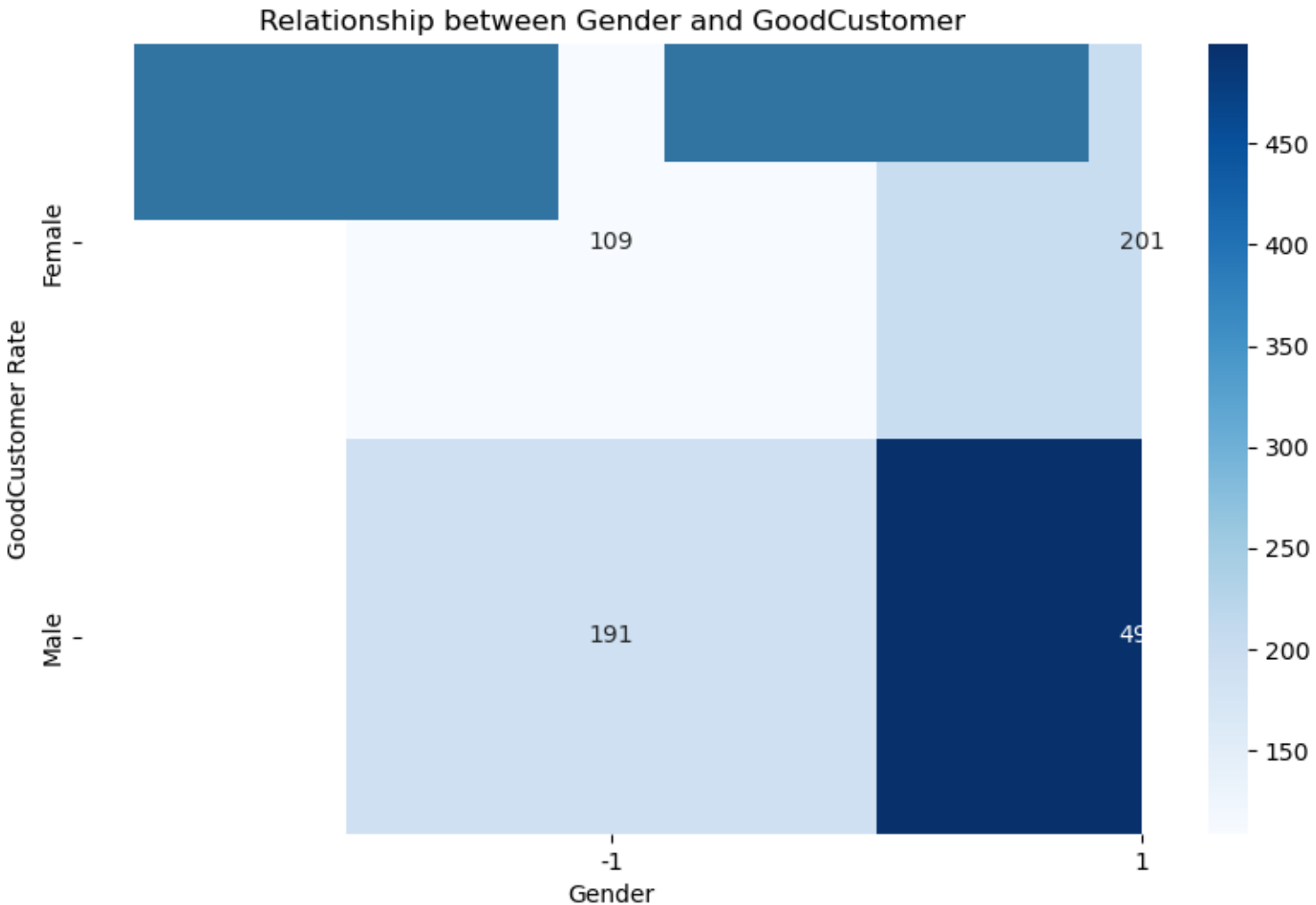
1.0
75
50
25
0
−25
−50
−75
−100
Component 2
−100
−50
0
50
100
Component 1

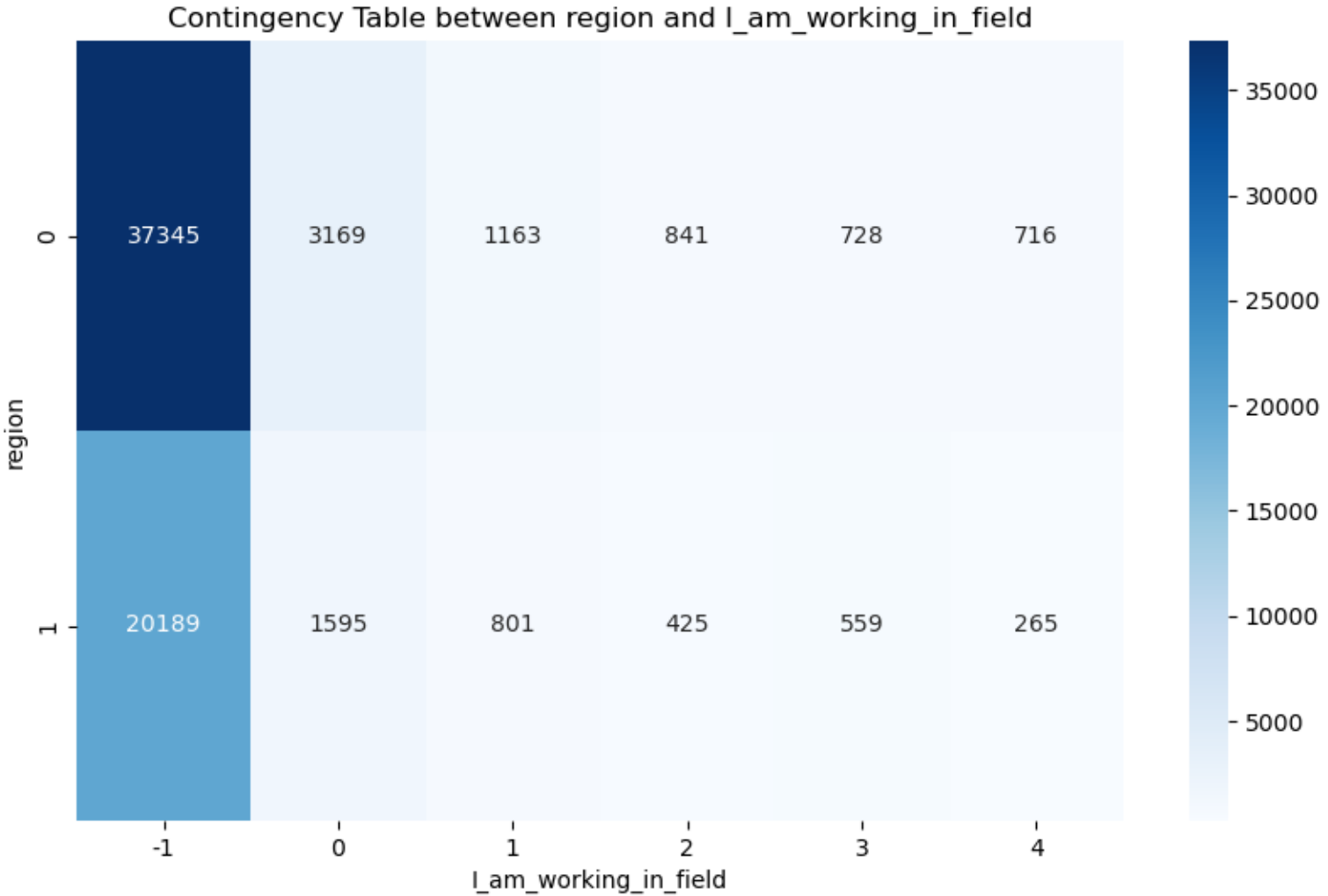

Node Embeddings
sens_Labels
0.0
1.0
75
50
25
0
−25
−50
−75
−100
Component 2
−100
−50
0
50
100
Component 1

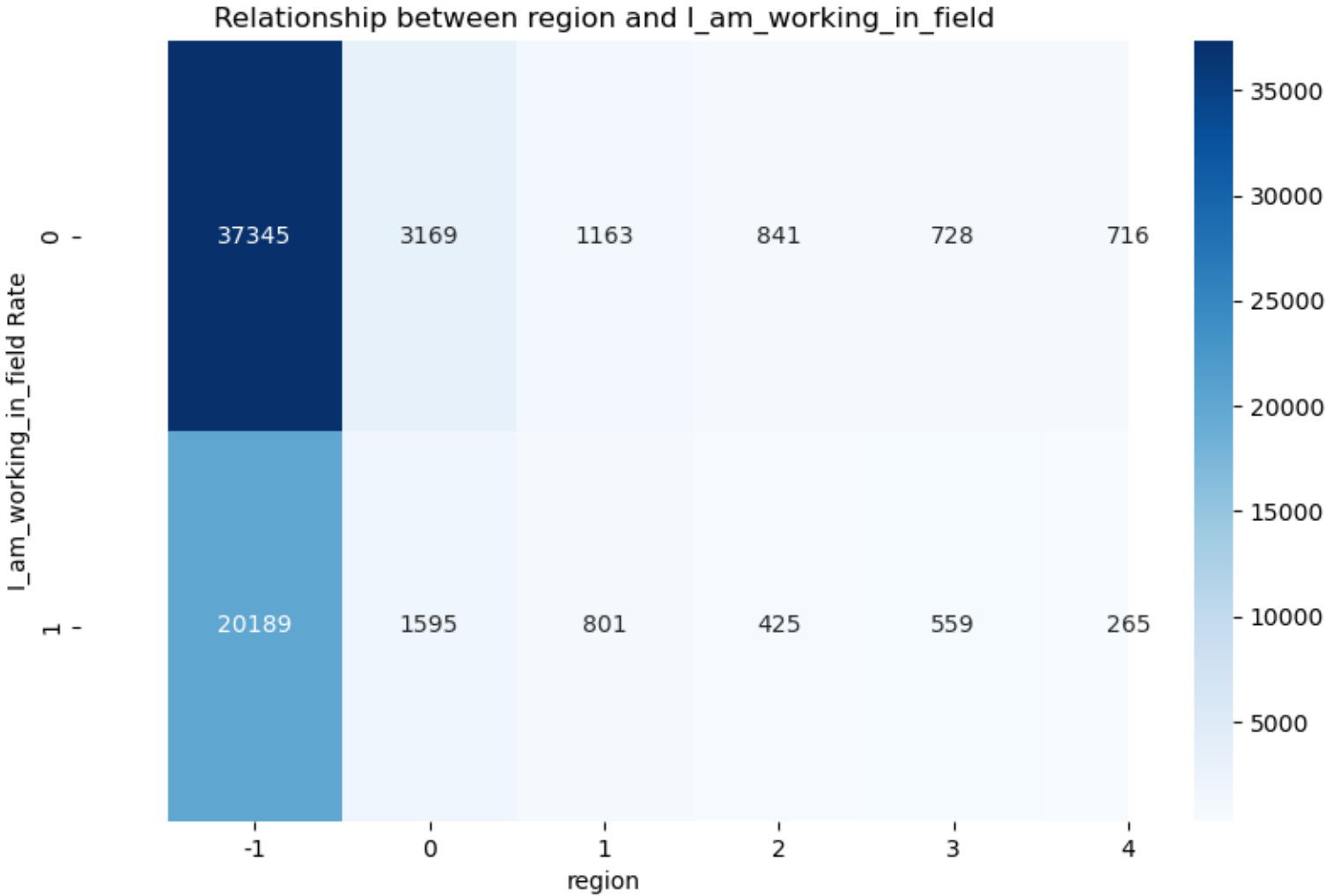

Contingency Table between WHITE and RECID
5457
3860
6315
3244
WHITE
0
1
RECID
0
1
6000
5500
5000
4500
4000
3500

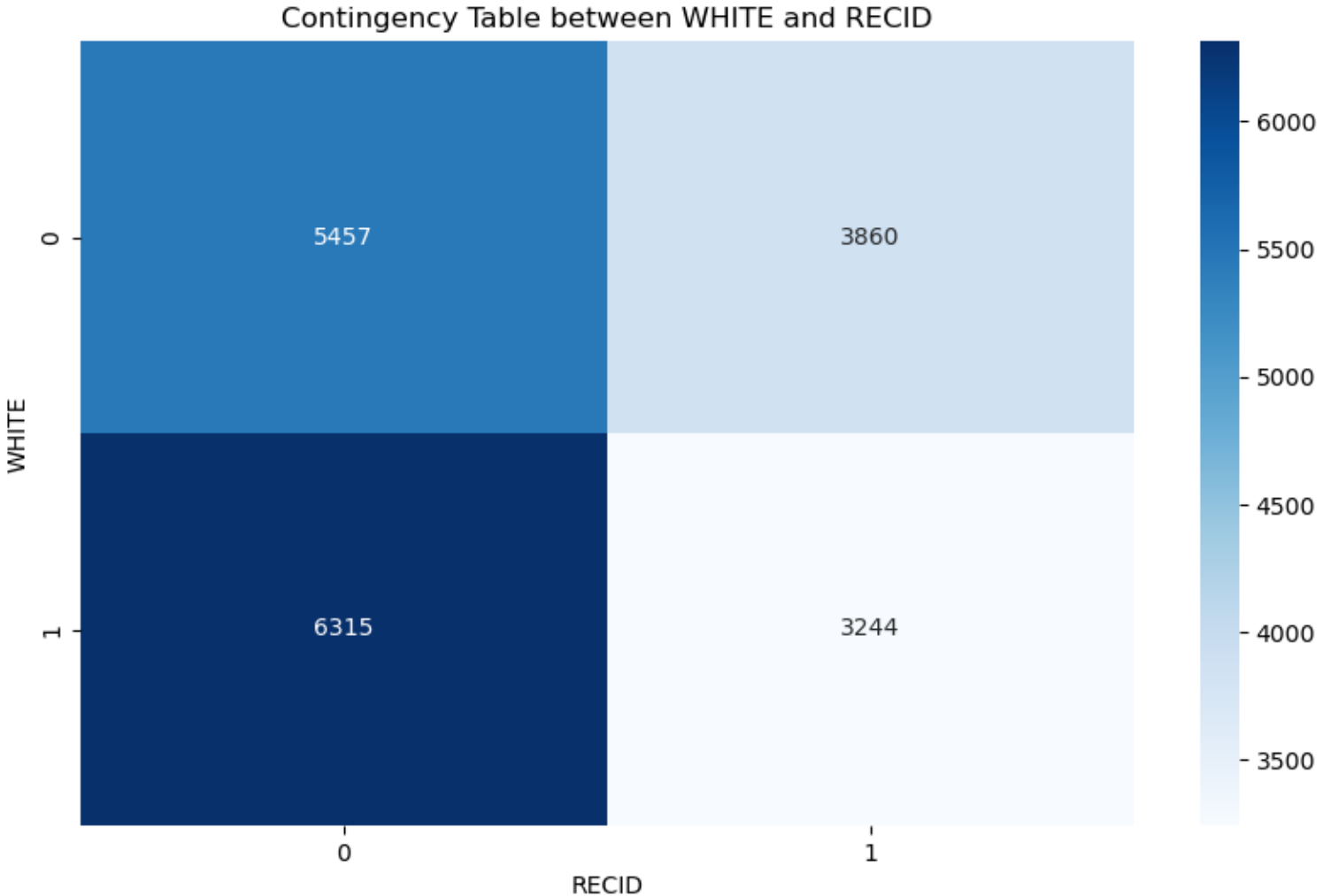

Relationship between WHITE and RECID
RECID Rate
0
1
5457
3860
6315
3244
0
1
WHITE
6000
5500
5000
4500
4000
3500

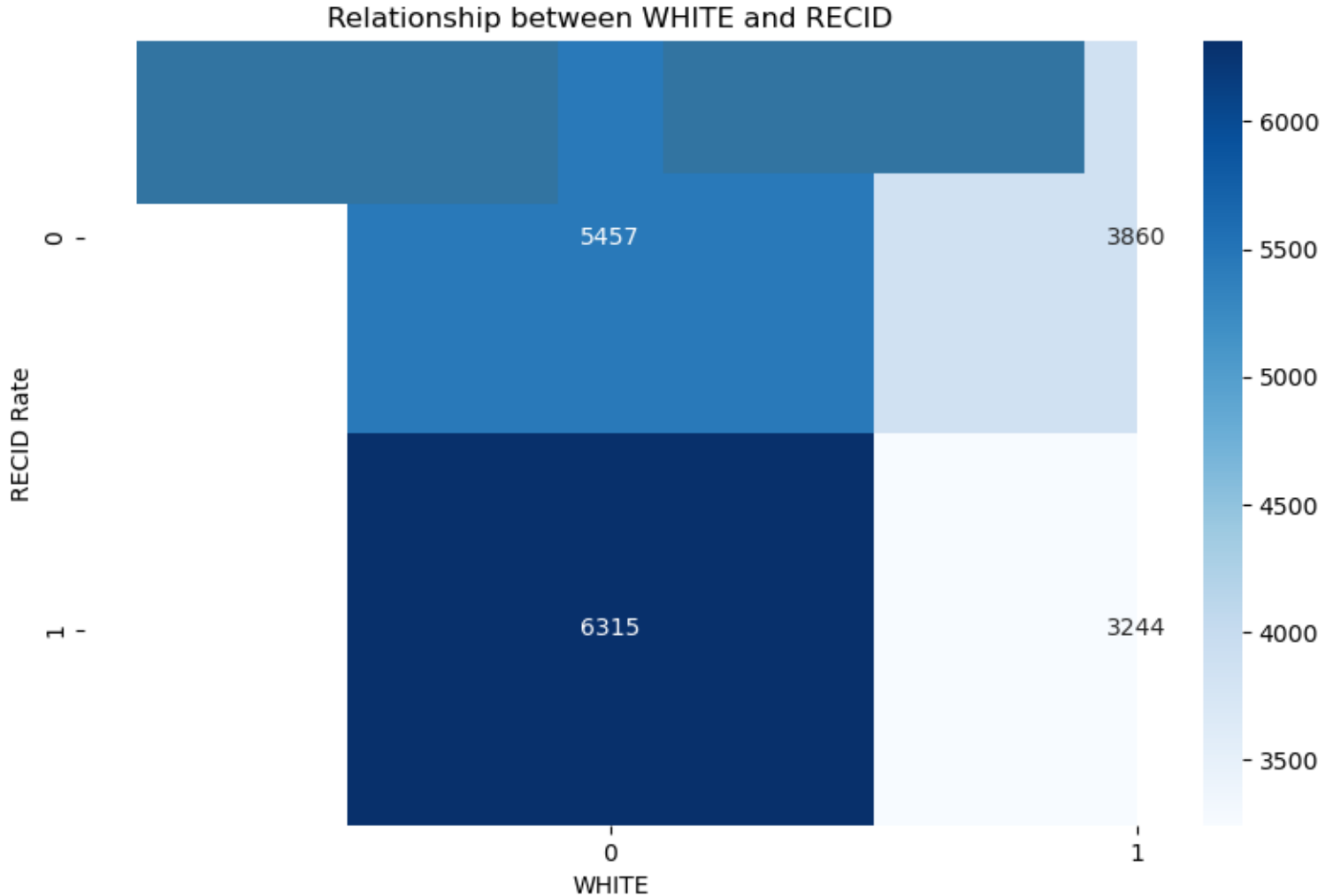

Contingency Table between Gender and GoodCustomer
Female
Male
Gender
109
201
191
499
-1
1
GoodCustomer
450
400
350
300
250
200
150


Relationship between Gender and GoodCustomer
GoodCustomer Rate
Female
Male
109
201
191
49
-1
1
Gender
450
400
350
300
250
200
150


Contingency Table between region and I_am_working_in_field
region
0
1
37345
3169
1163
841
728
716
20189
1595
801
425
559
265
-1
0
1
2
3
4
I_am_working_in_field
35000
30000
25000
20000
15000
10000
5000


Relationship between region and I_am_working_in_field
I_am_working_in_field Rate
0
1
37345
3169
1163
841
728
716
20189
1595
801
425
559
265
-1
0
1
2
3
4
region
35000
30000
25000
20000
15000
10000
5000


Contingency Table between WHITE and RECID
5457
3860
6315
3244
WHITE
0
1
RECID
0
1
6000
5500
5000
4500
4000
3500


Relationship between WHITE and RECID
RECID Rate
0
1
5457
3860
6315
3244
0
1
WHITE
6000
5500
5000
4500
4000
3500