

# hmnda results visualization r

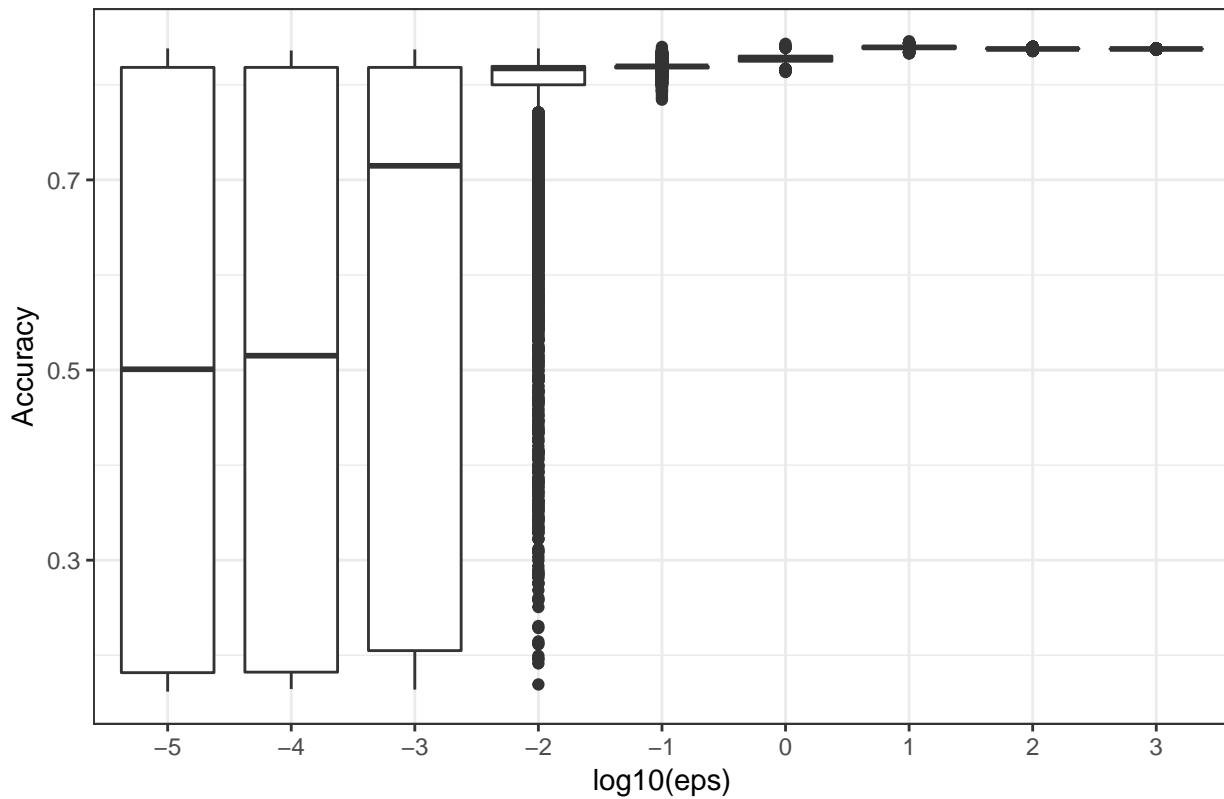
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**How does the variance of accuracy and coefficient values change with different epsilon?**

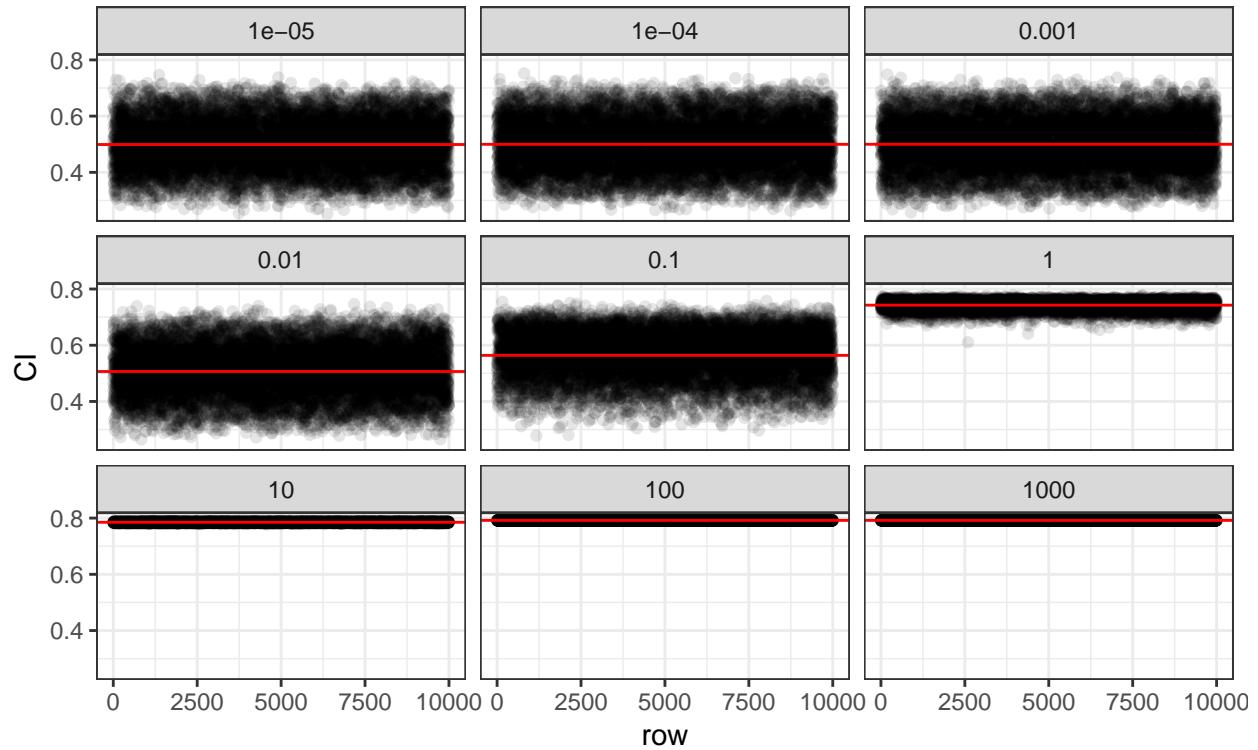
Variance decreases as epsilon increases.

Smaller values of epsilon have more variation



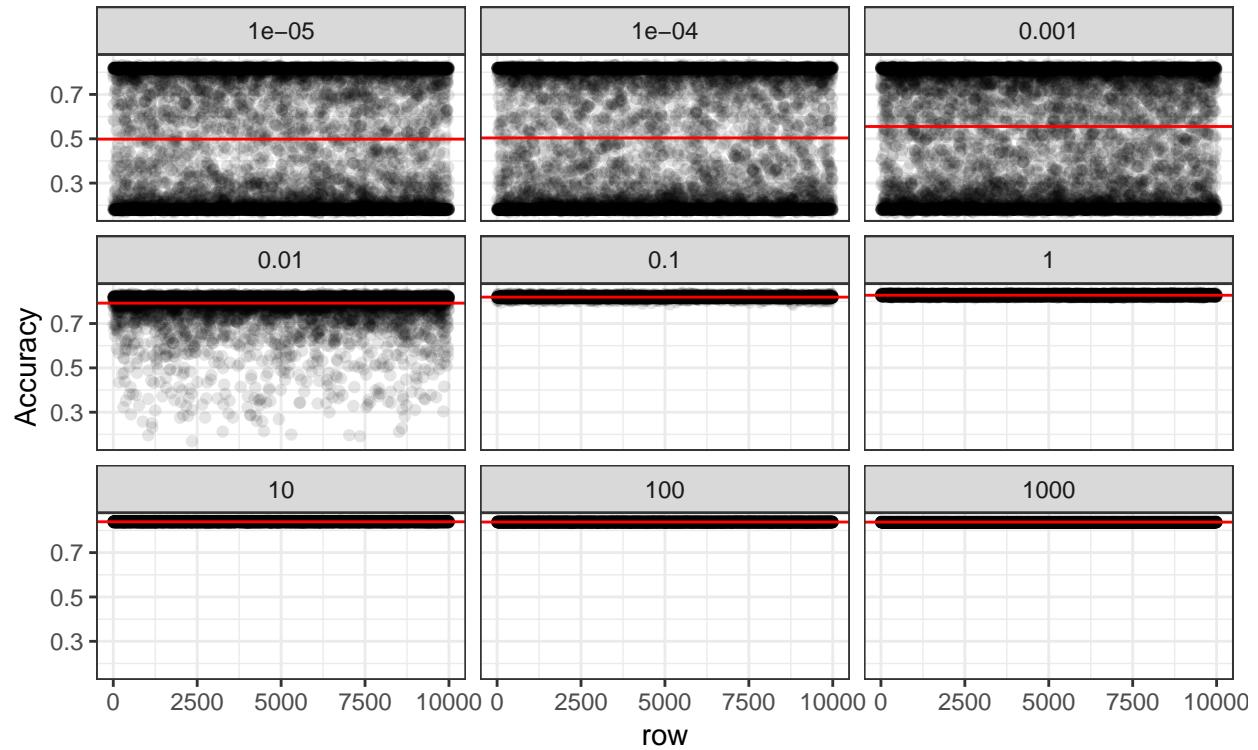
CI has less variation with higher eps

10000 runs for each eps, 10k rows



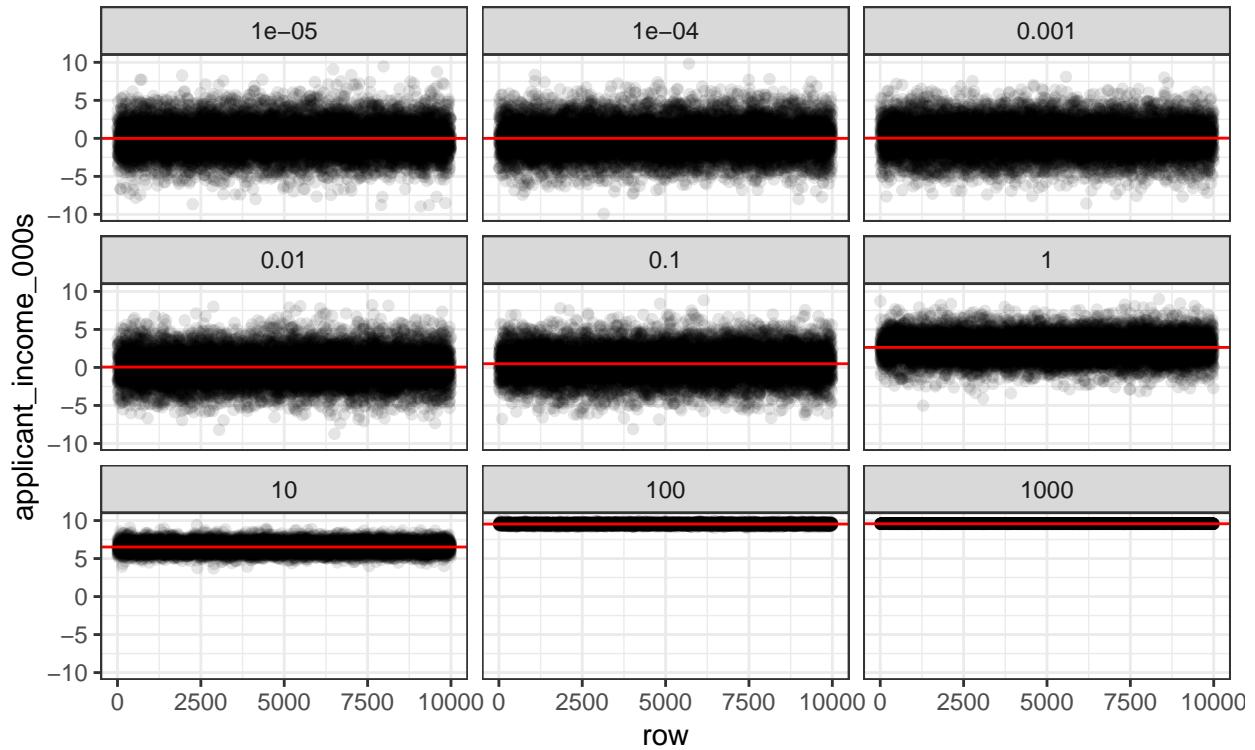
Accuracy has less variation with higher eps

10000 runs for each eps, 10k rows



Coefficient variation decreases for higher eps

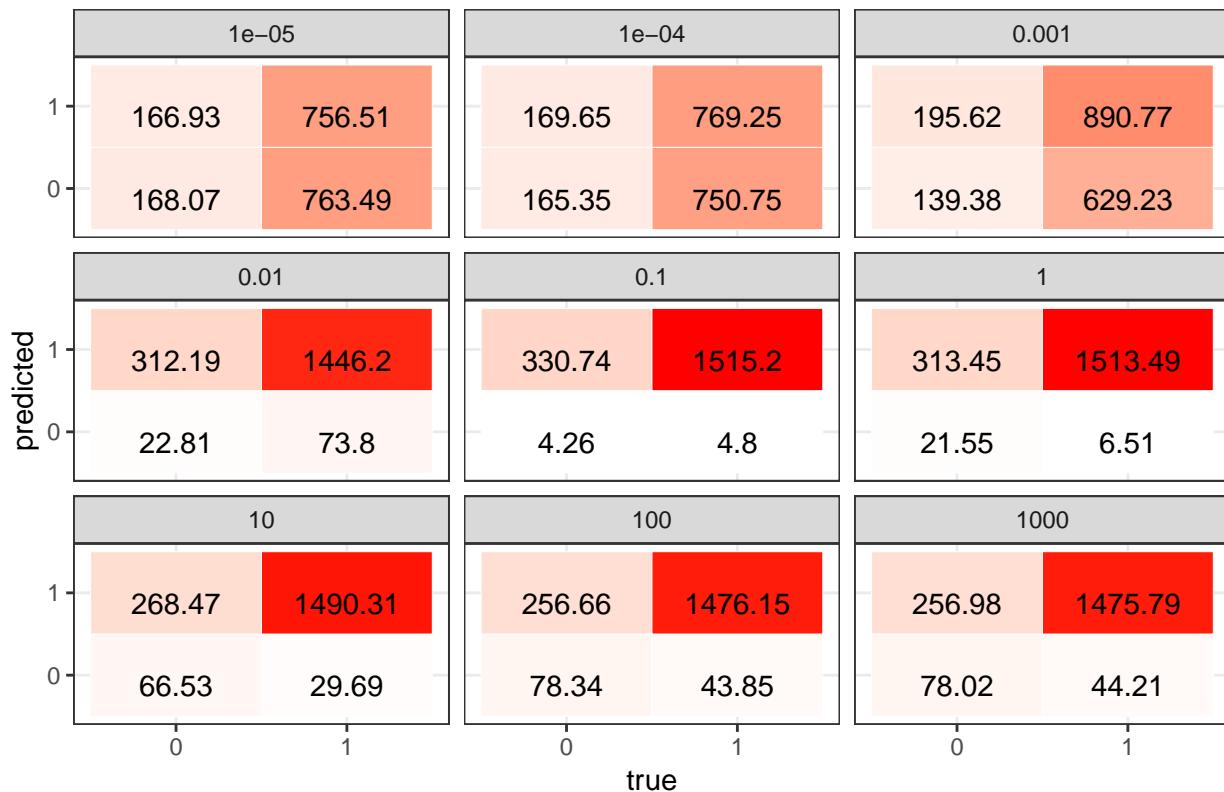
10000 runs for each eps, 10k rows



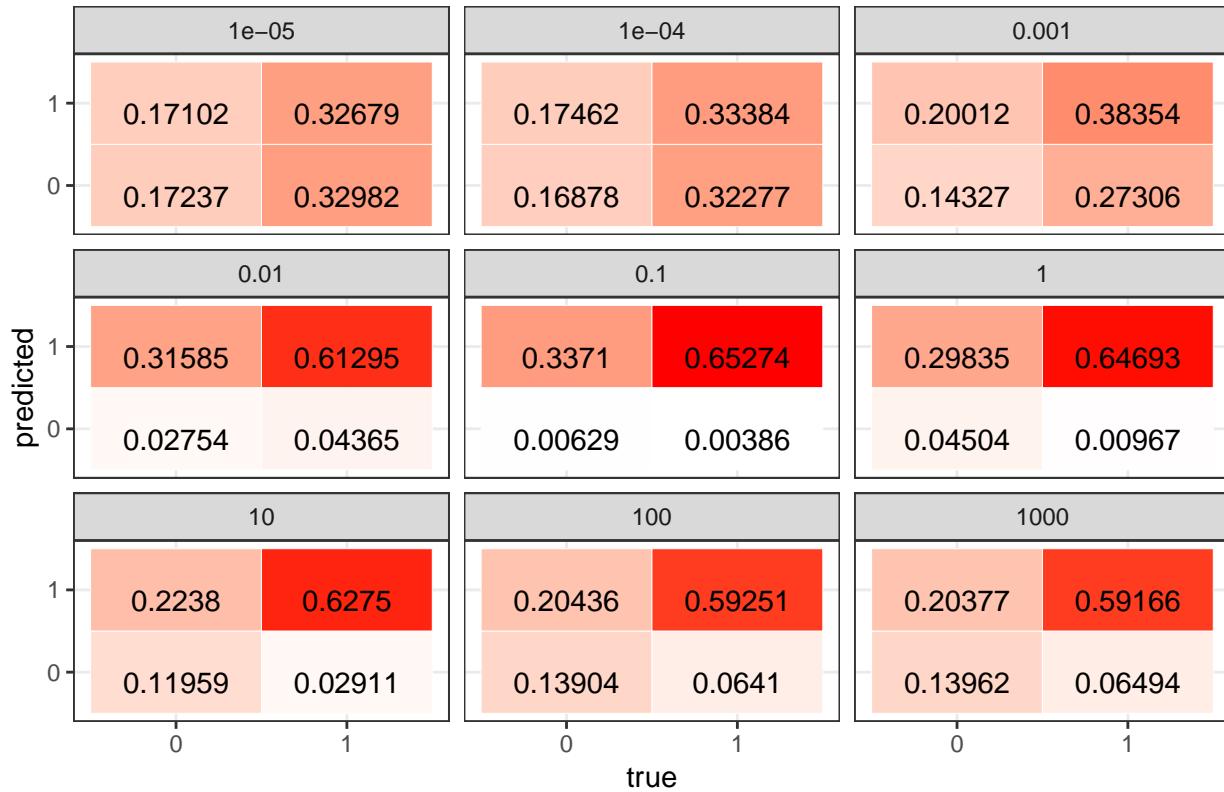
## How do the confusion matrices differ for different epsilon?

There are less false negatives and more false positives as epsilon increases.

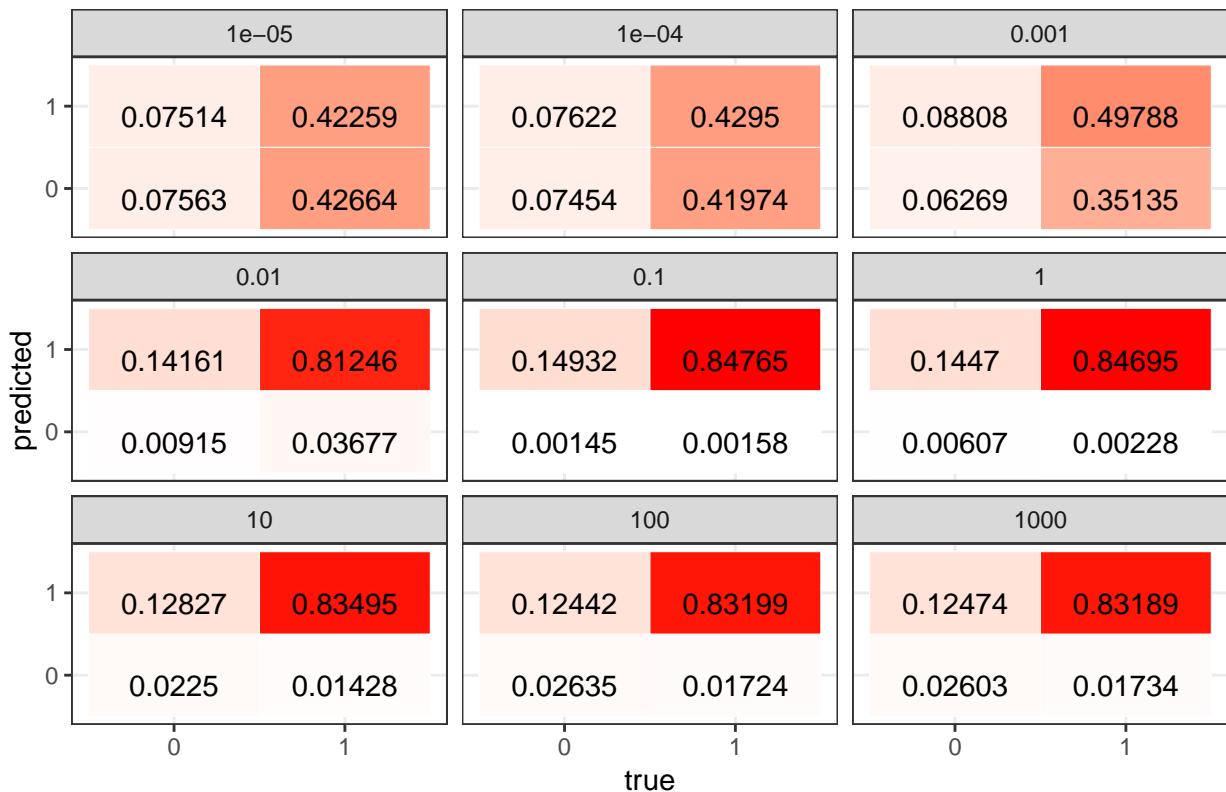
## Overall (Avg)



## Protected Race (Avg)



## Not Protected Race (Avg)



With  $\text{eps}=0.1$ , and DI is calculated as  $\Pr(f(y) = 1 \mid \text{protected}) / \Pr(f(y) = 1 \mid \text{not protected})$

DI for race = 0.9928529

DI for ethnicity = 0.9907821

DI for sex = 0.9987355

With  $\text{eps}=1$ , and DI is calculated as  $\Pr(f(y) = 1 \mid \text{protected}) / \Pr(f(y) = 1 \mid \text{not protected})$

DI for race = 0.9532511

DI for ethnicity = 1.0019889

DI for sex = 0.9876345