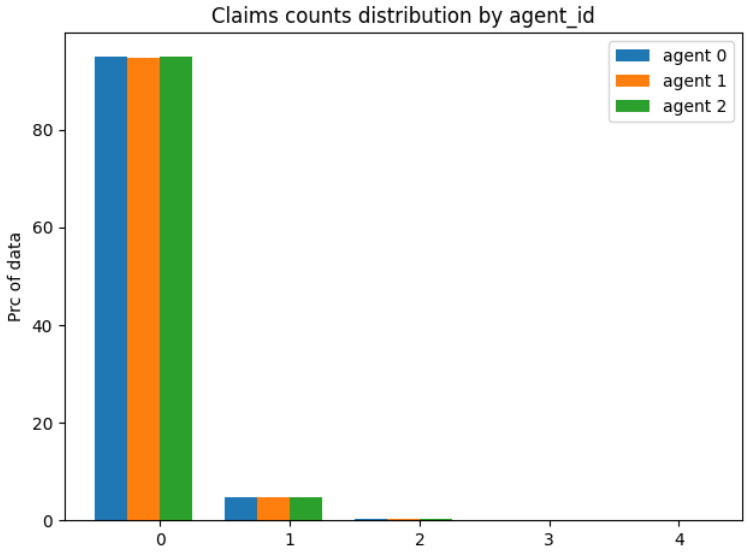
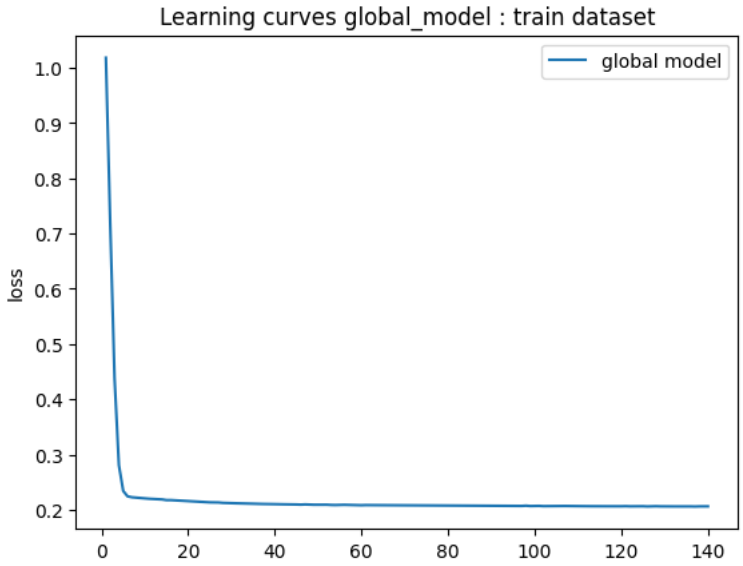
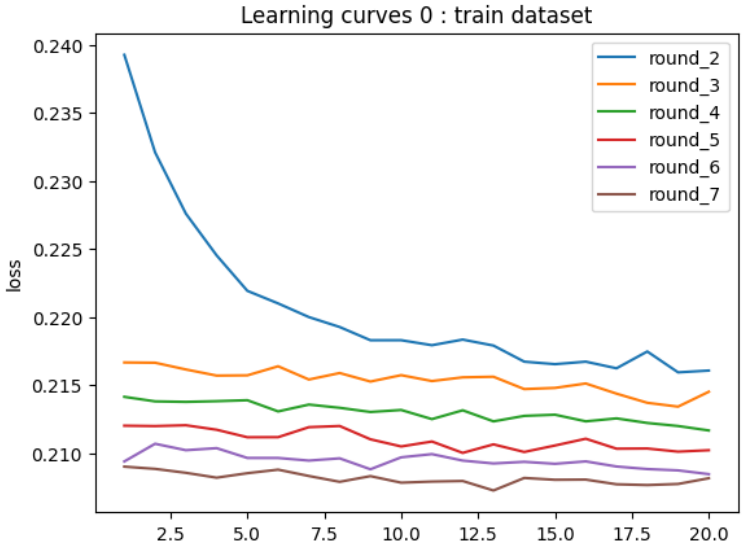
Run Results: num_agents: 5; num_rounds: 7; epochs: 20; epochs local and global: 140

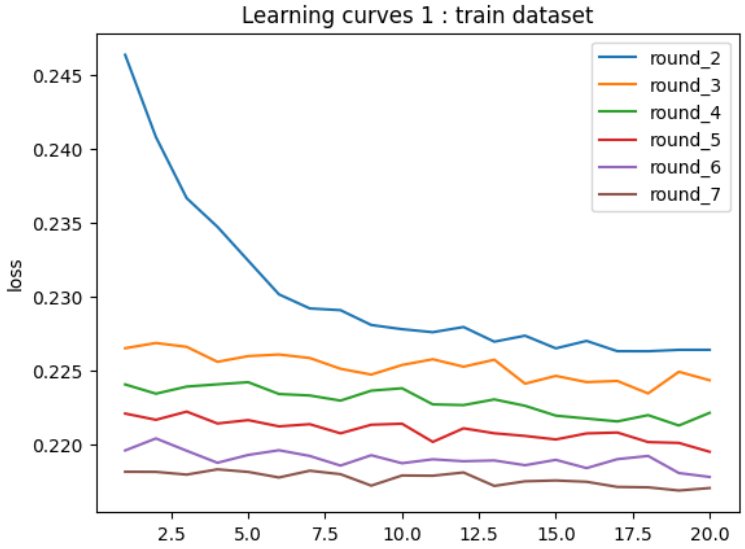
Input Data: Distribution of numbers of observed claims by FL participating parties.

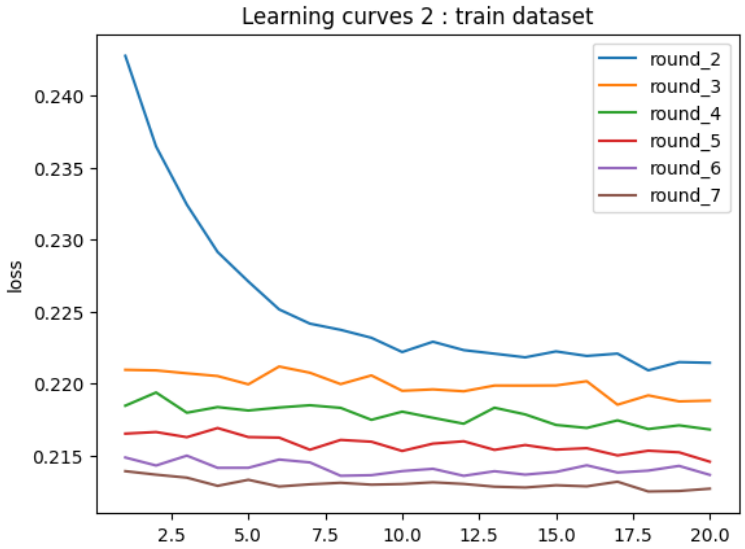


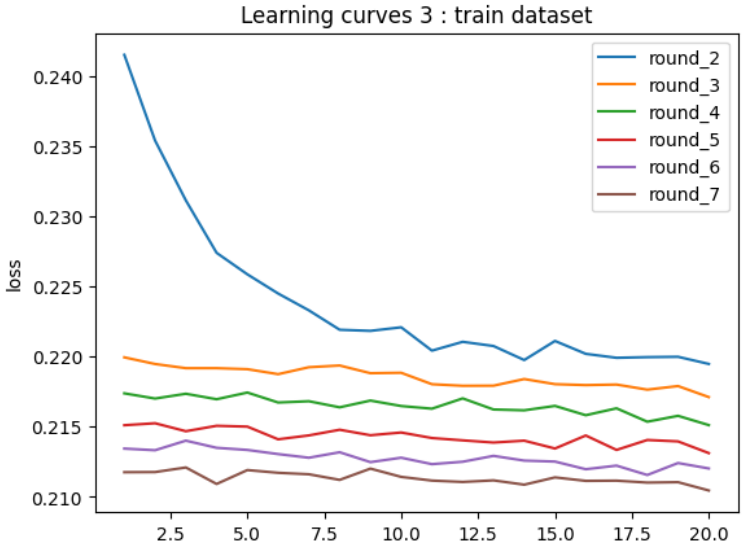
Model Training: Learning curves; Train dataset

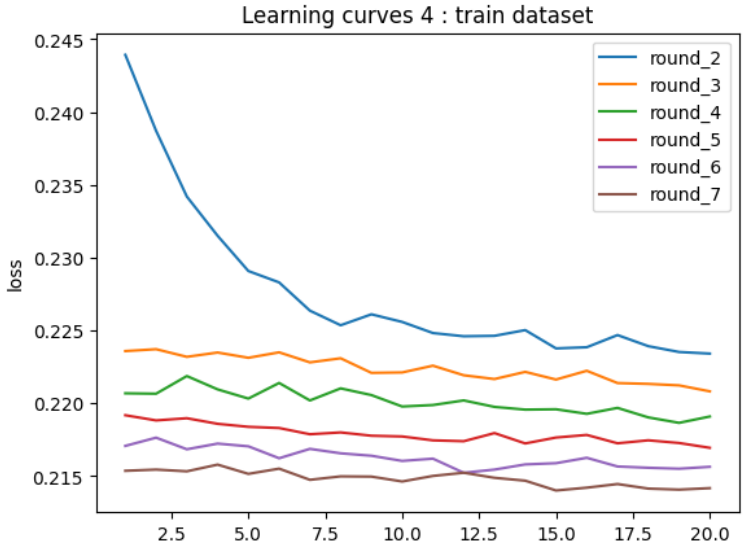



Learning curves 0 : train dataset
loss
round_2
round_3
round_4
round_5
round_6
round_7
0.240
0.235
0.230
0.225
0.220
0.215
0.210
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0

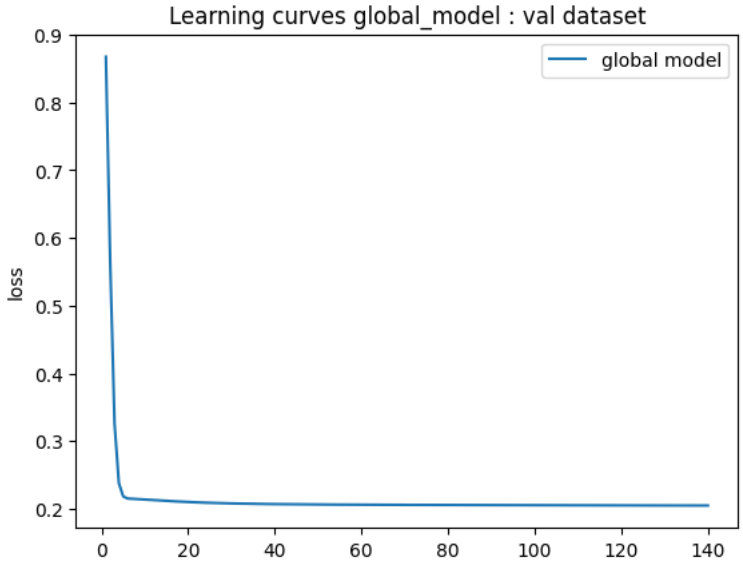

Learning curves 1 : train dataset
loss
round_2
round_3
round_4
round_5
round_6
round_7
0.245
0.240
0.235
0.230
0.225
0.220
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0

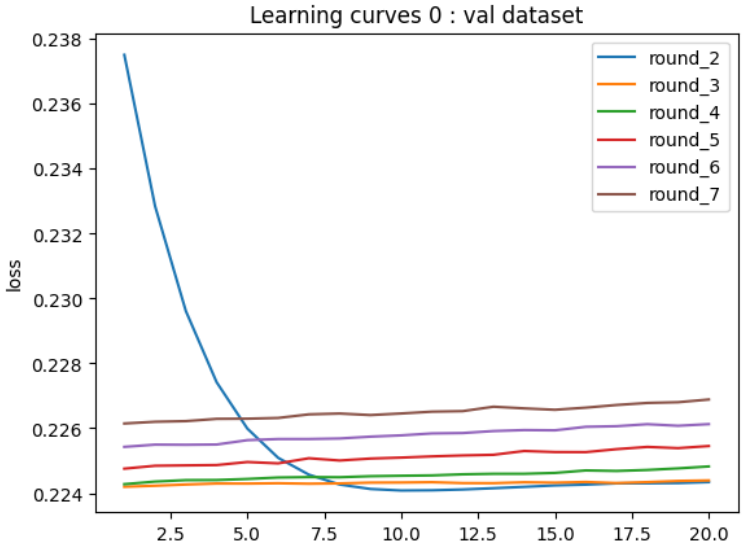

Learning curves 2 : train dataset
loss
round_2
round_3
round_4
round_5
round_6
round_7
0.240
0.235
0.230
0.225
0.220
0.215
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0

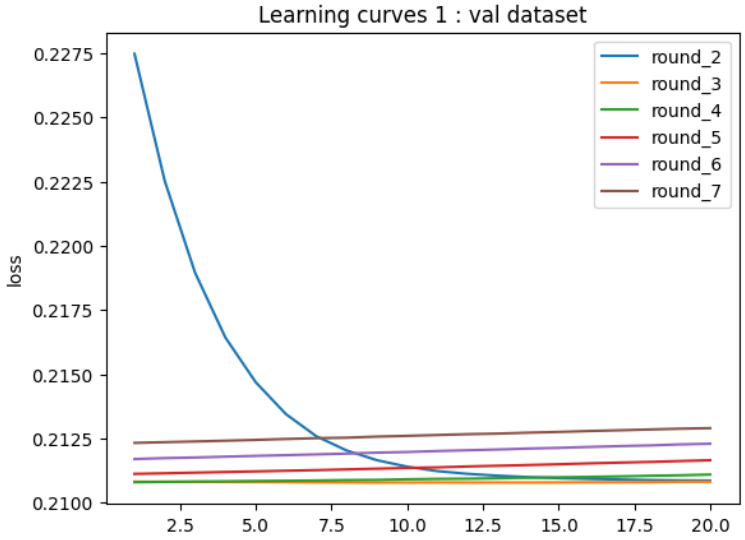


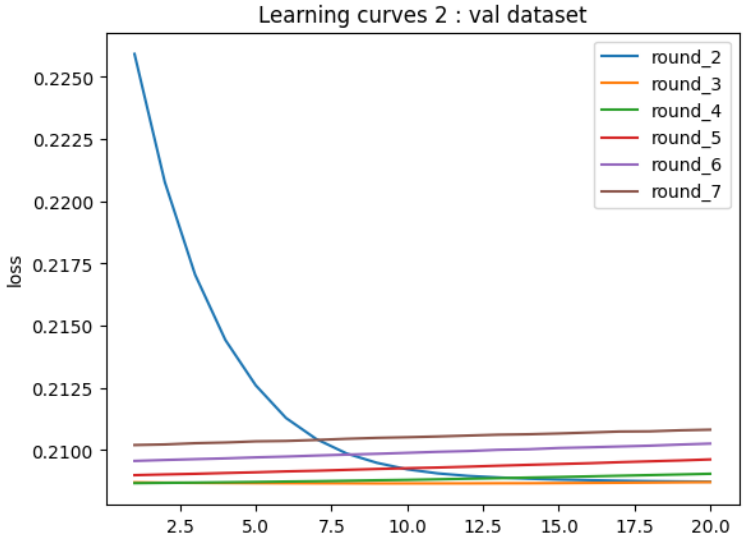


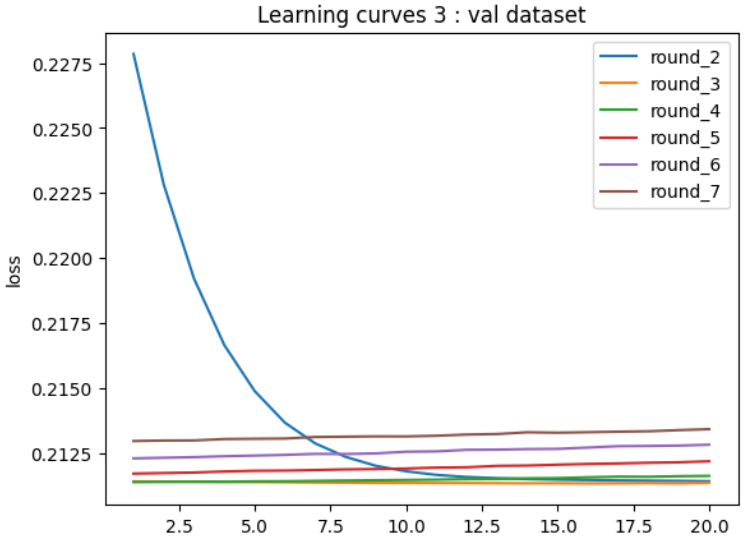
Model Training: Learning curves; Validation dataset

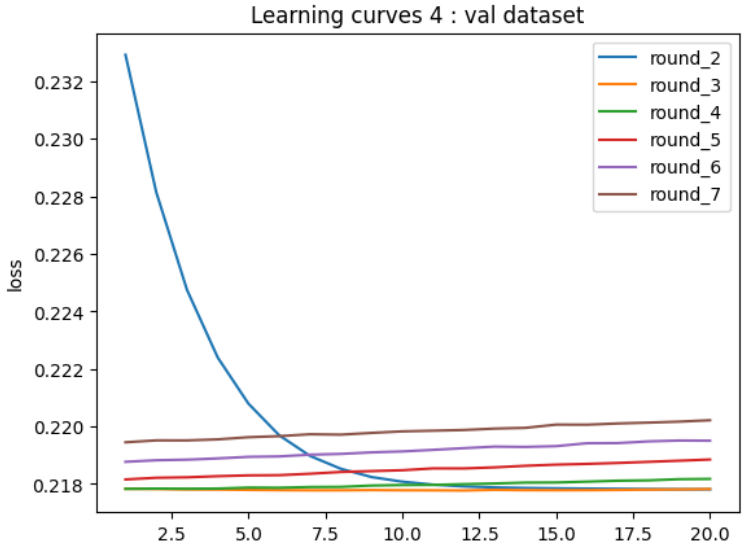



Learning curves 0 : val dataset
loss
round_2
round_3
round_4
round_5
round_6
round_7
0.238
0.236
0.234
0.232
0.230
0.228
0.226
0.224
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0


Learning curves 1 : val dataset
loss
round_2
round_3
round_4
round_5
round_6
round_7
0.2275
0.2250
0.2225
0.2200
0.2175
0.2150
0.2125
0.2100
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0


Learning curves 2 : val dataset
loss
round_2
round_3
round_4
round_5
round_6
round_7
0.2250
0.2225
0.2200
0.2175
0.2150
0.2125
0.2100
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0





Test statistics for FL model

Mean Poisson Deviance : 0.3129136771430471

Mean Squared Error : 0.05626655207370765

R^2 : 0.005826124881701089

Test statistics for global model

Mean Poisson Deviance : 0.30676244256497265

Mean Squared Error : 0.055811282056795454

R^2 : 0.013870292157951769

Test statistics for agent_no 0

Mean Poisson Deviance : 0.31327389751208967

Mean Squared Error : 0.056283601530287206

R^2 : 0.005524877982936882

Test statistics for agent_no 1

Mean Poisson Deviance : 0.31273069873752535

Mean Squared Error : 0.05625531991999221

R^2 : 0.006024585838942165

Test statistics for agent_no 2

Mean Poisson Deviance : 0.31340674762770476

Mean Squared Error : 0.05629661398955951

R^2 : 0.005294960801542459

Test statistics for agent_no 3

Mean Poisson Deviance : 0.3132878288110768

Mean Squared Error : 0.05628339331776042

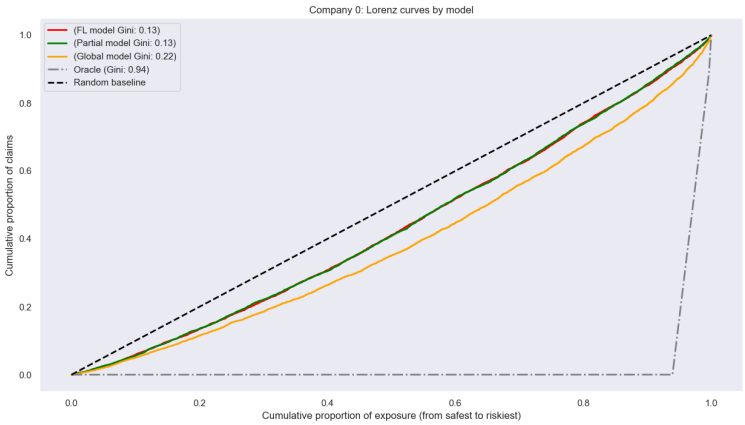
R^2 : 0.005528556890688874

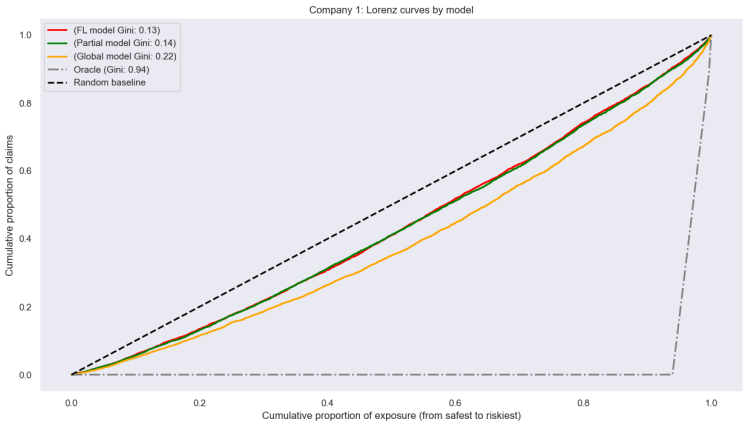
Test statistics for agent_no 4

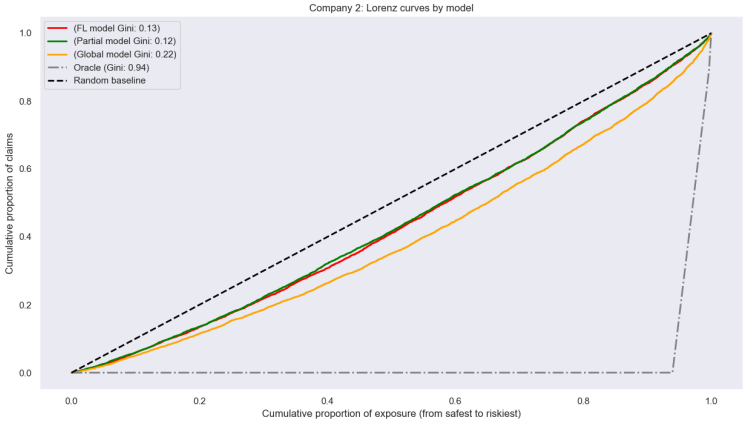
Mean Poisson Deviance : 0.31316554596536383

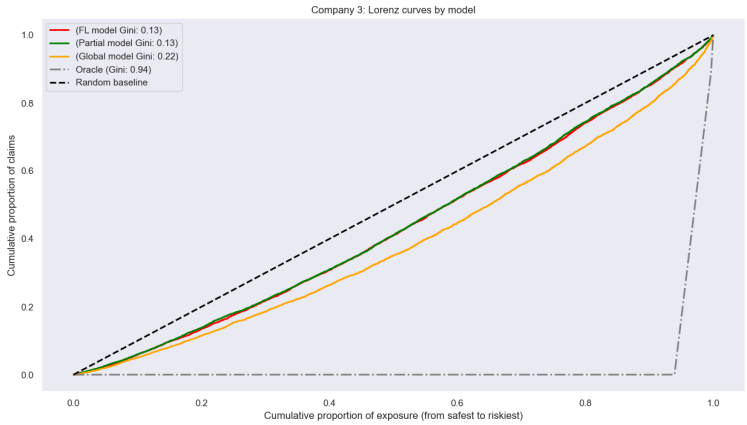
Mean Squared Error : 0.05628087539268014

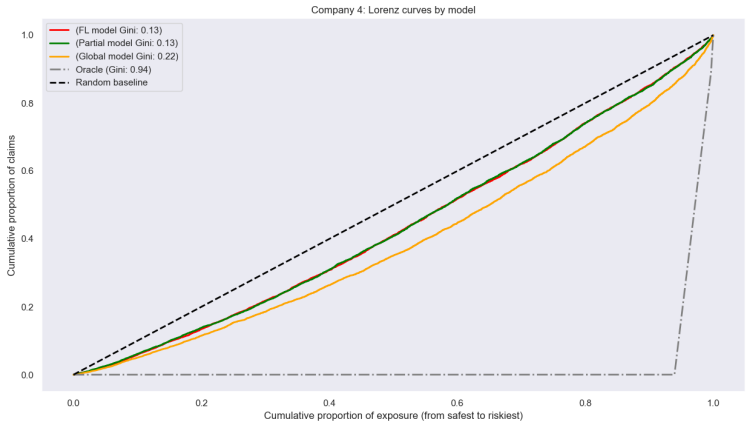
R^2 : 0.005573046116384539


Company 0: Lorenz curves by model
(FL model Gini: 0.13)
(Partial model Gini: 0.13)
(Global model Gini: 0.22)
Oracle (Gini: 0.94)
Random baseline
Cumulative proportion of claims
Cumulative proportion of exposure (from safest to riskiest)
0.0
0.2
0.4
0.6
0.8
1.0


Company 1: Lorenz curves by model
(FL model Gini: 0.13)
(Partial model Gini: 0.14)
(Global model Gini: 0.22)
Oracle (Gini: 0.94)
Random baseline
Cumulative proportion of claims
Cumulative proportion of exposure (from safest to riskiest)
0.0
0.2
0.4
0.6
0.8
1.0


Company 2: Lorenz curves by model
(FL model Gini: 0.13)
(Partial model Gini: 0.12)
(Global model Gini: 0.22)
Oracle (Gini: 0.94)
Random baseline
Cumulative proportion of claims
Cumulative proportion of exposure (from safest to riskiest)
0.0
0.2
0.4
0.6
0.8
1.0

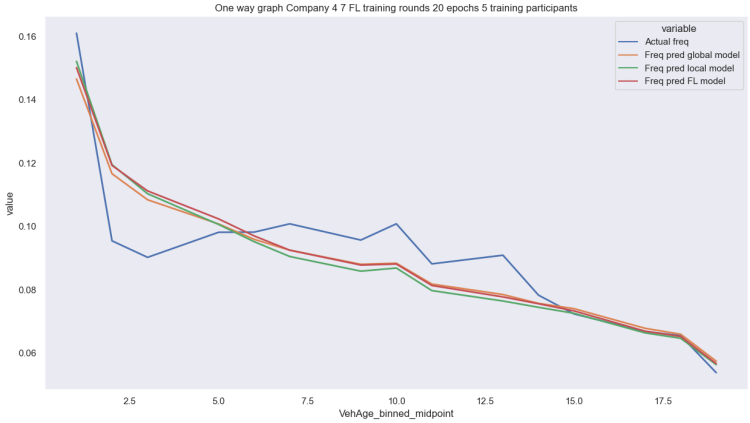

Company 3: Lorenz curves by model
(FL model Gini: 0.13)
(Partial model Gini: 0.13)
(Global model Gini: 0.22)
Oracle (Gini: 0.94)
Random baseline
Cumulative proportion of claims
Cumulative proportion of exposure (from safest to riskiest)


Company 4: Lorenz curves by model
(FL model Gini: 0.13)
(Partial model Gini: 0.13)
(Global model Gini: 0.22)
Oracle (Gini: 0.94)
Random baseline
Cumulative proportion of claims
Cumulative proportion of exposure (from safest to riskiest)


One way graph Company 1 7 FL training rounds 20 epochs 5 training participants
variable
Actual freq
Freq pred global model
Freq pred local model
Freq pred FL model
value
VehAge_binned_midpoint


One way graph Company 2 7 FL training rounds 20 epochs 5 training participants
variable
Actual freq
Freq pred global model
Freq pred local model
Freq pred FL model
value
0.16
0.14
0.12
0.10
0.08
0.06
2.5
5.0
7.5
10.0
12.5
15.0
17.5
VehAge_binned_midpoint


One way graph Company 3 7 FL training rounds 20 epochs 5 training participants
variable
Actual freq
Freq pred global model
Freq pred local model
Freq pred FL model
value
0.16
0.14
0.12
0.10
0.08
0.06
2.5
5.0
7.5
10.0
12.5
15.0
17.5
VehAge_binned_midpoint


One way graph Company 4 7 FL training rounds 20 epochs 5 training participants
variable
Actual freq
Freq pred global model
Freq pred local model
Freq pred FL model
value
0.16
0.14
0.12
0.10
0.08
0.06
2.5
5.0
7.5
10.0
12.5
15.0
17.5
VehAge_binned_midpoint


One way graph Company 5 7 FL training rounds 20 epochs 5 training participants
variable
Actual freq
Freq pred global model
Freq pred local model
Freq pred FL model
value
0.16
0.14
0.12
0.10
0.08
0.06
2.5
5.0
7.5
10.0
12.5
15.0
17.5
VehAge_binned_midpoint