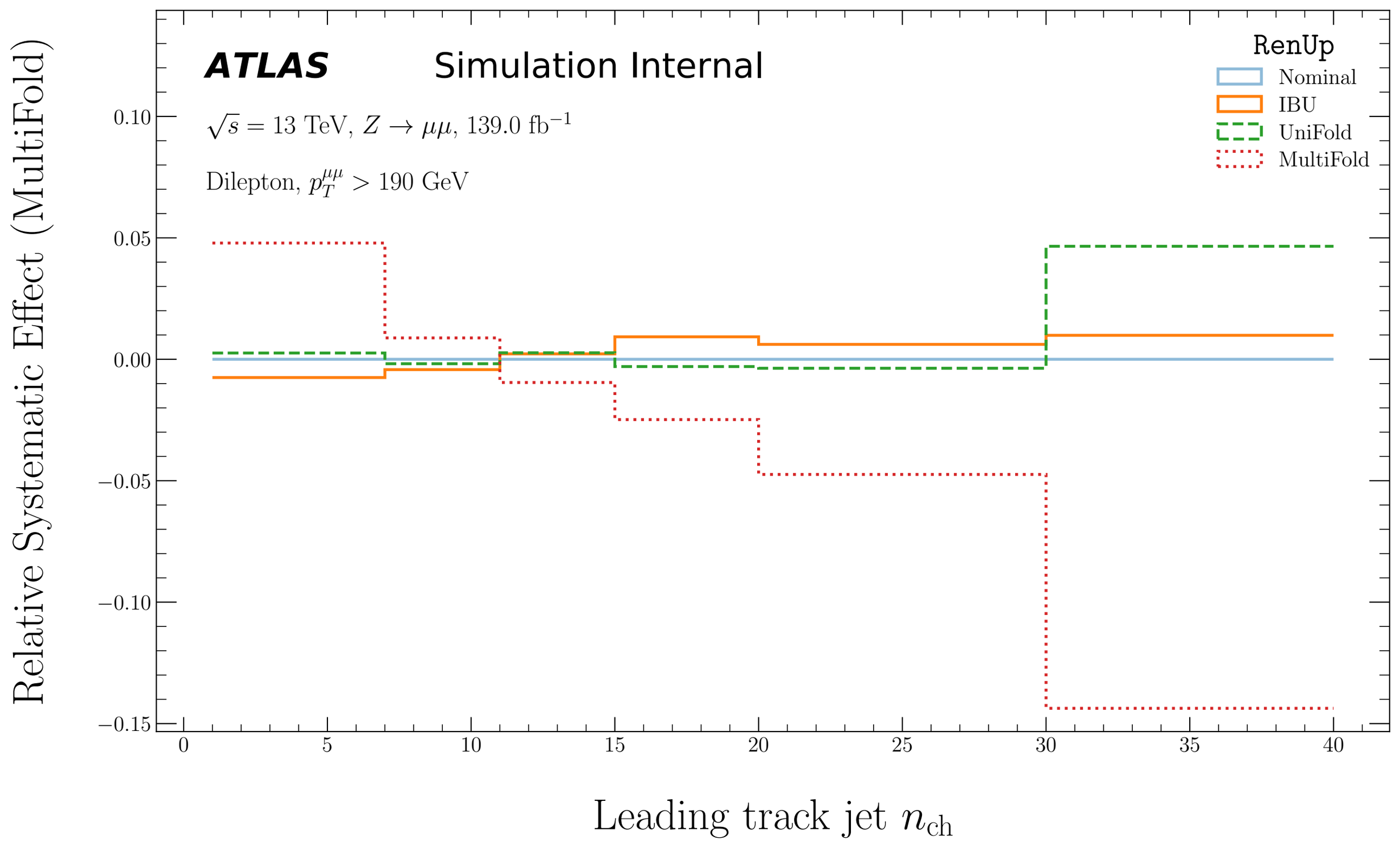
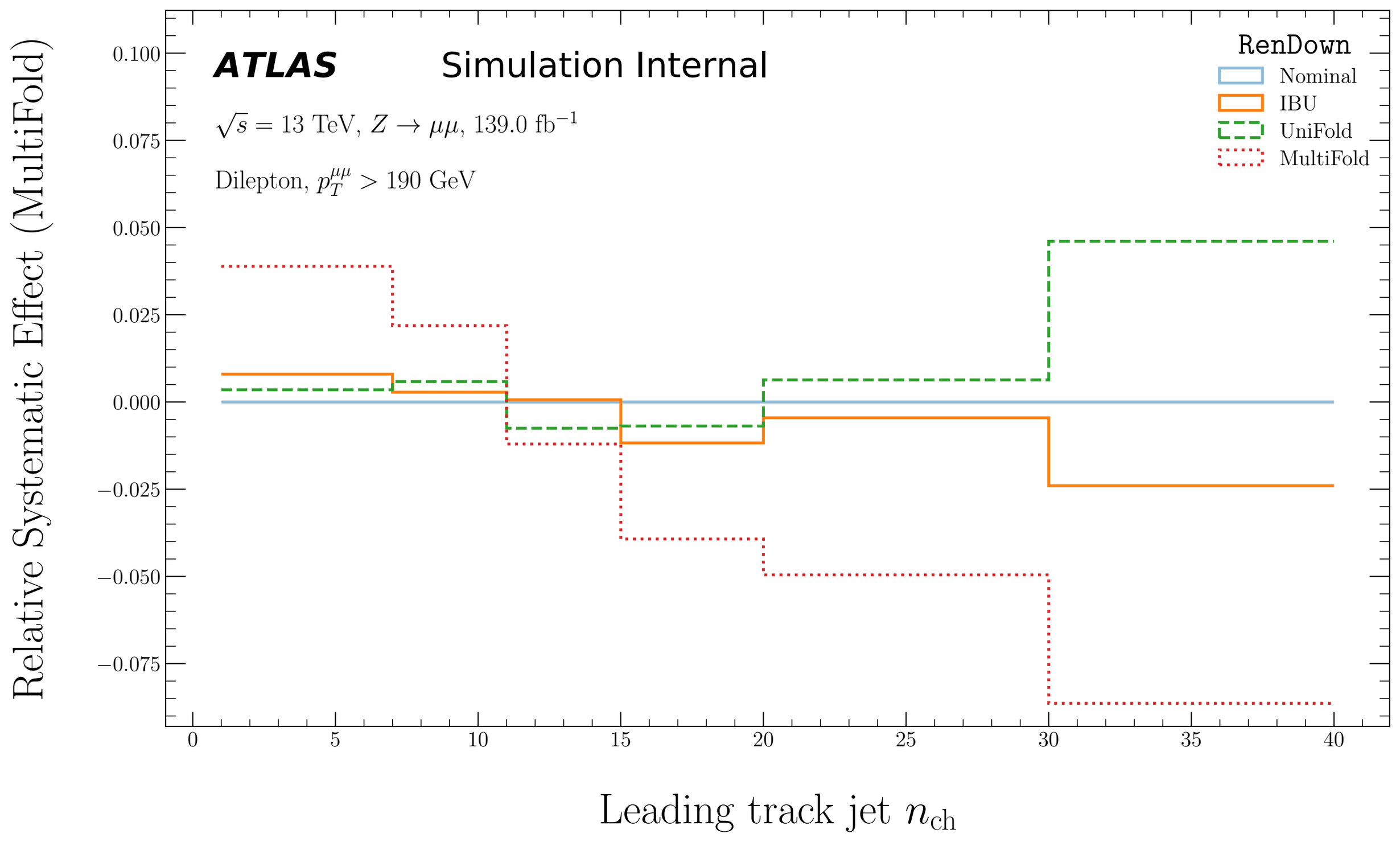
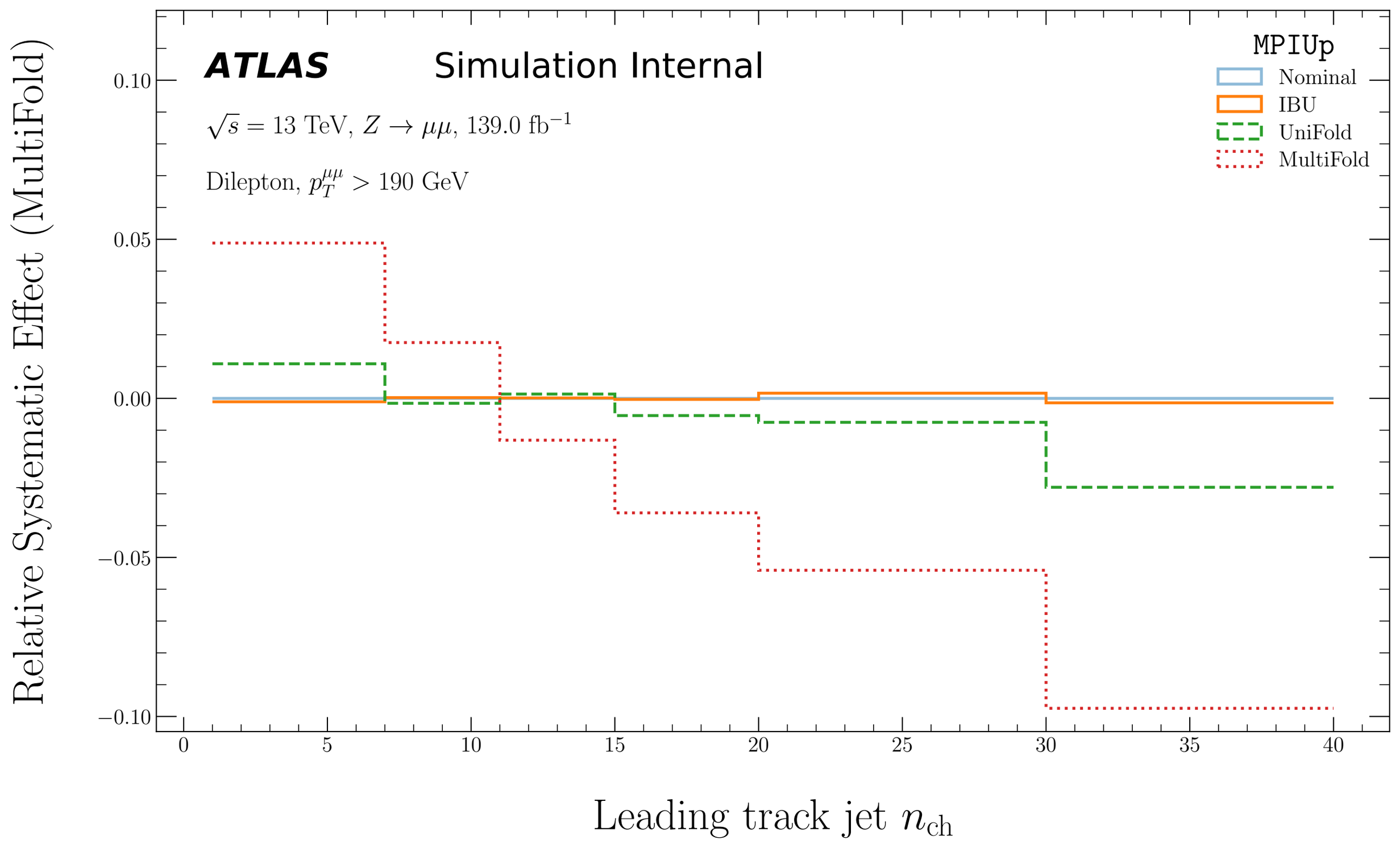
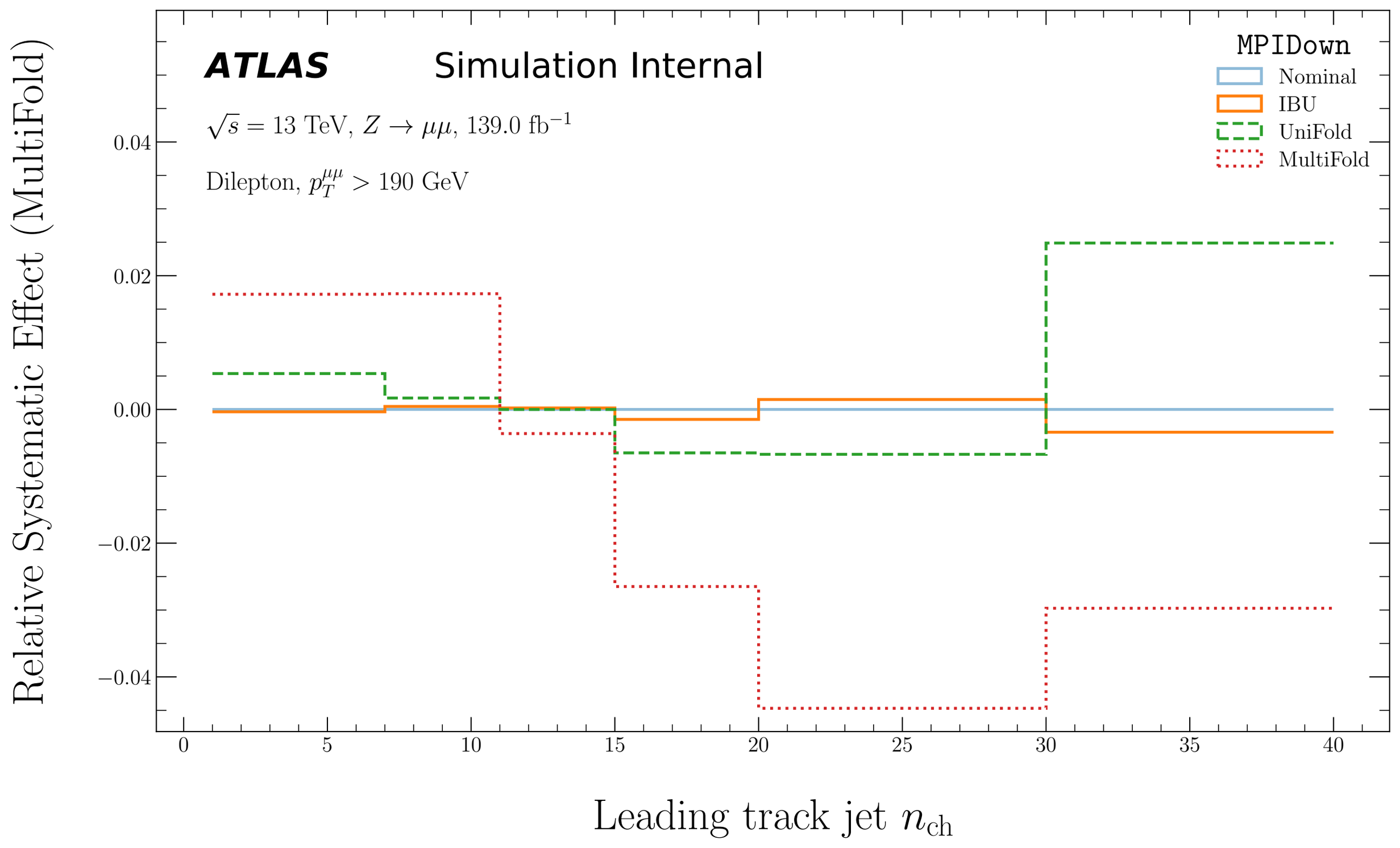
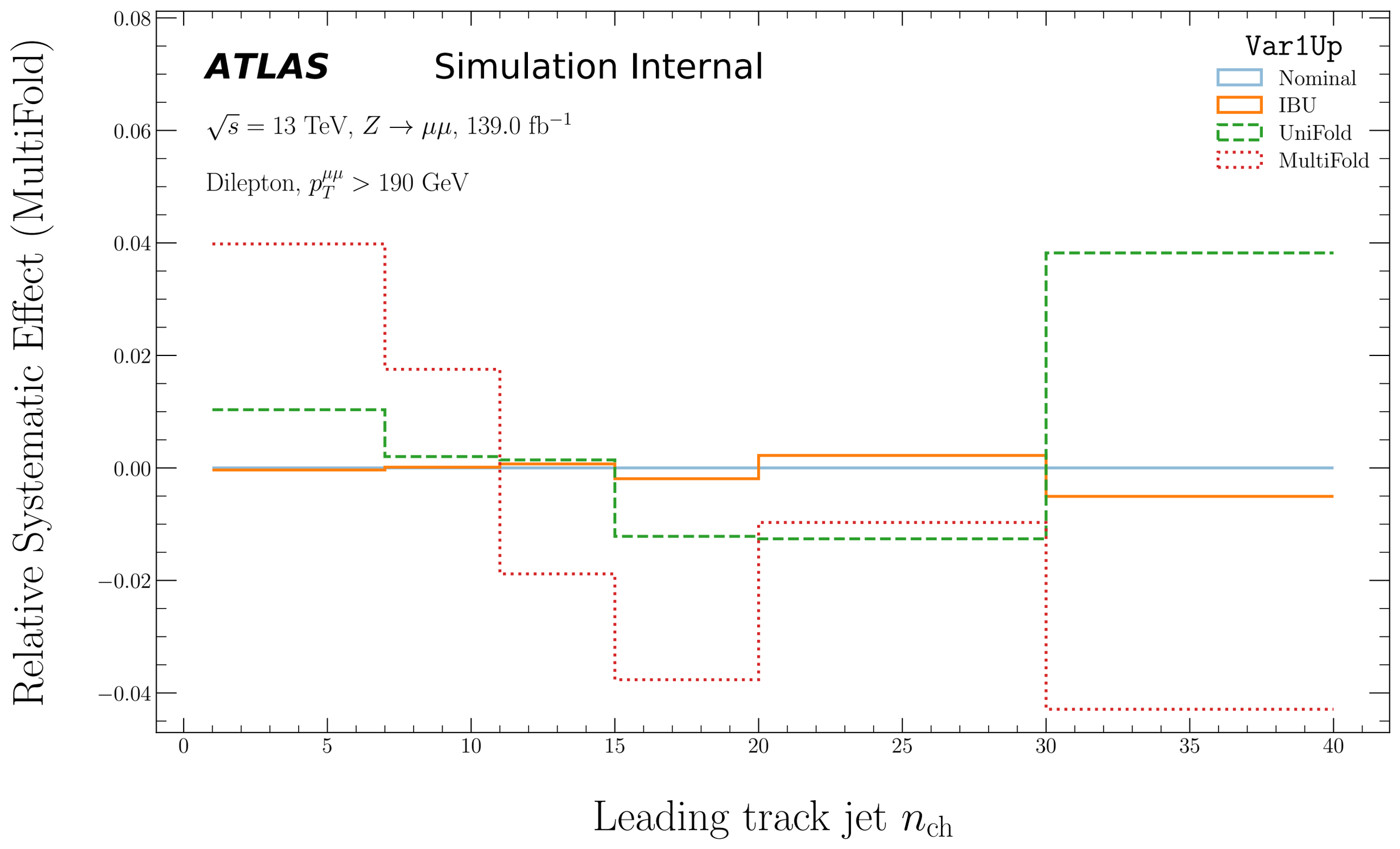
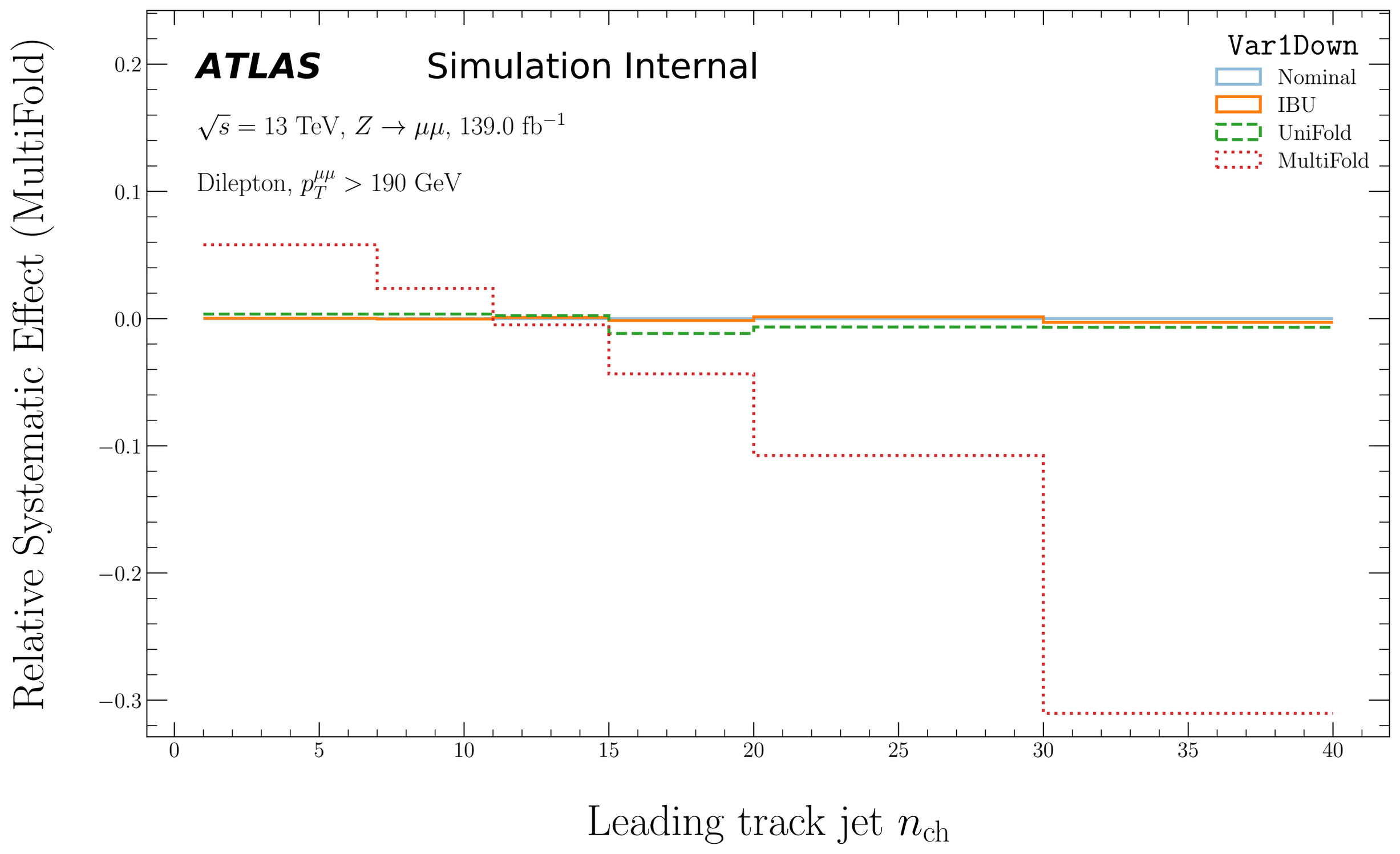

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.10
0.05
0.00
−0.05
−0.10
−0.15
0
5
10
15
20
25
30
35
40
Leading track jet n_{ch}

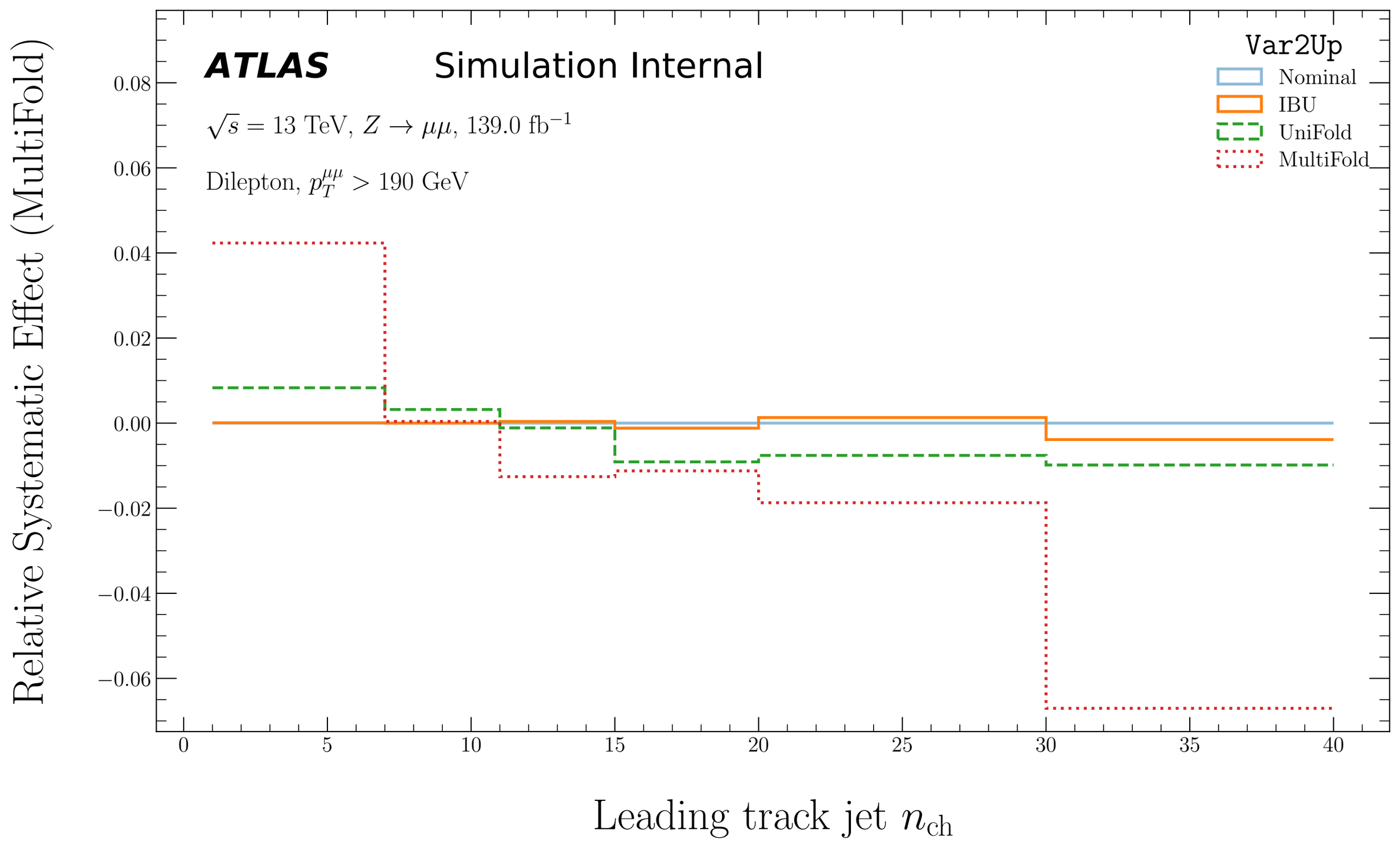

ATLAS
Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet n_{ch}
0.100
0.075
0.050
0.025
0.000
−0.025
−0.050
−0.075
0
5
10
15
20
25
30
35
40

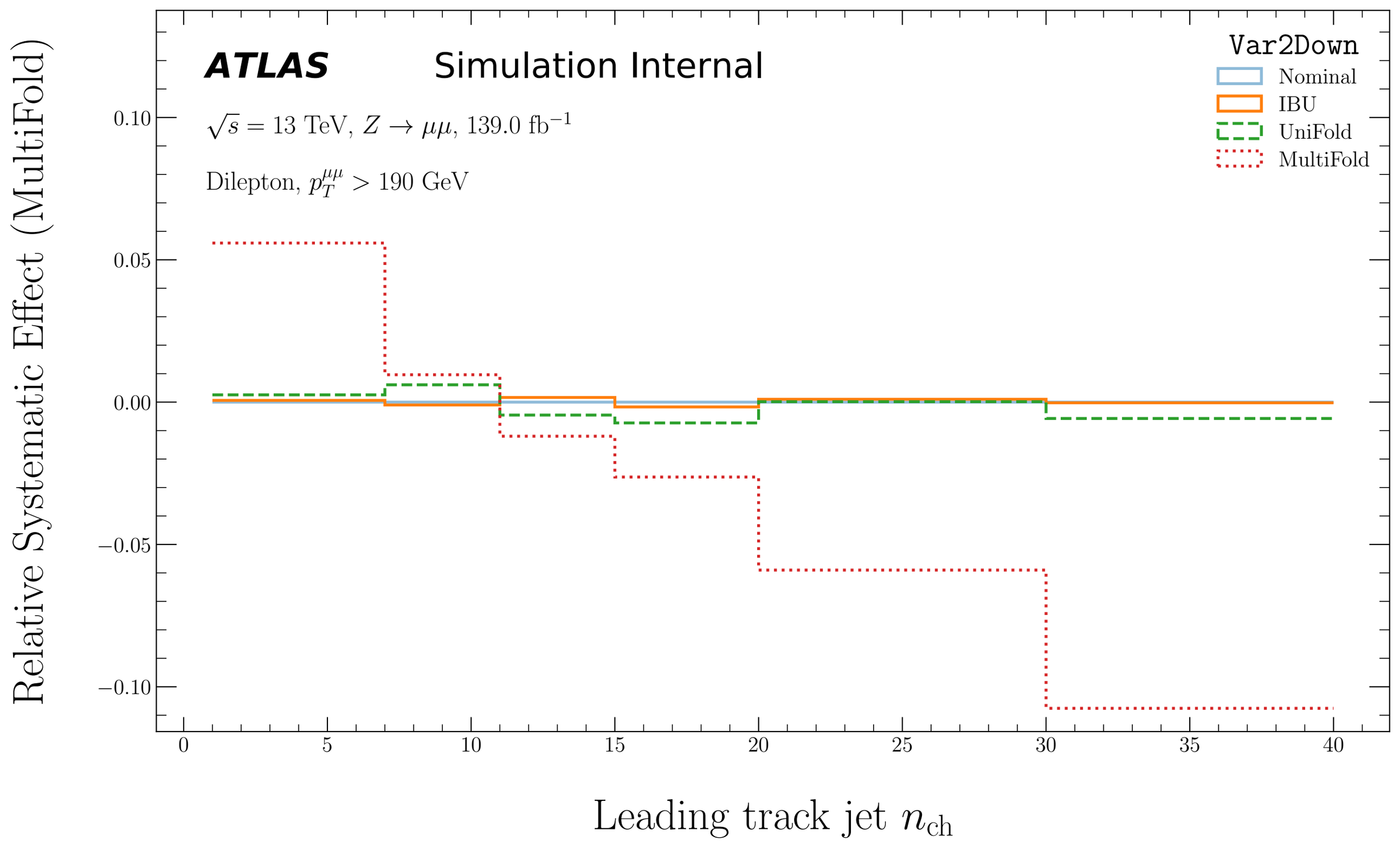

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.10
0.05
0.00
−0.05
−0.10
0
5
10
15
20
25
30
35
40
Leading track jet n_{ch}

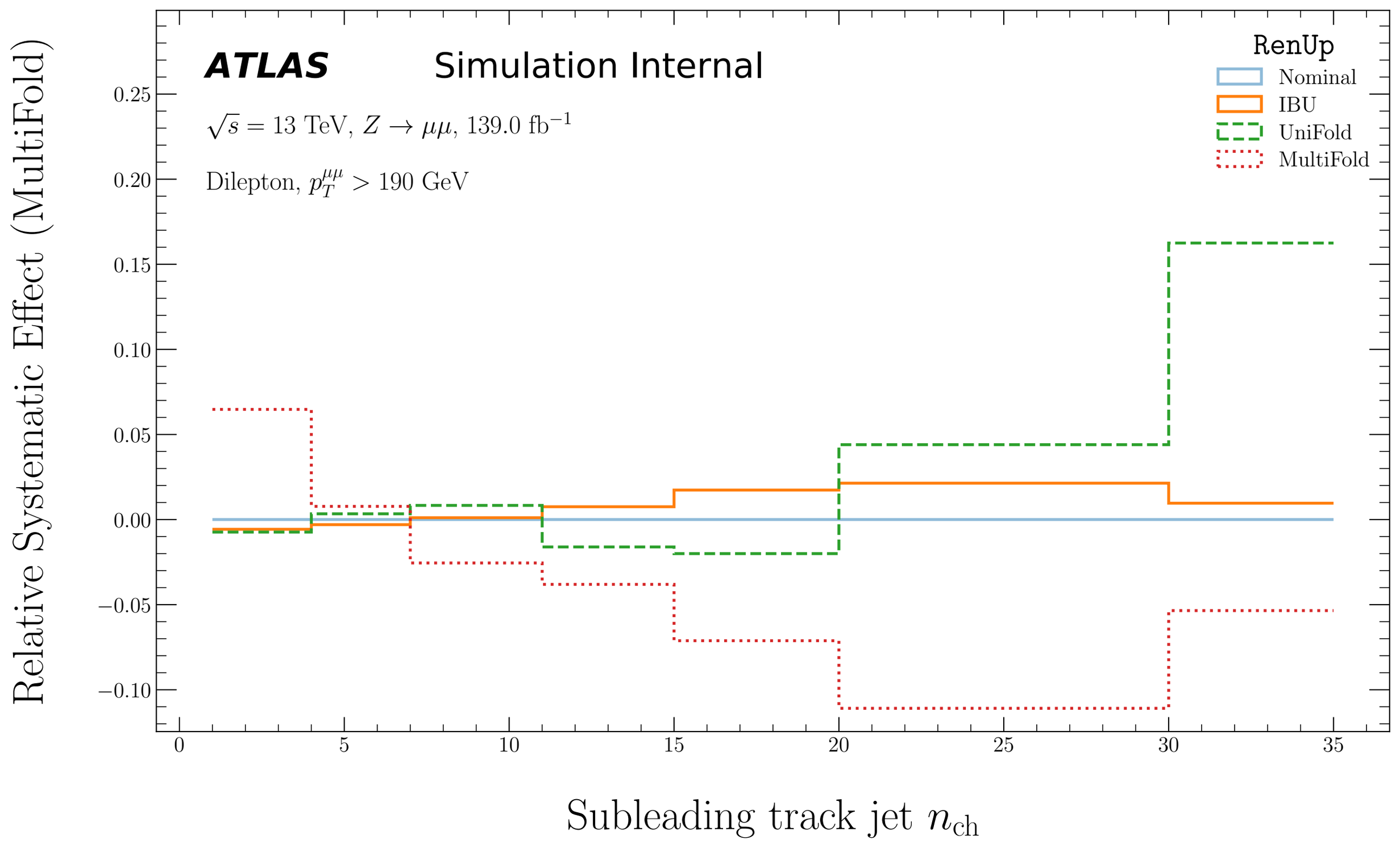

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.04
0.02
0.00
−0.02
−0.04
0
5
10
15
20
25
30
35
40
Leading track jet n_{ch}

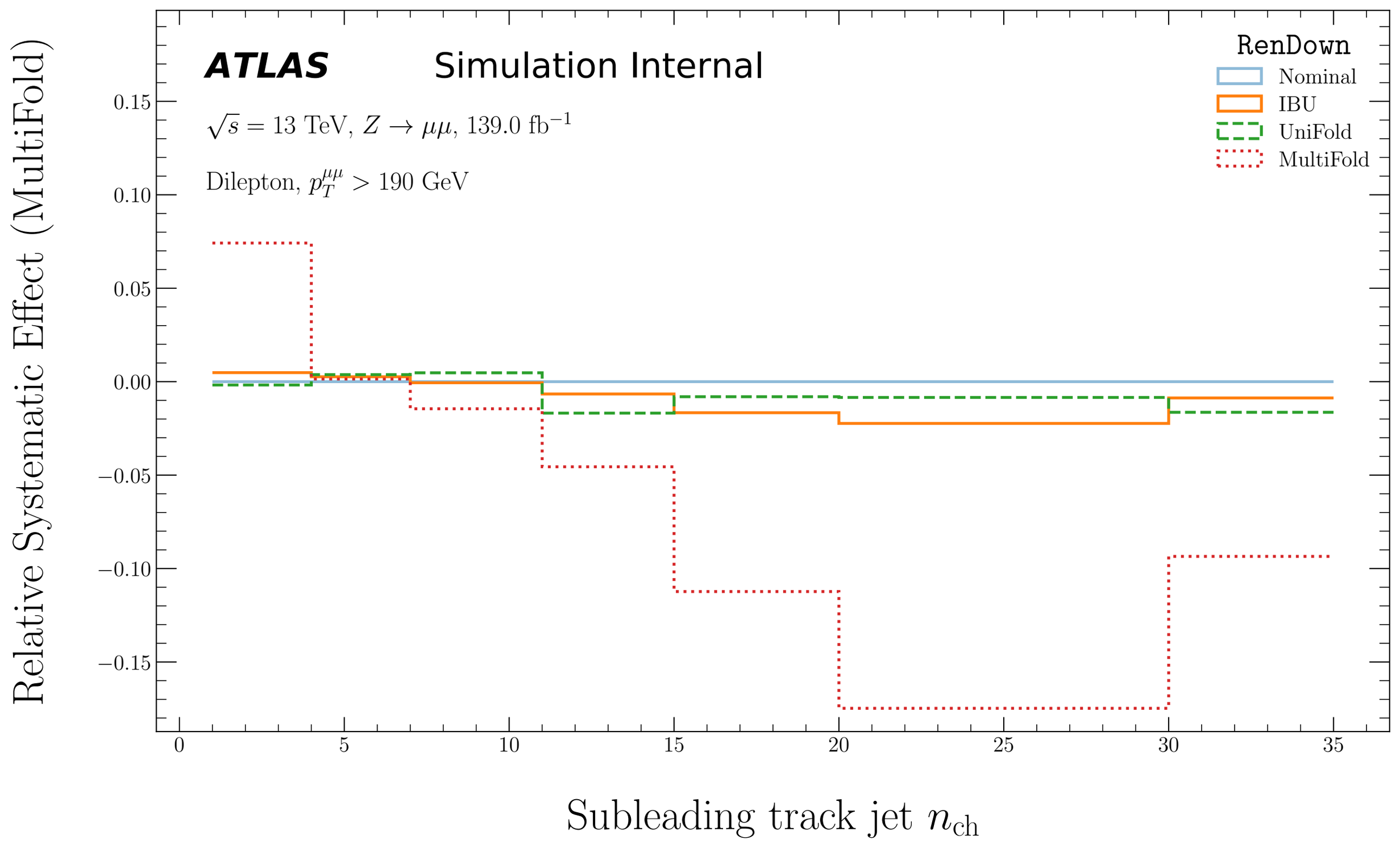

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet n_{ch}
0.08
0.06
0.04
0.02
0.00
−0.02
−0.04
0
5
10
15
20
25
30
35
40

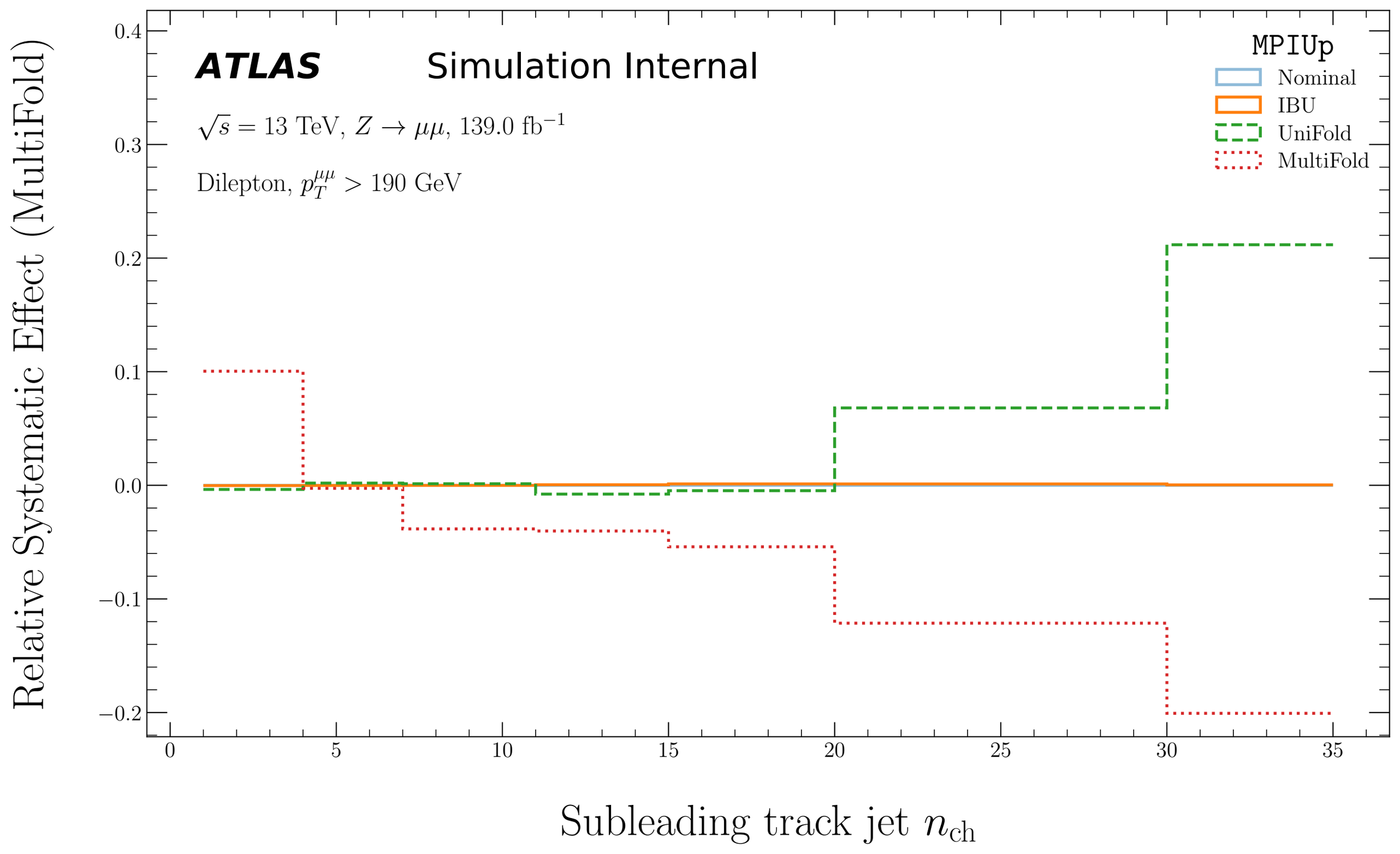

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet n_{ch}
0.2
0.1
0.0
−0.1
−0.2
−0.3
0
5
10
15
20
25
30
35
40

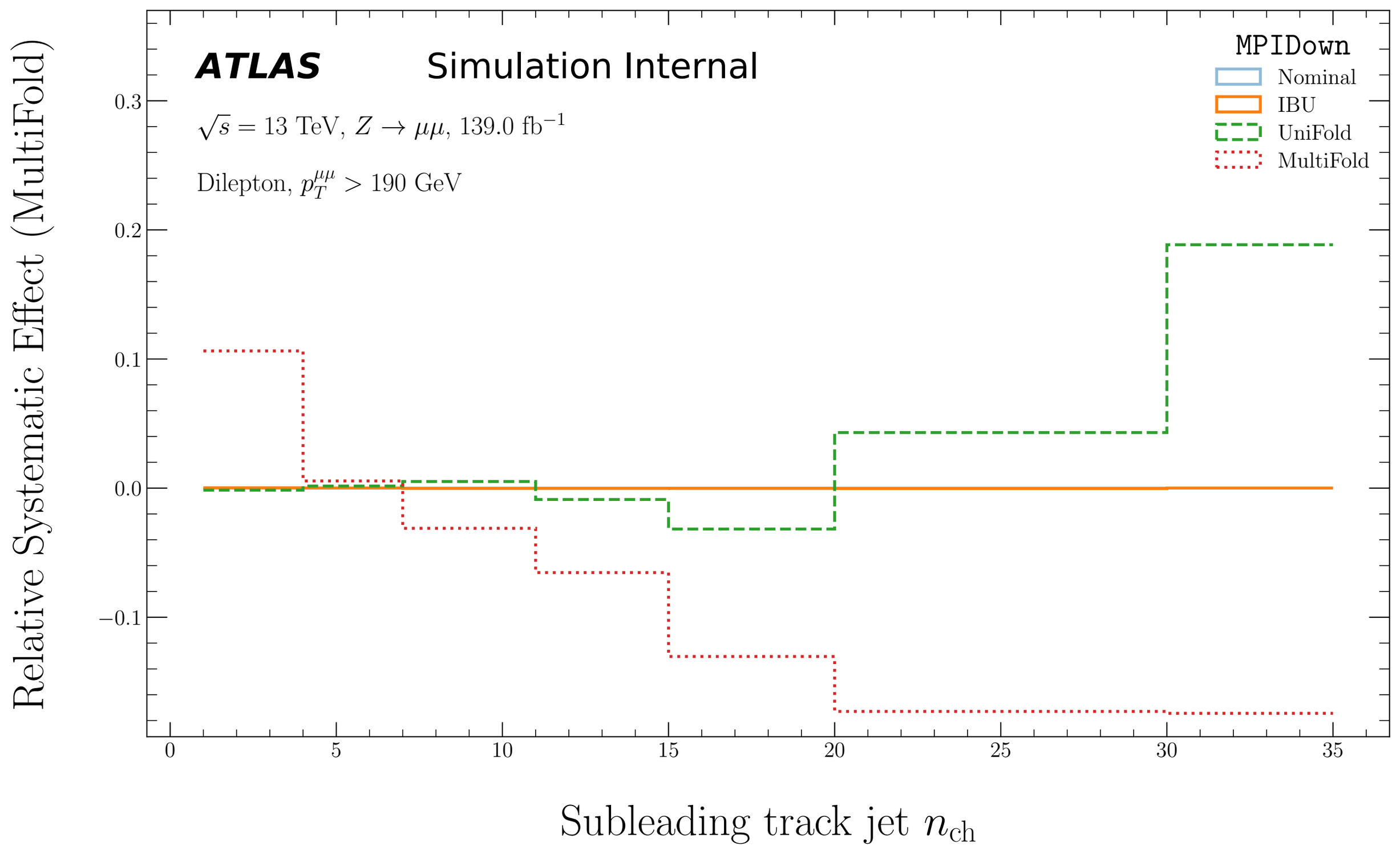

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet n_{ch}
0.08
0.06
0.04
0.02
0.00
−0.02
−0.04
−0.06
0
5
10
15
20
25
30
35
40

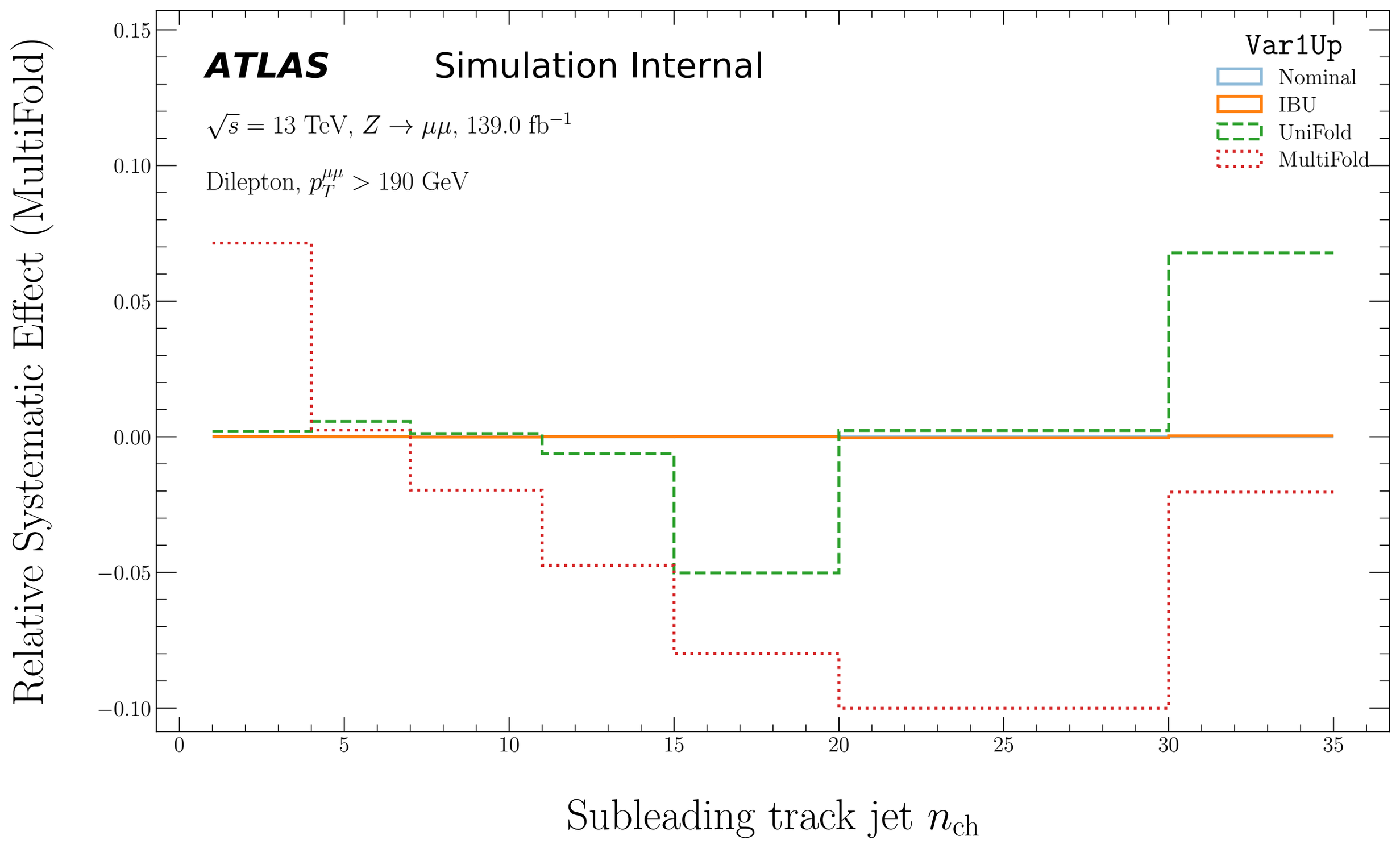

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.10
0.05
0.00
−0.05
−0.10
0
5
10
15
20
25
30
35
40
Leading track jet n_{ch}

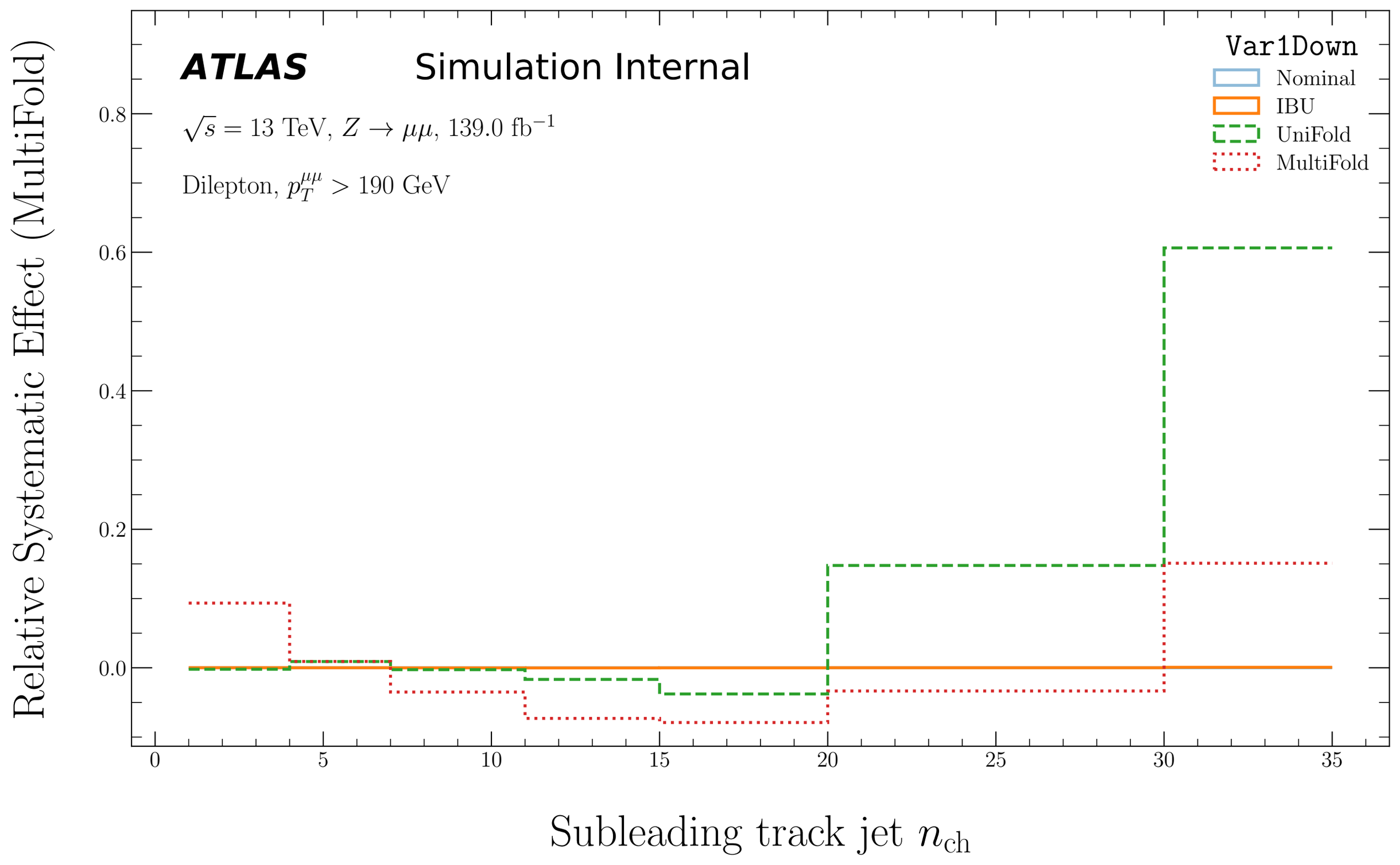

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet n_{ch}
0.25
0.20
0.15
0.10
0.05
0.00
−0.05
−0.10
0
5
10
15
20
25
30
35

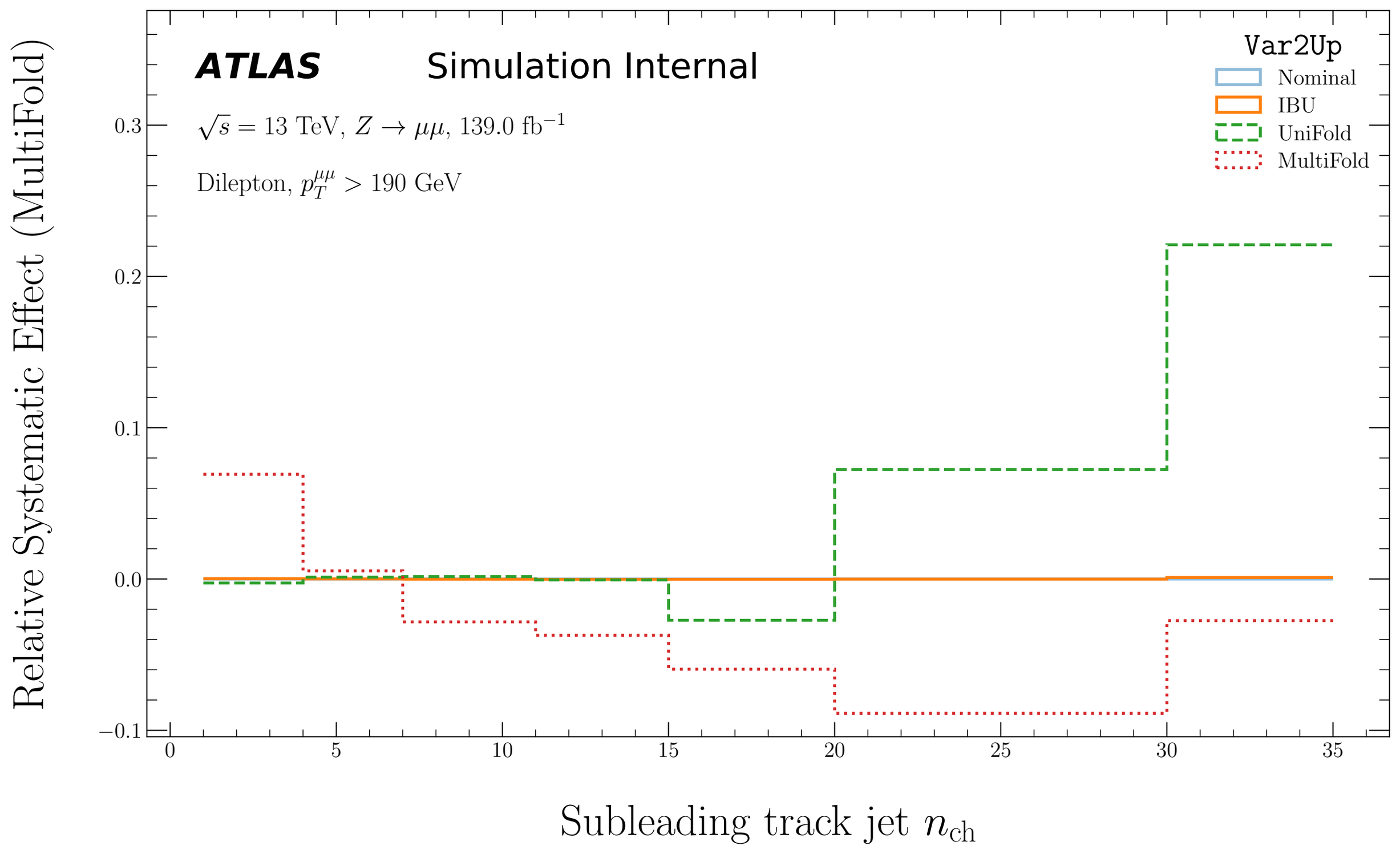

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
0
5
10
15
20
25
30
35
Subleading track jet n_{ch}

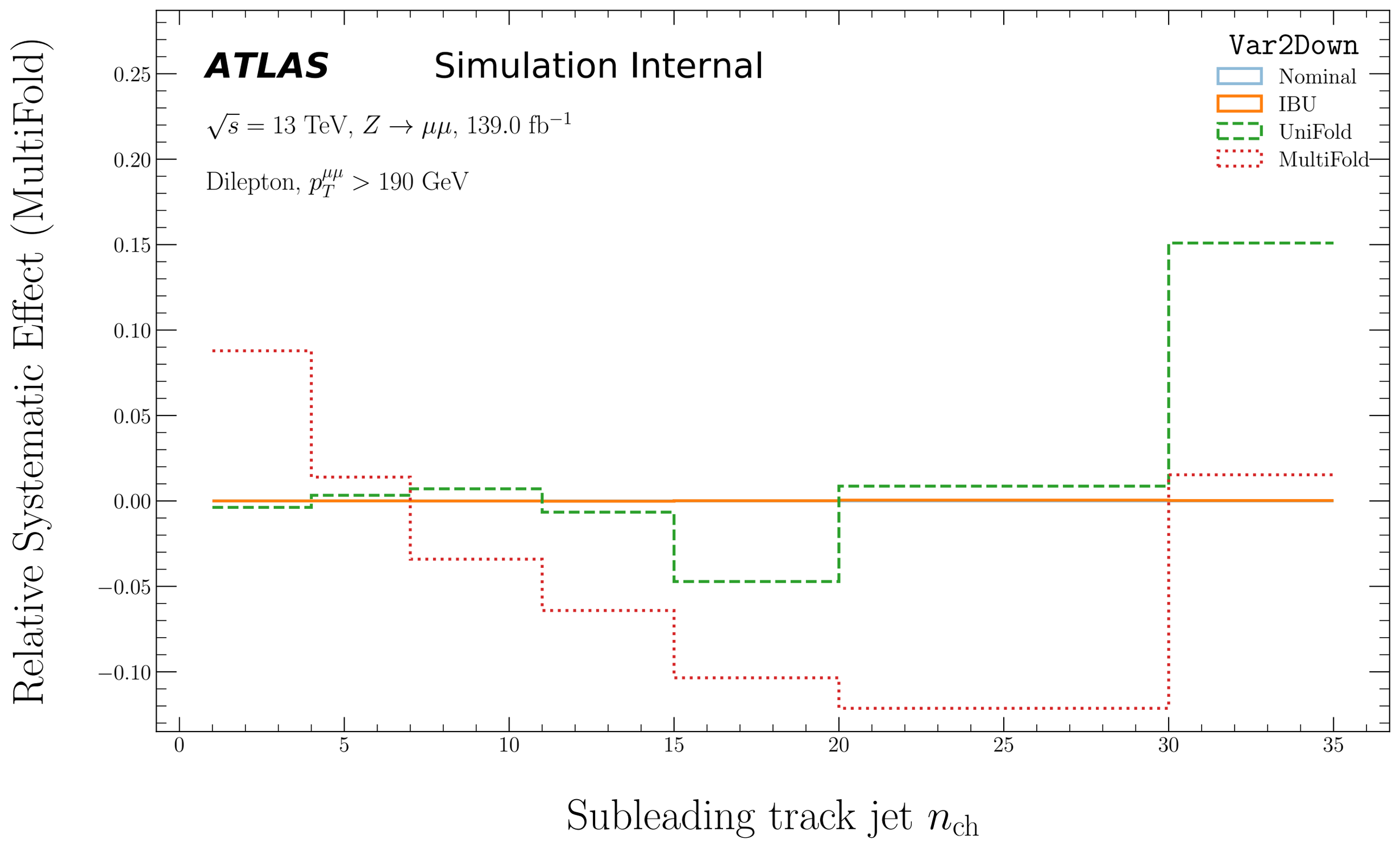

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet n_{ch}
0.4
0.3
0.2
0.1
0.0
−0.1
−0.2
0
5
10
15
20
25
30
35

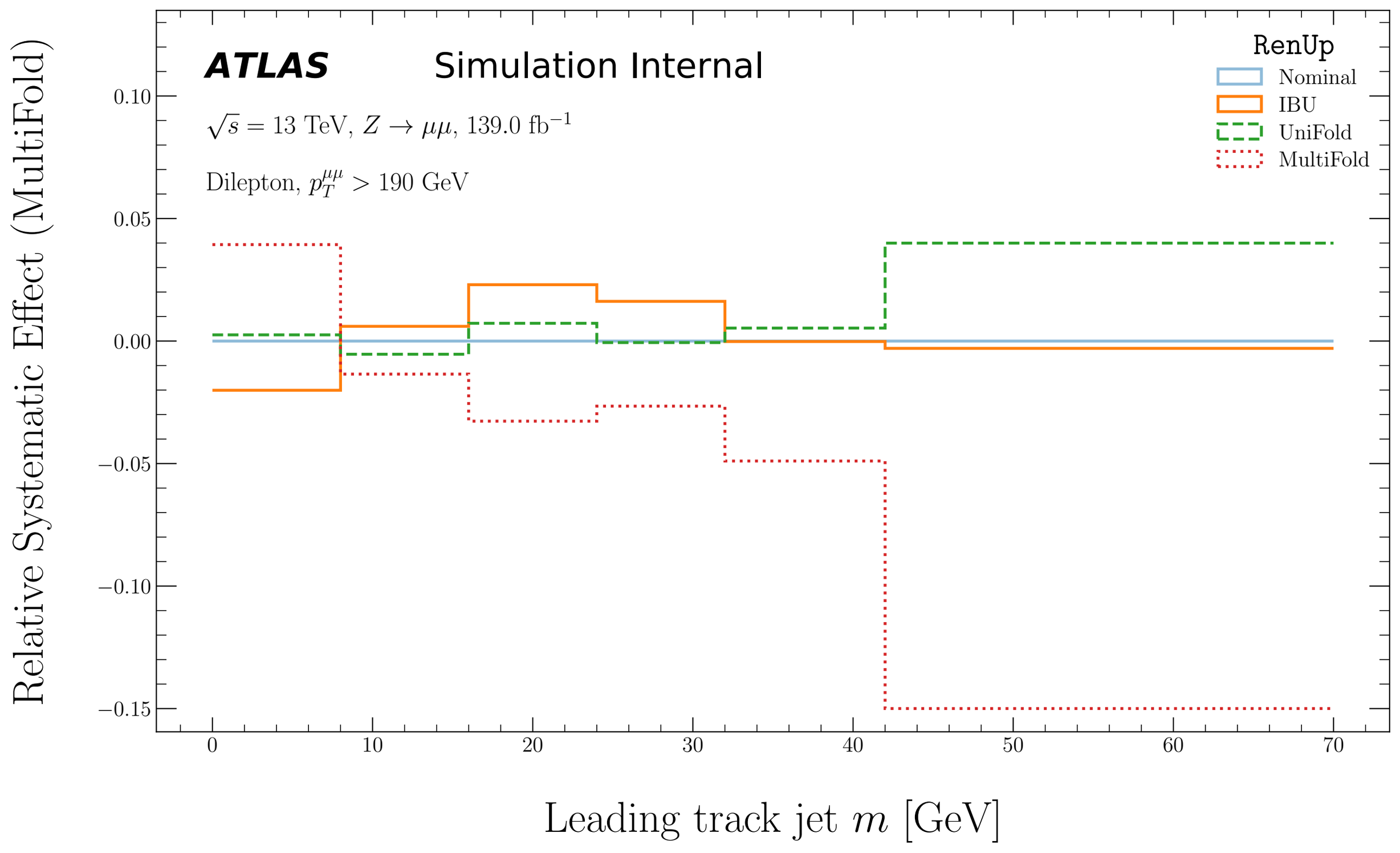

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet n_{ch}
0.3
0.2
0.1
0.0
−0.1
0
5
10
15
20
25
30
35

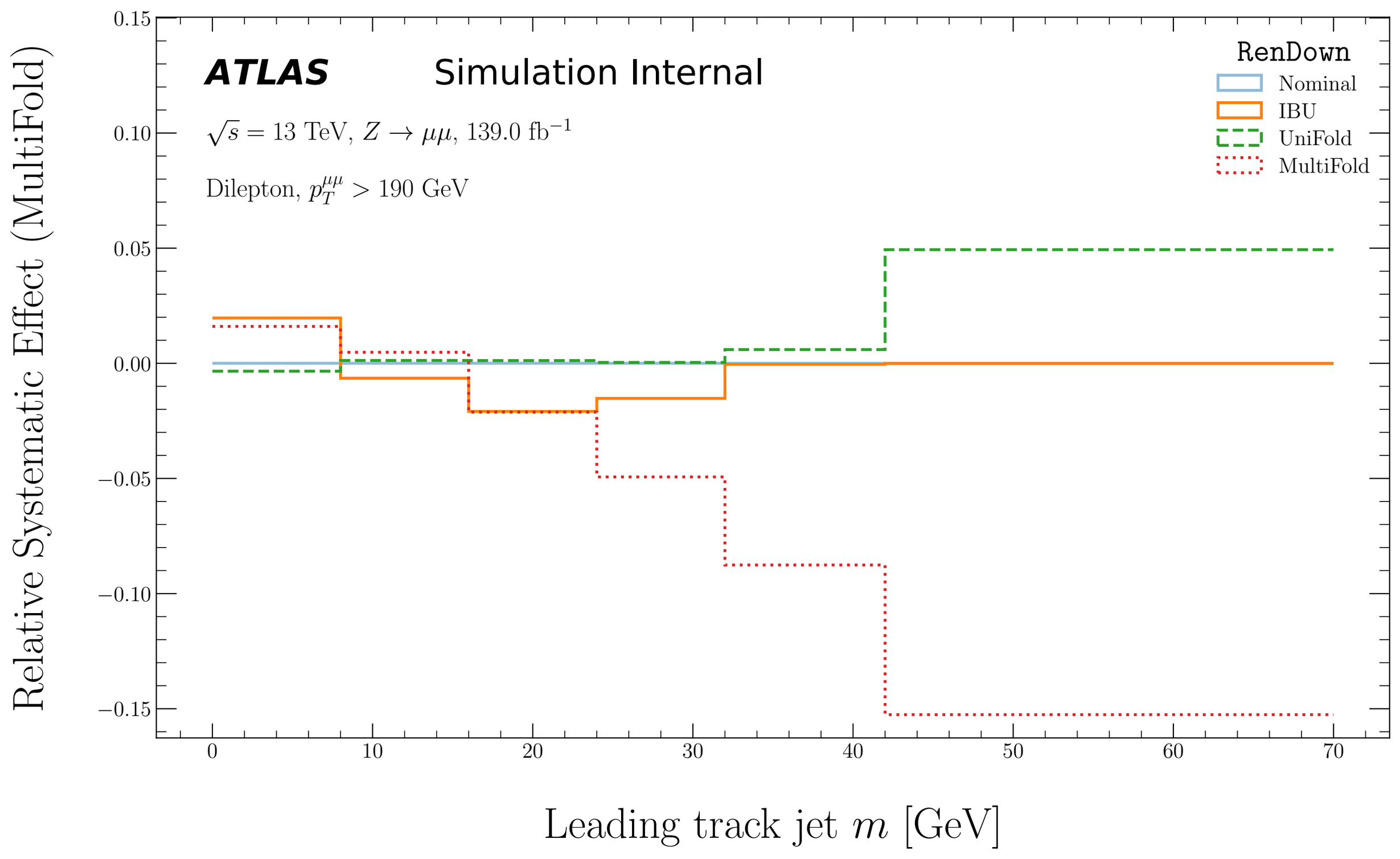

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet n_{ch}
0.15
0.10
0.05
0.00
−0.05
−0.10
0
5
10
15
20
25
30
35

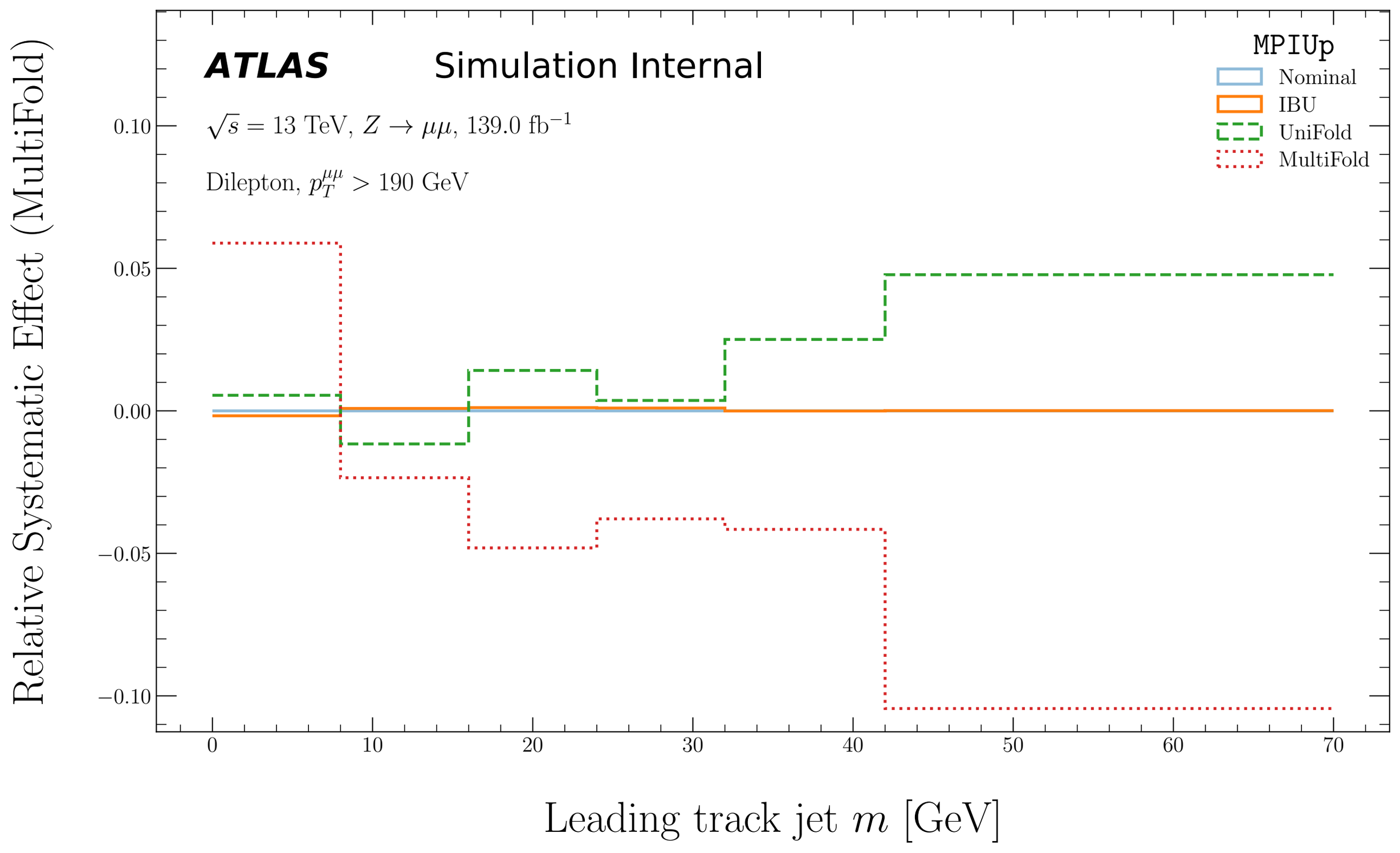

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.0
0.2
0.4
0.6
0.8
0
5
10
15
20
25
30
35
Subleading track jet n_{ch}

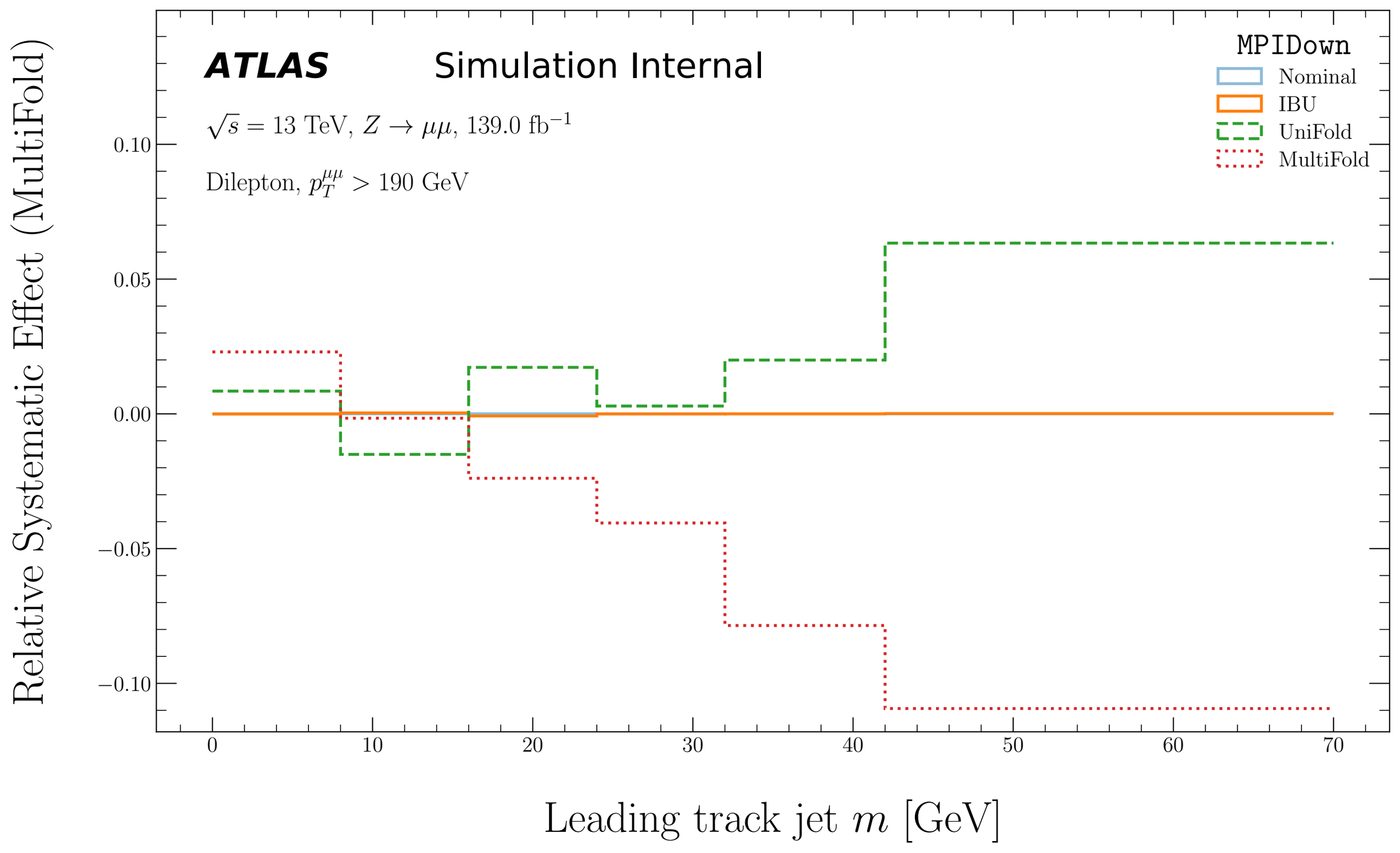

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.3
0.2
0.1
0.0
−0.1
0
5
10
15
20
25
30
35
Subleading track jet n_{ch}

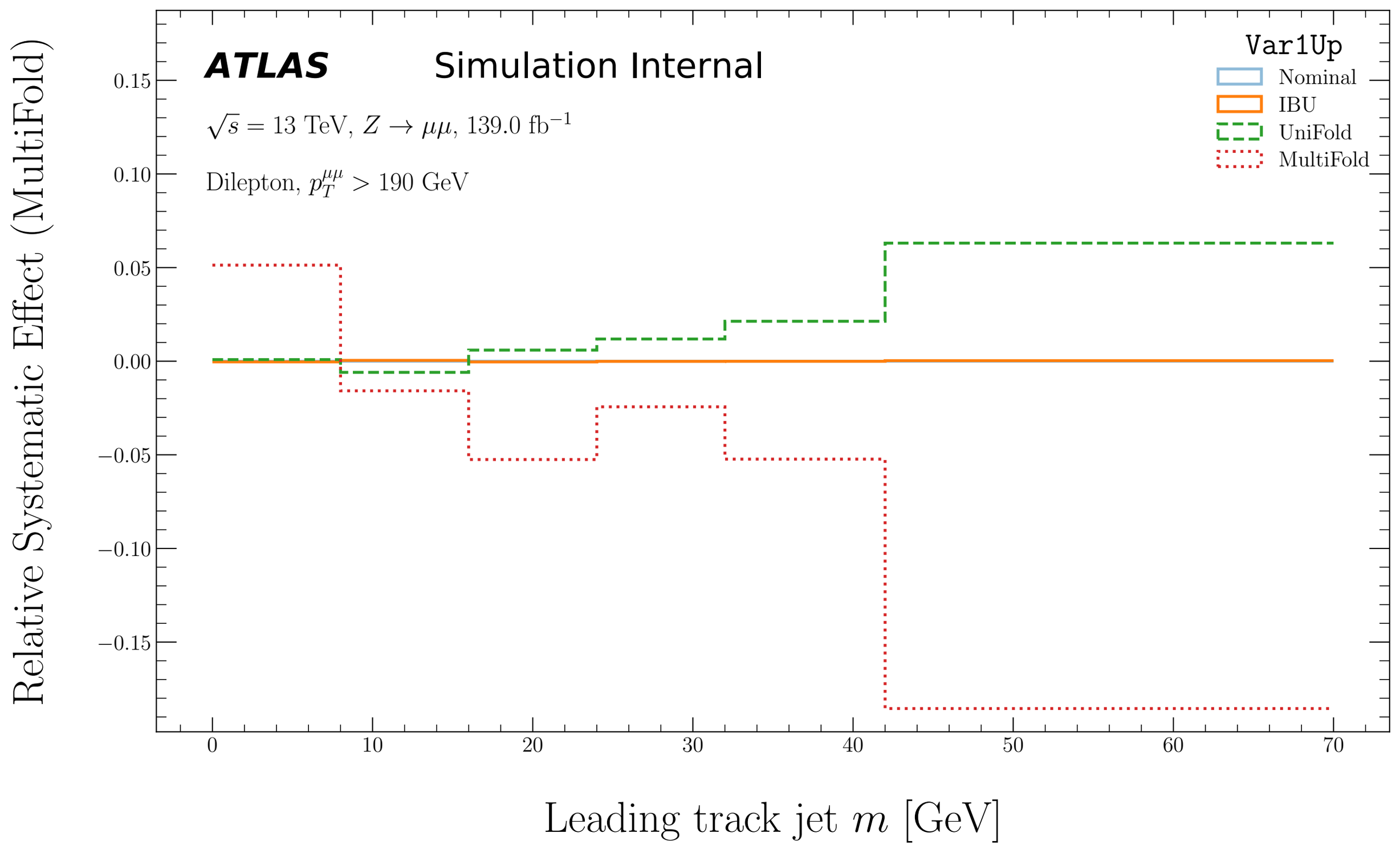

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet n_{ch}
0.25
0.20
0.15
0.10
0.05
0.00
−0.05
−0.10
0
5
10
15
20
25
30
35

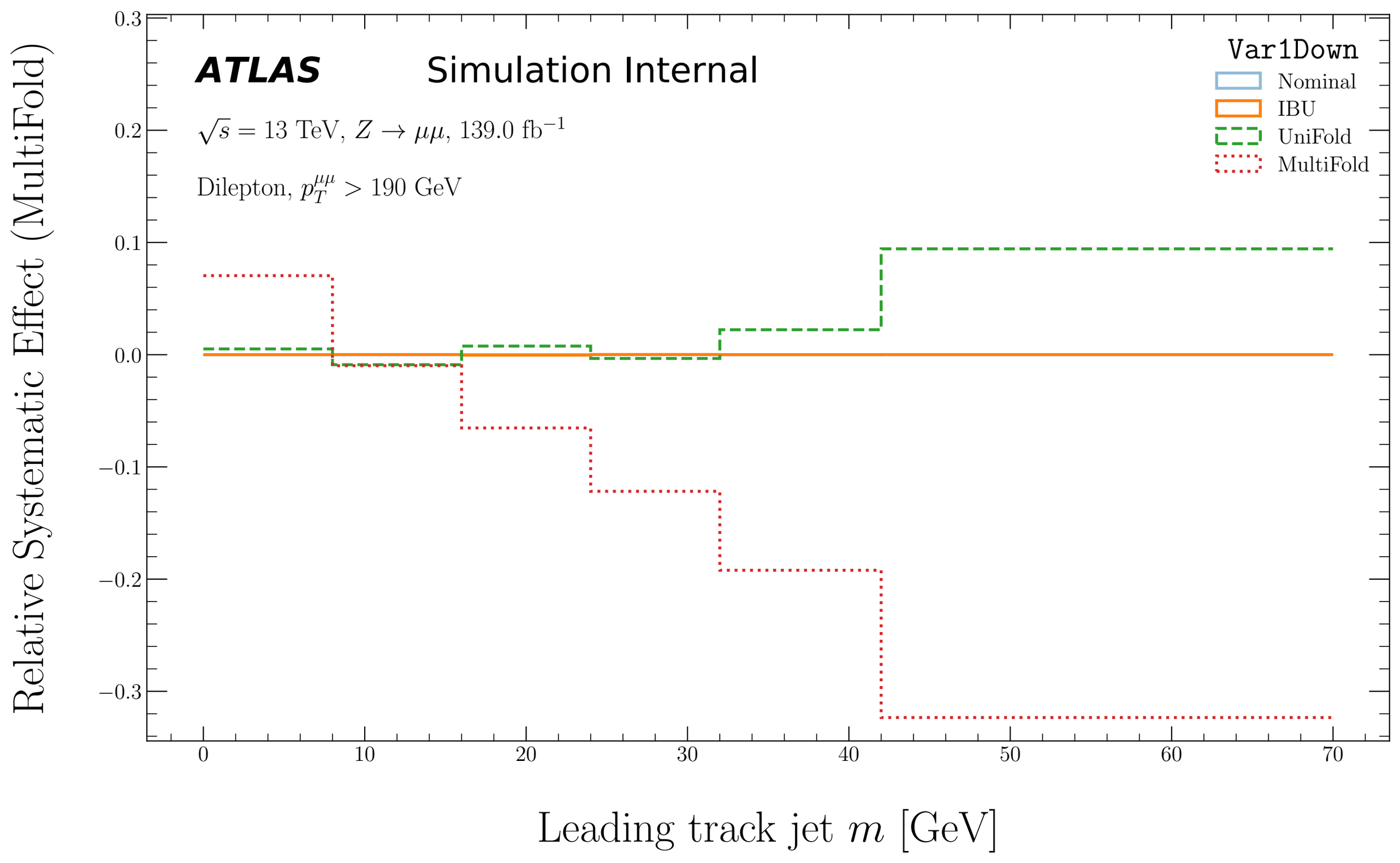

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.10
0.05
0.00
−0.05
−0.10
−0.15
0
10
20
30
40
50
60
70
Leading track jet m [GeV]

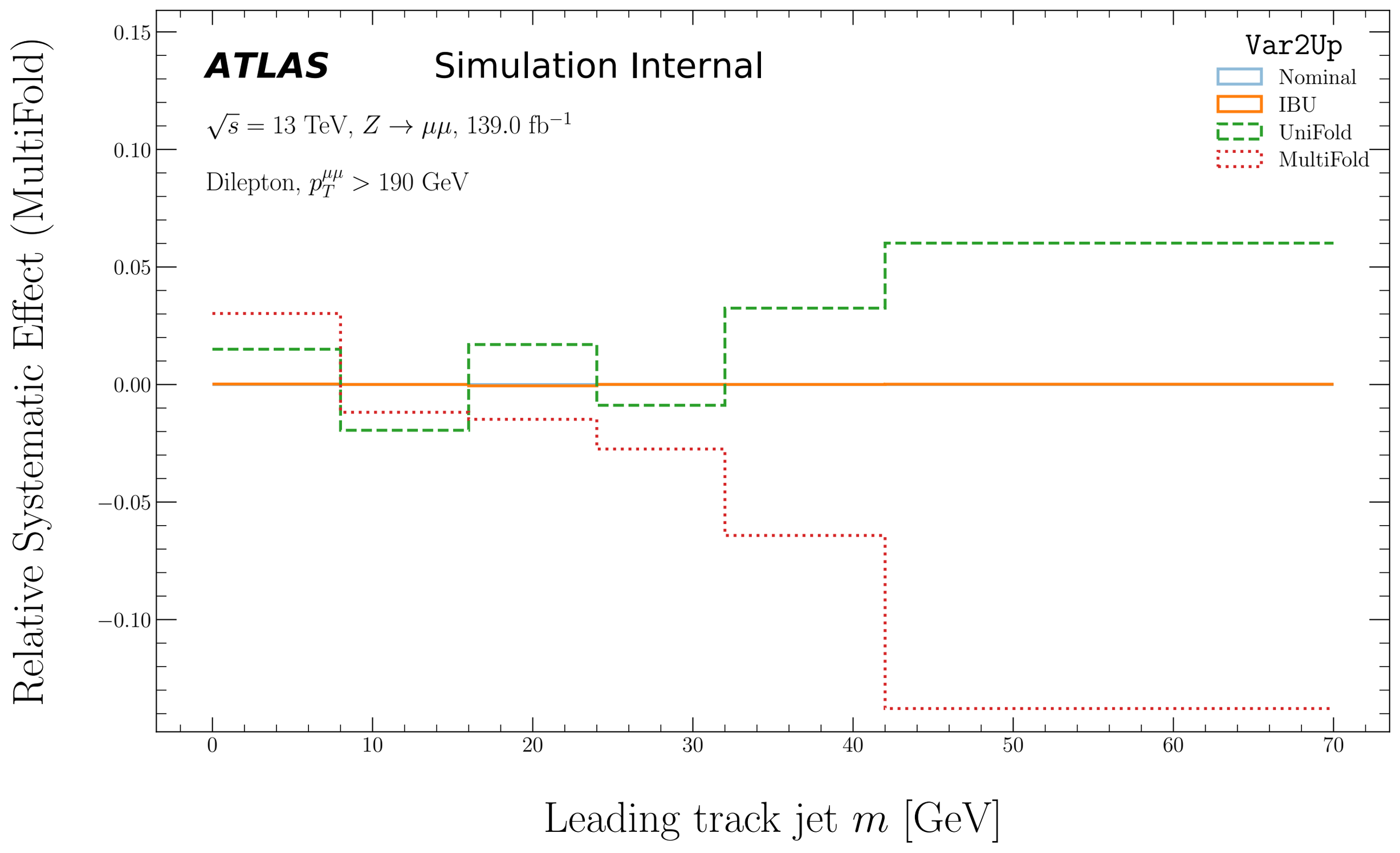

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet m [GeV]
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
0
10
20
30
40
50
60
70

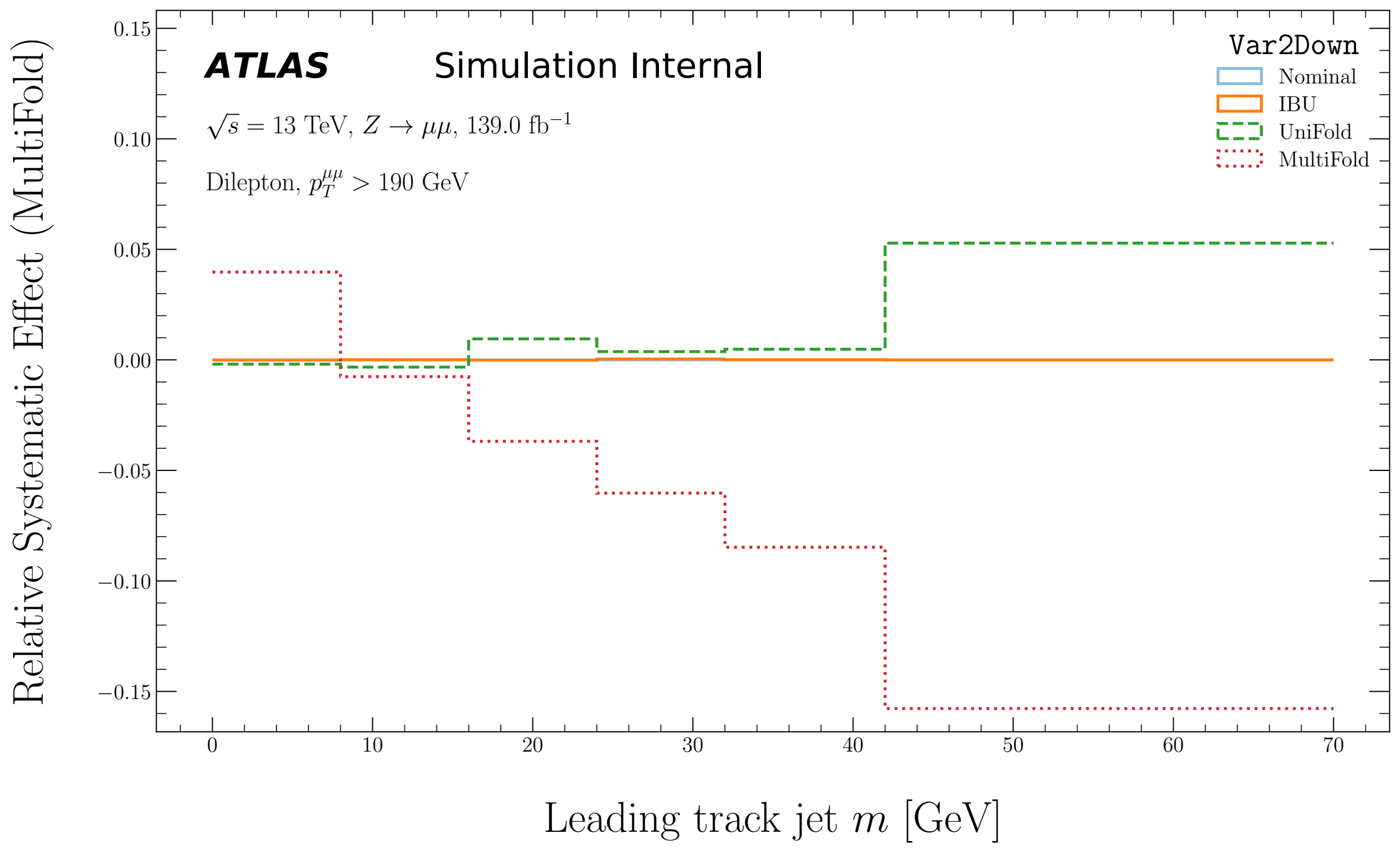

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.10
0.05
0.00
−0.05
−0.10
0
10
20
30
40
50
60
70
Leading track jet m [GeV]

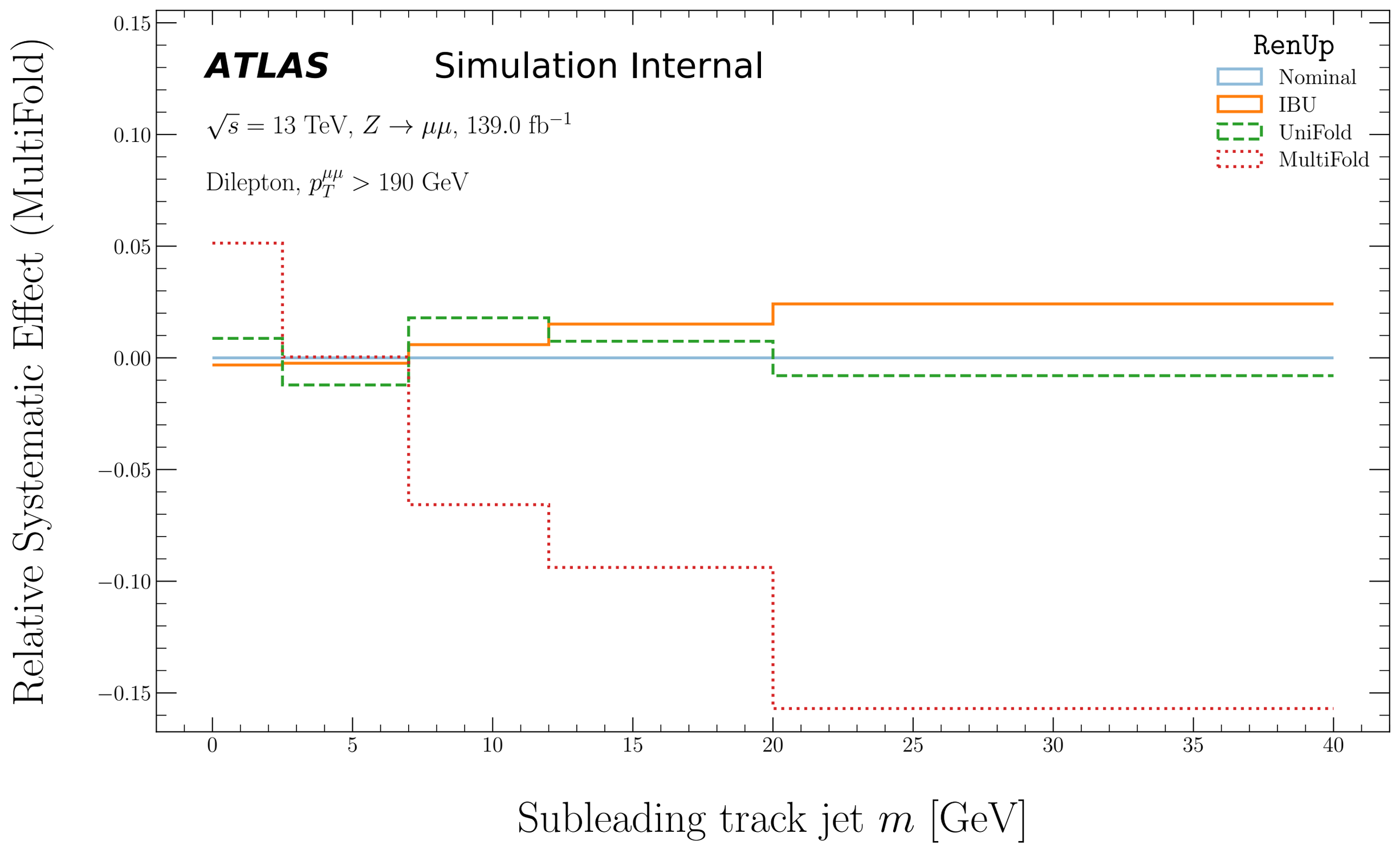

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.10
0.05
0.00
−0.05
−0.10
0
10
20
30
40
50
60
70
Leading track jet m [GeV]

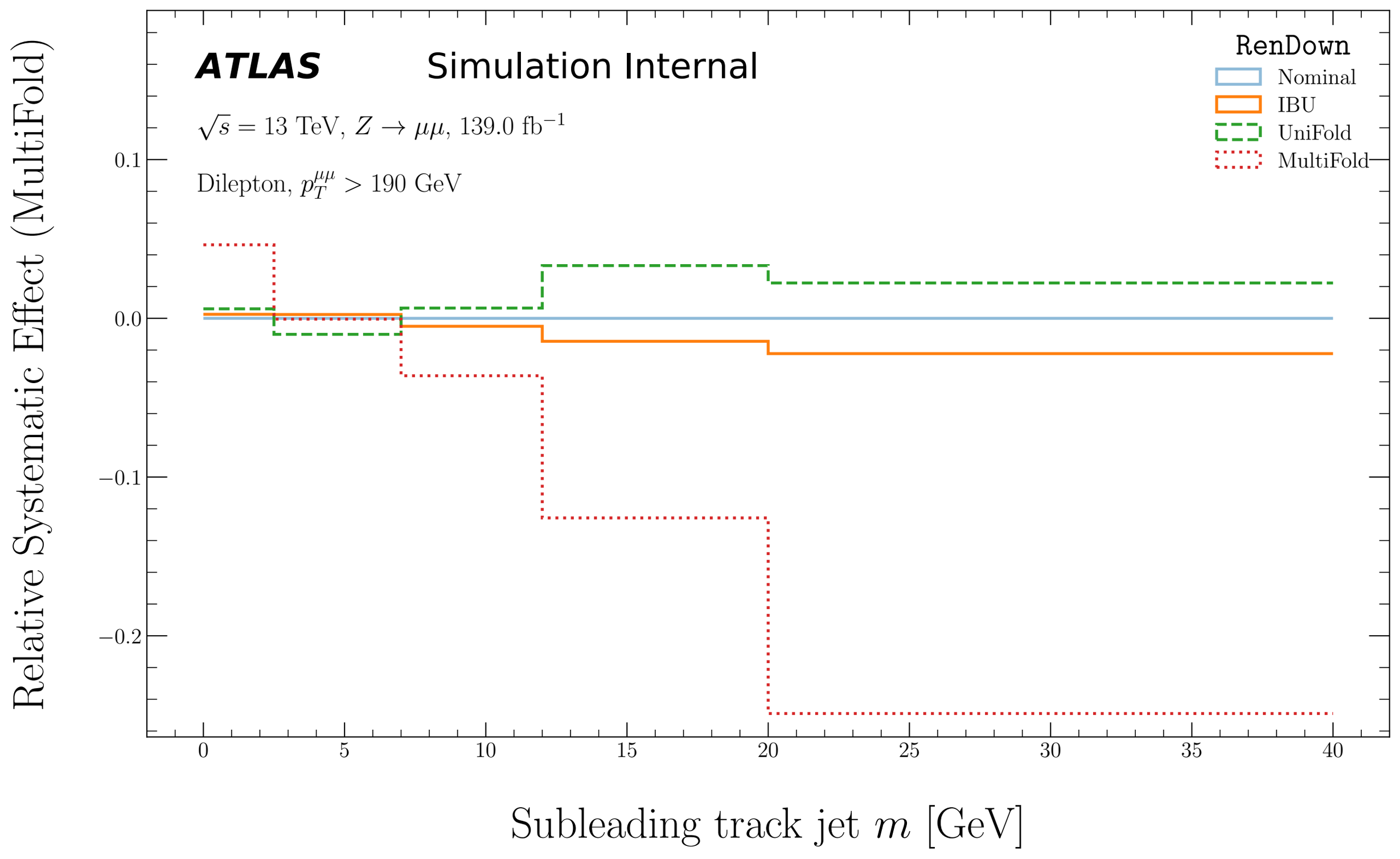

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet m [GeV]
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
0
10
20
30
40
50
60
70

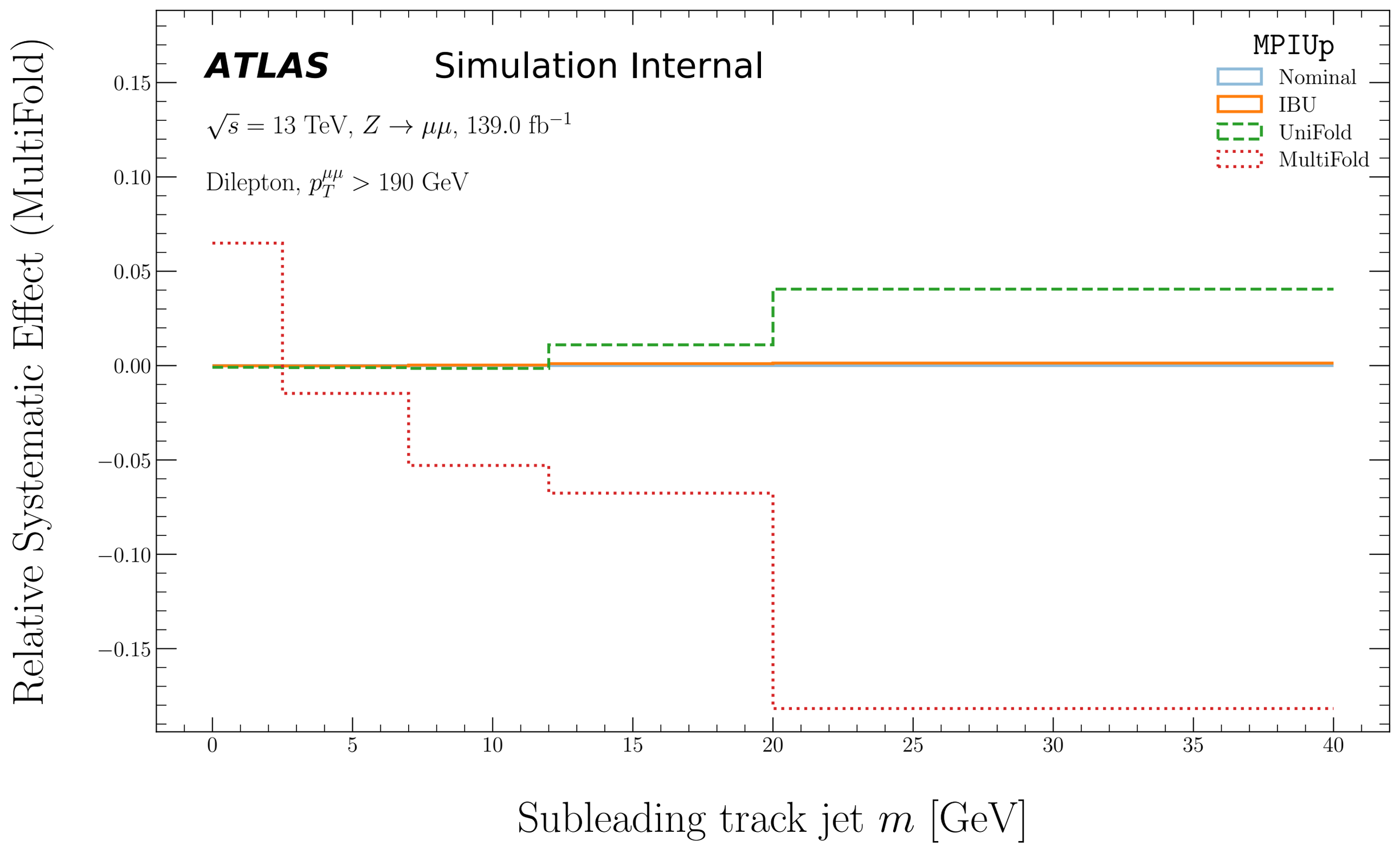

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet m [GeV]
0.3
0.2
0.1
0.0
−0.1
−0.2
−0.3
0
10
20
30
40
50
60
70

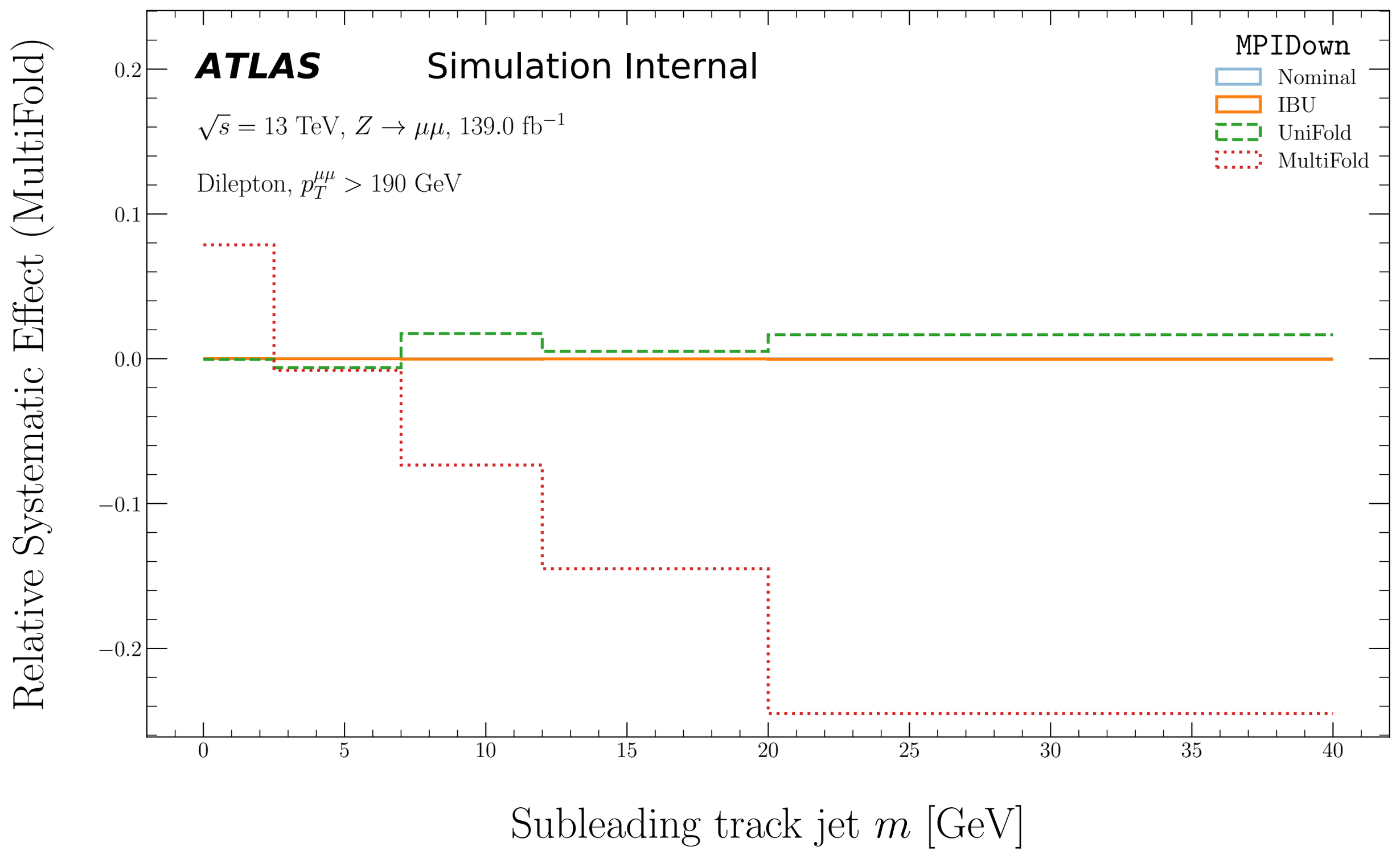

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet m [GeV]
0.15
0.10
0.05
0.00
−0.05
−0.10
0
10
20
30
40
50
60
70

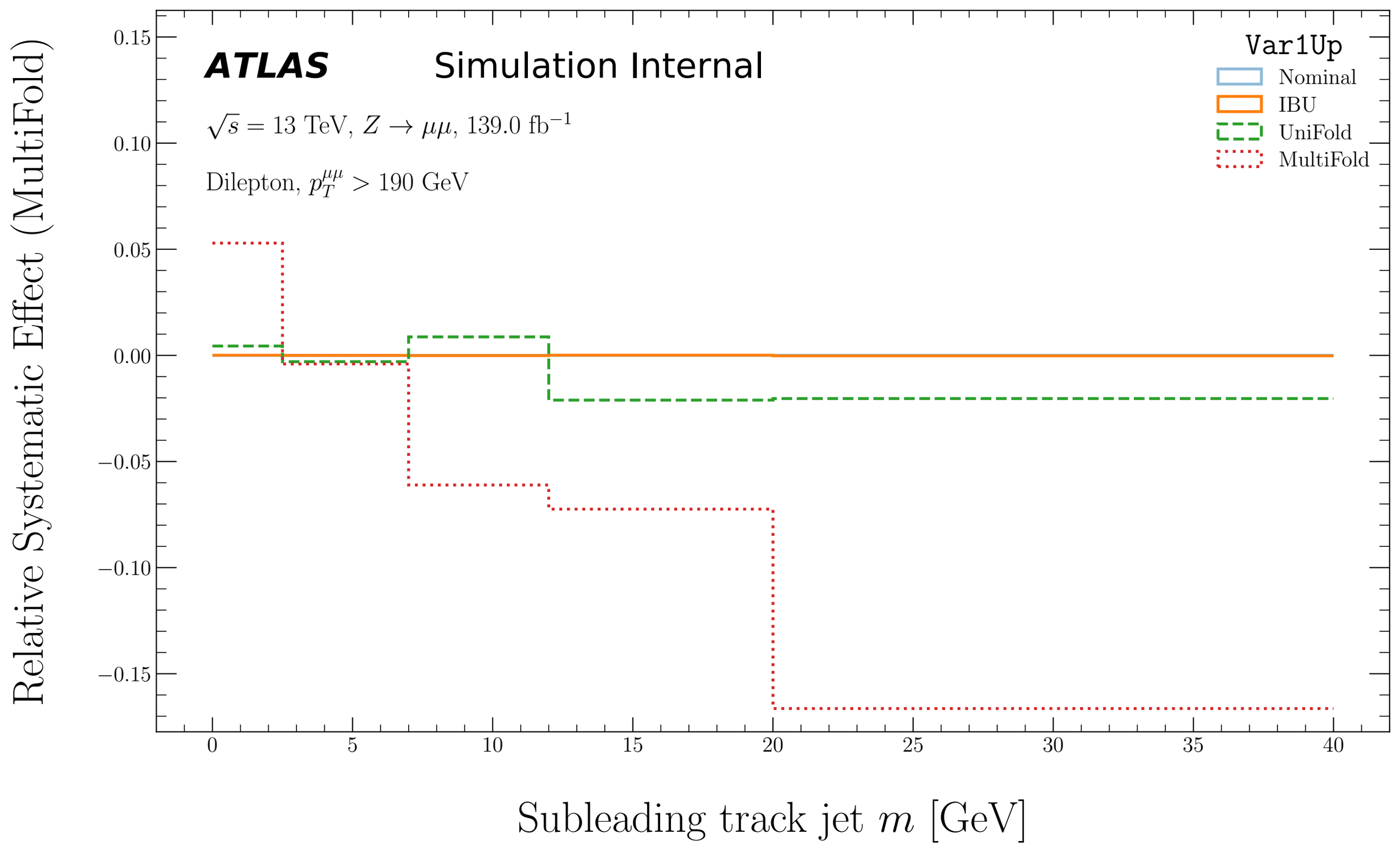

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet m [GeV]
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
0
10
20
30
40
50
60
70

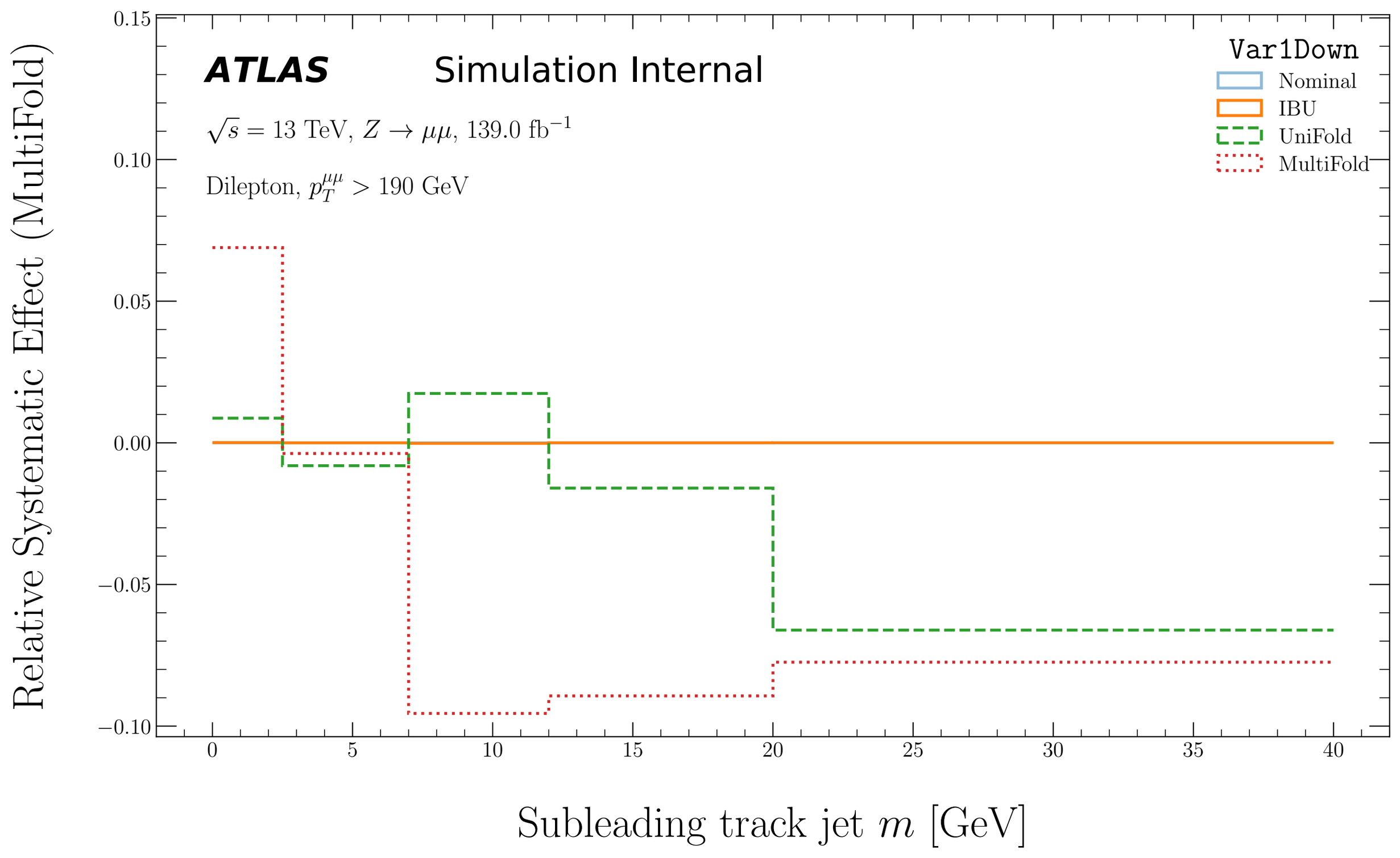

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet m [GeV]
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
0
5
10
15
20
25
30
35
40

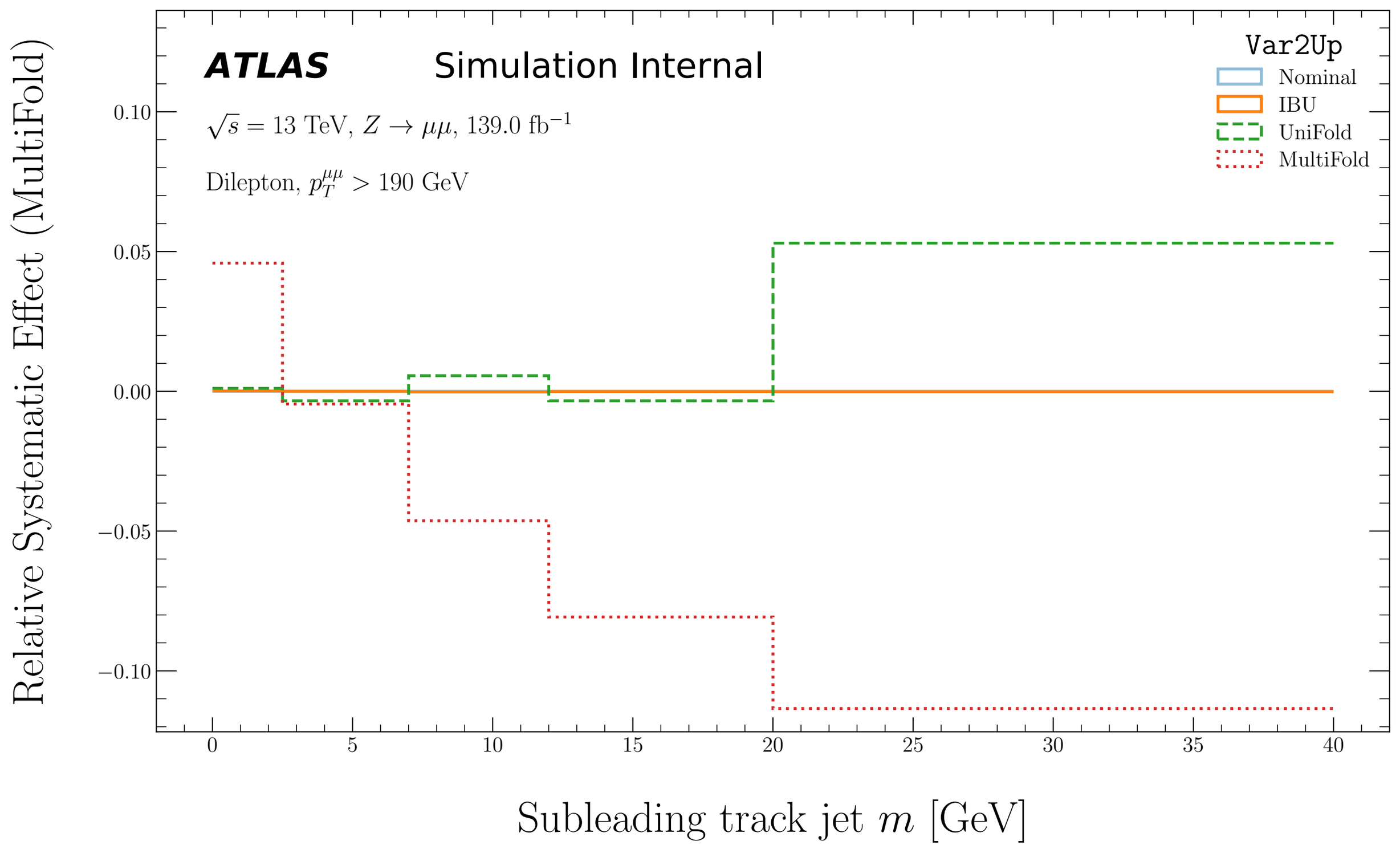

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.1
0.0
−0.1
−0.2
0
5
10
15
20
25
30
35
40
Subleading track jet m [GeV]

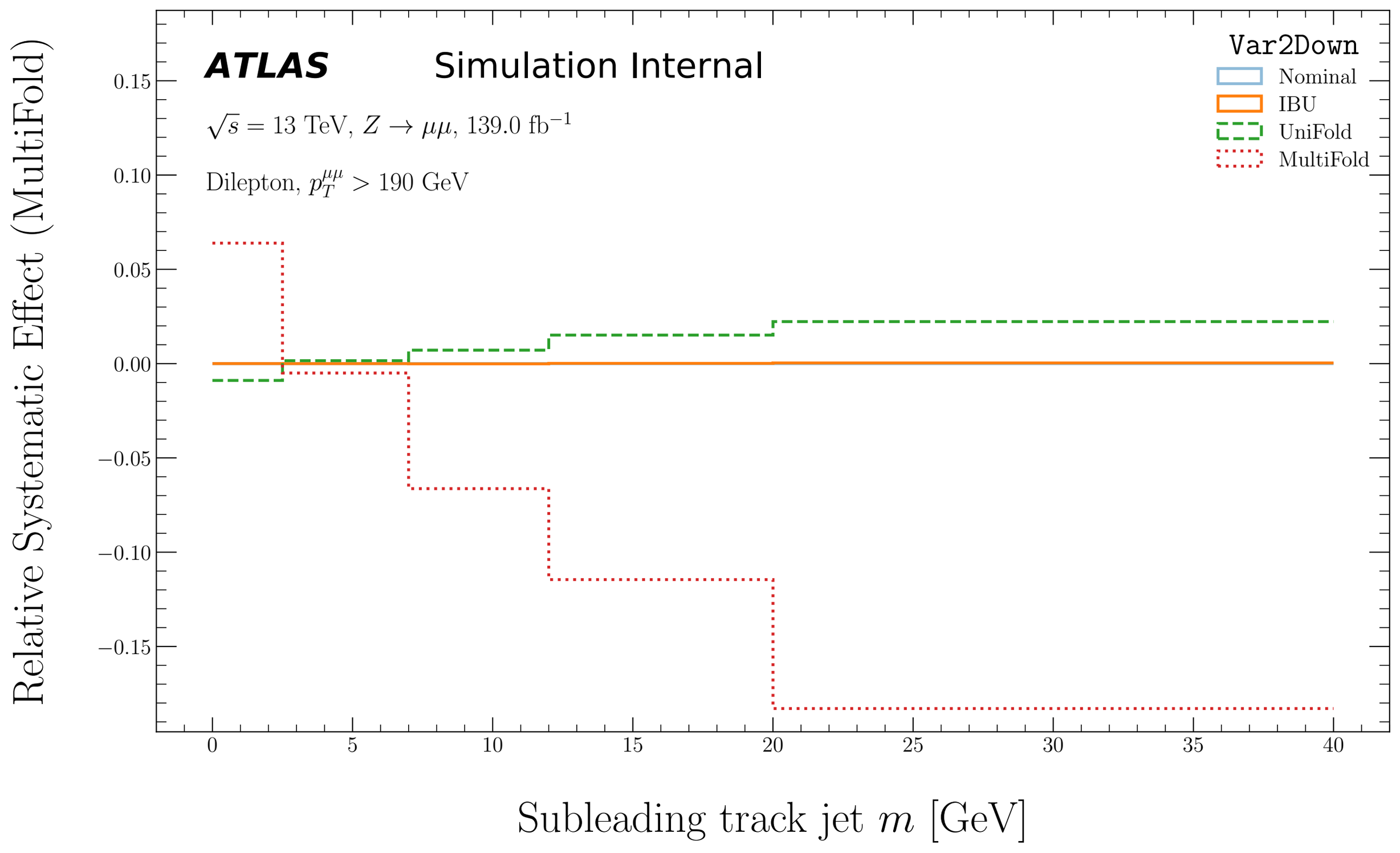

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
0
5
10
15
20
25
30
35
40
Subleading track jet m [GeV]

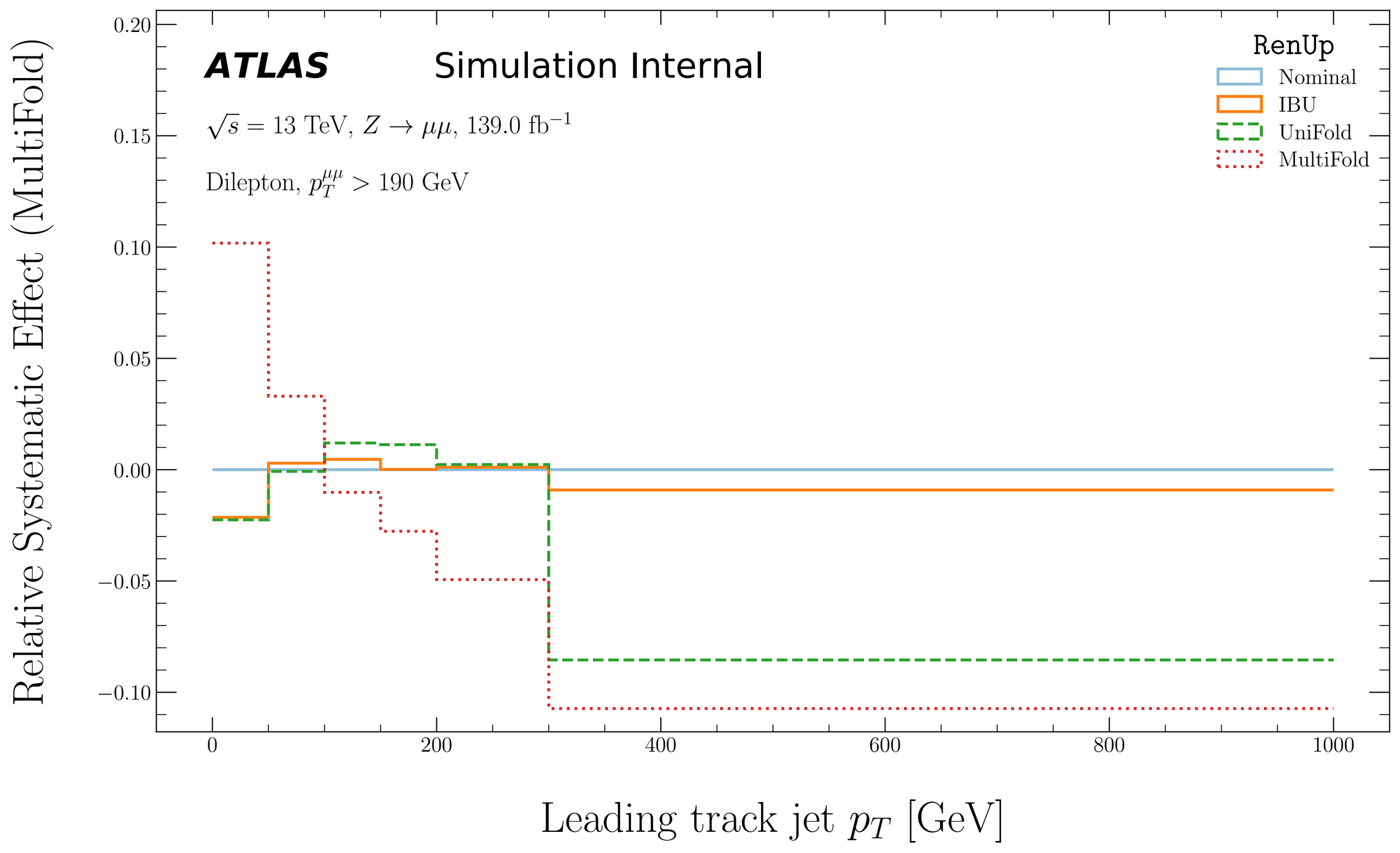

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet m [GeV]
0.2
0.1
0.0
−0.1
−0.2
0
5
10
15
20
25
30
35
40

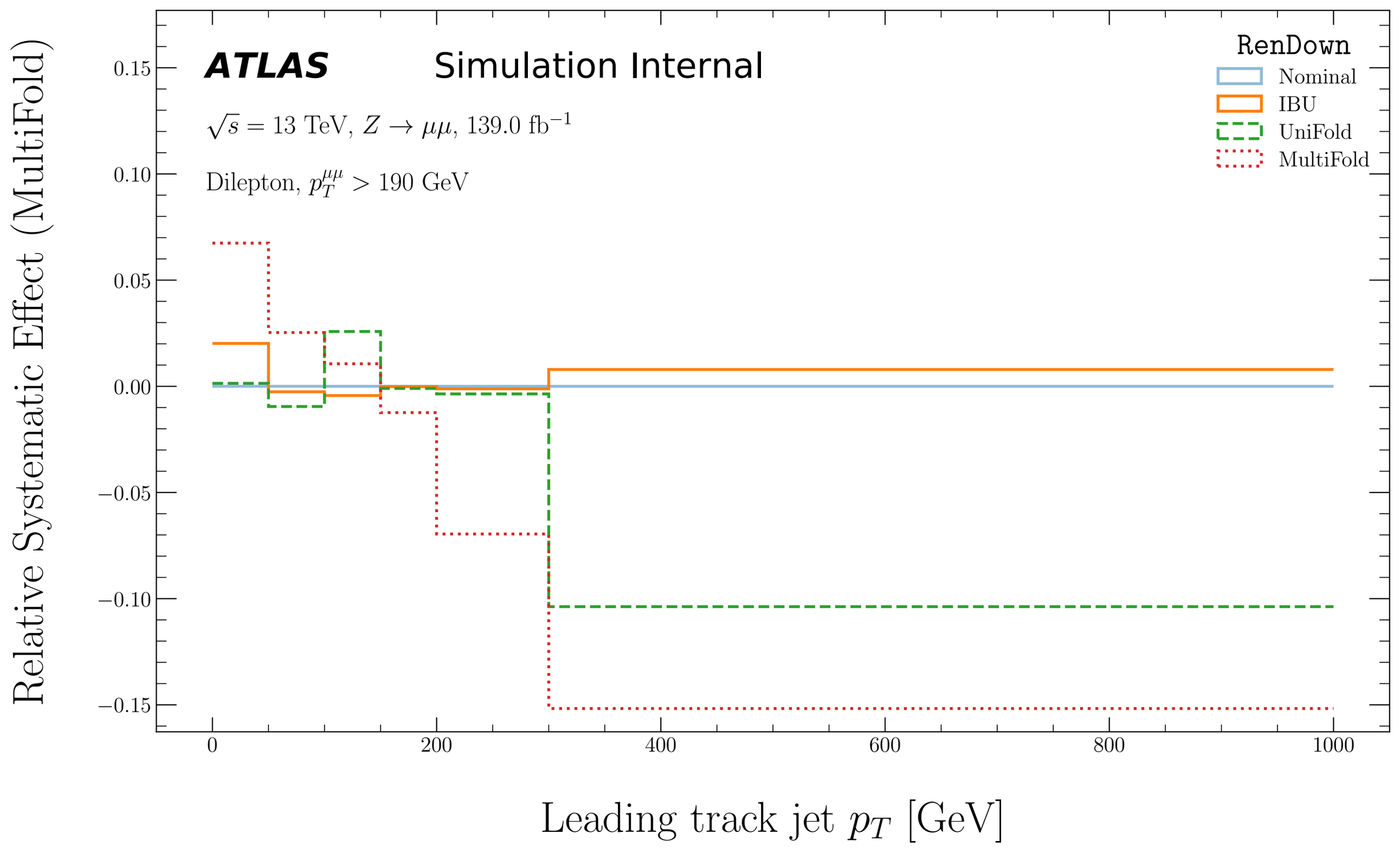

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet m [GeV]
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
0
5
10
15
20
25
30
35
40

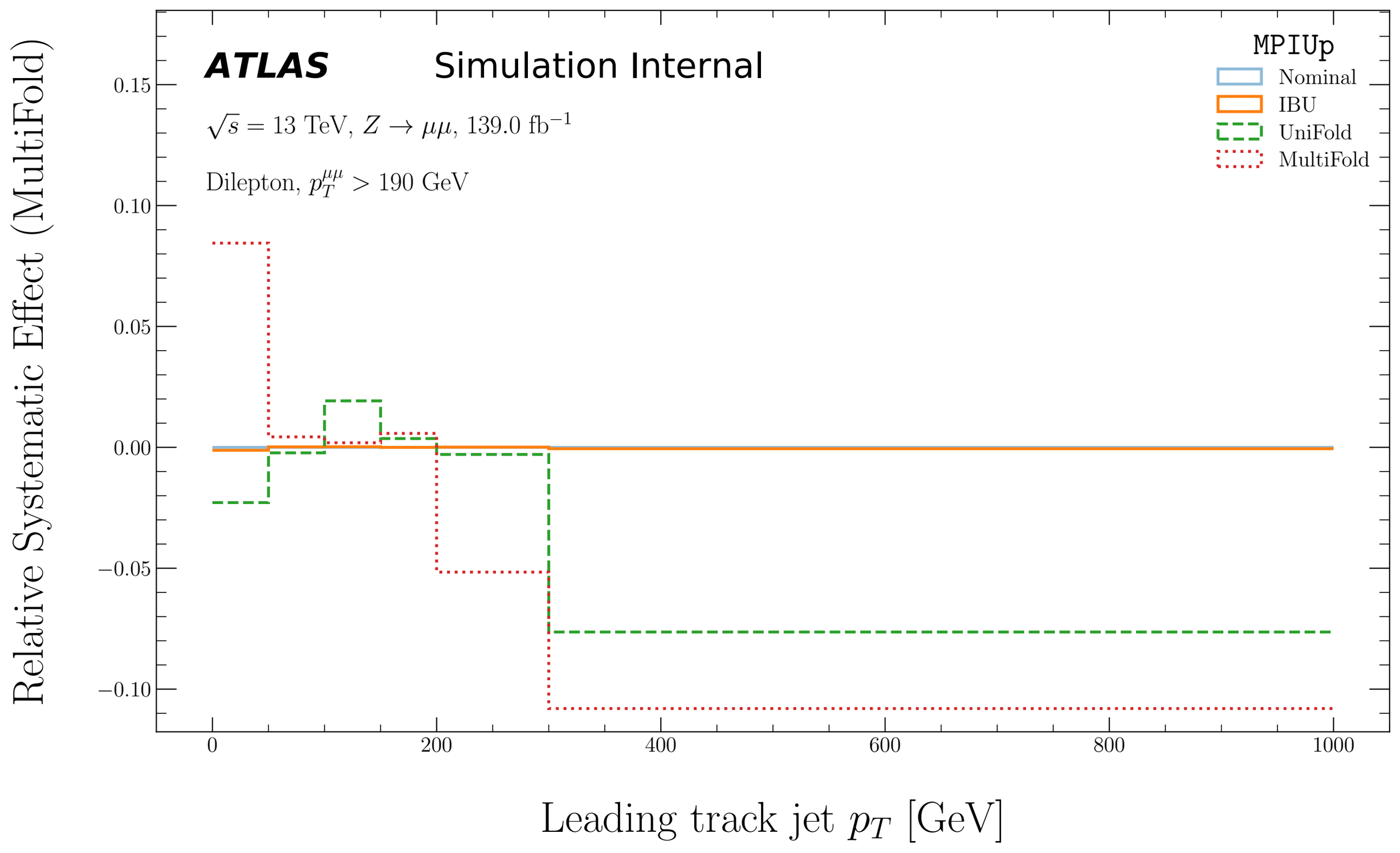

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet m [GeV]
0.15
0.10
0.05
0.00
−0.05
−0.10
0
5
10
15
20
25
30
35
40

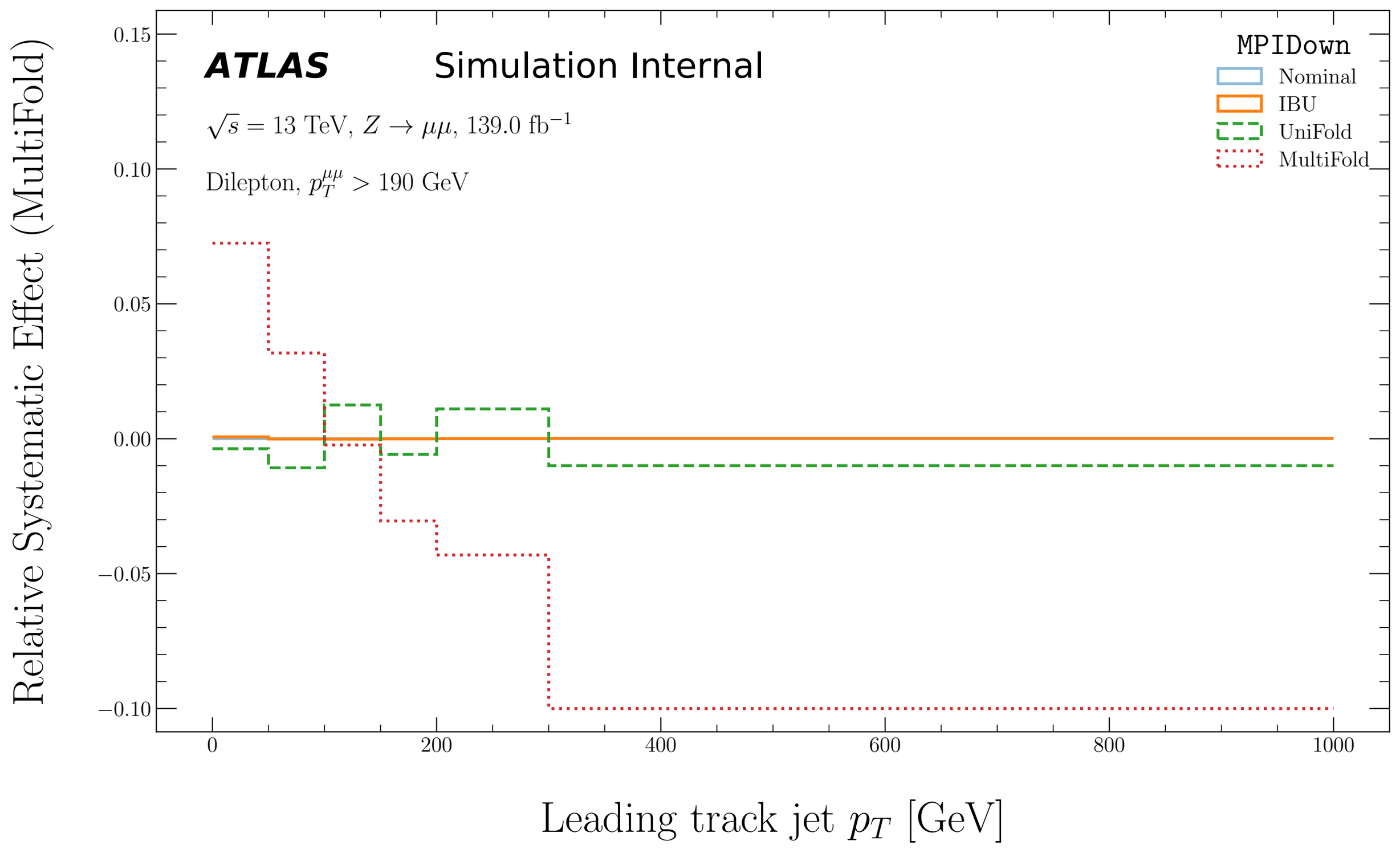

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.10
0.05
0.00
−0.05
−0.10
0
5
10
15
20
25
30
35
40
Subleading track jet m [GeV]

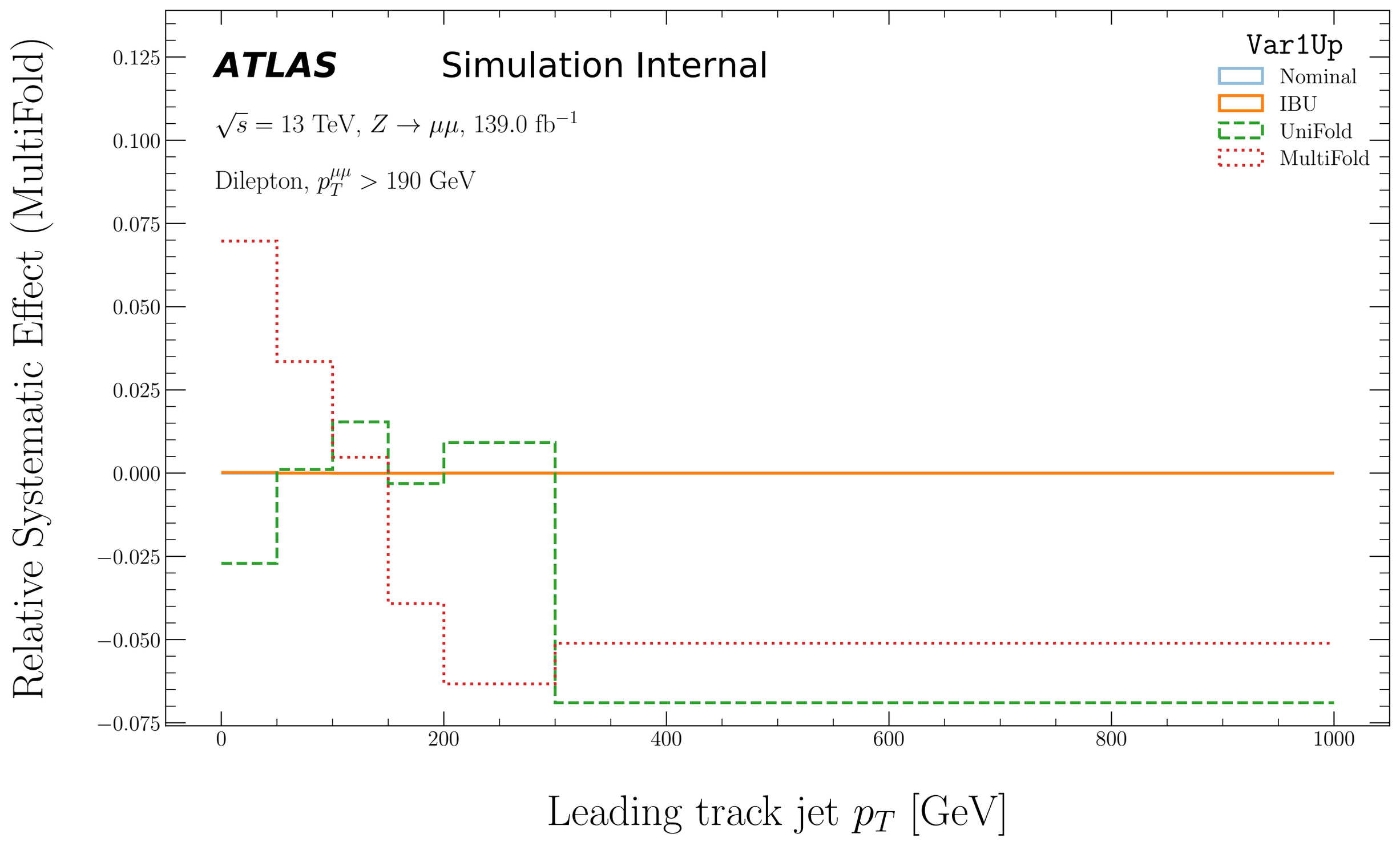

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
0
5
10
15
20
25
30
35
40
Subleading track jet m [GeV]

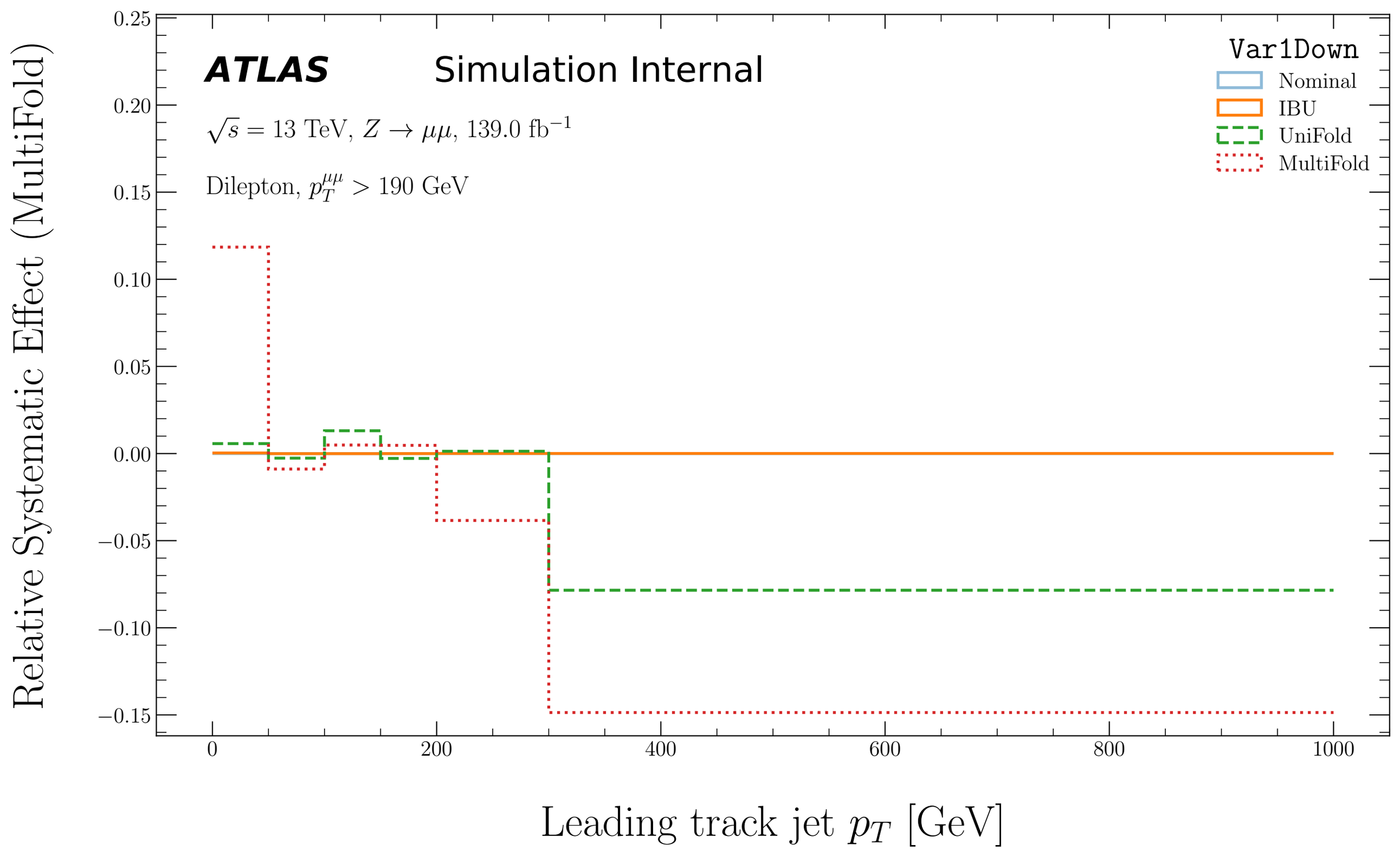

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.20
0.15
0.10
0.05
0.00
−0.05
−0.10
0
200
400
600
800
1000
Leading track jet p_T [GeV]

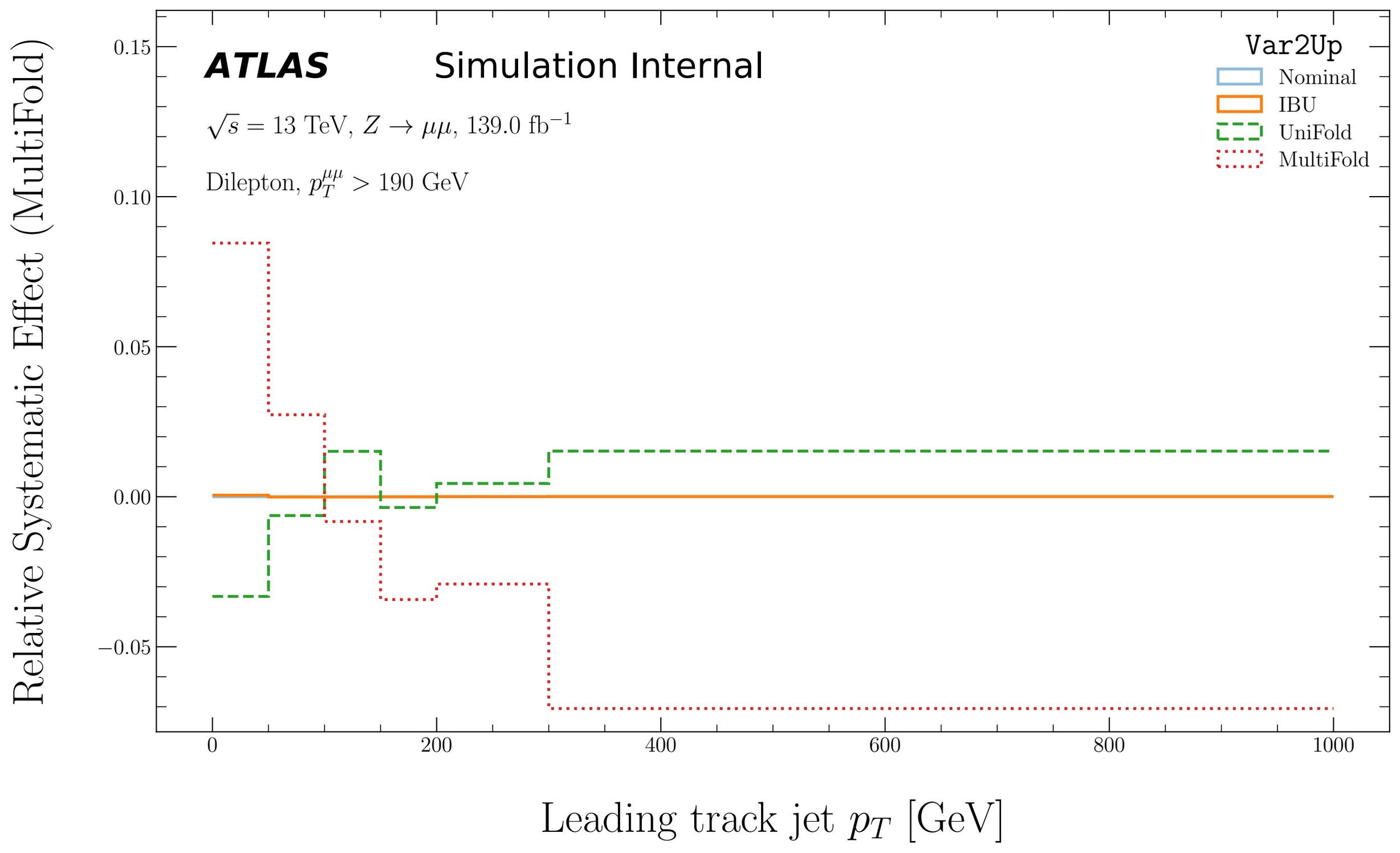

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
0
200
400
600
800
1000
Leading track jet p_T [GeV]

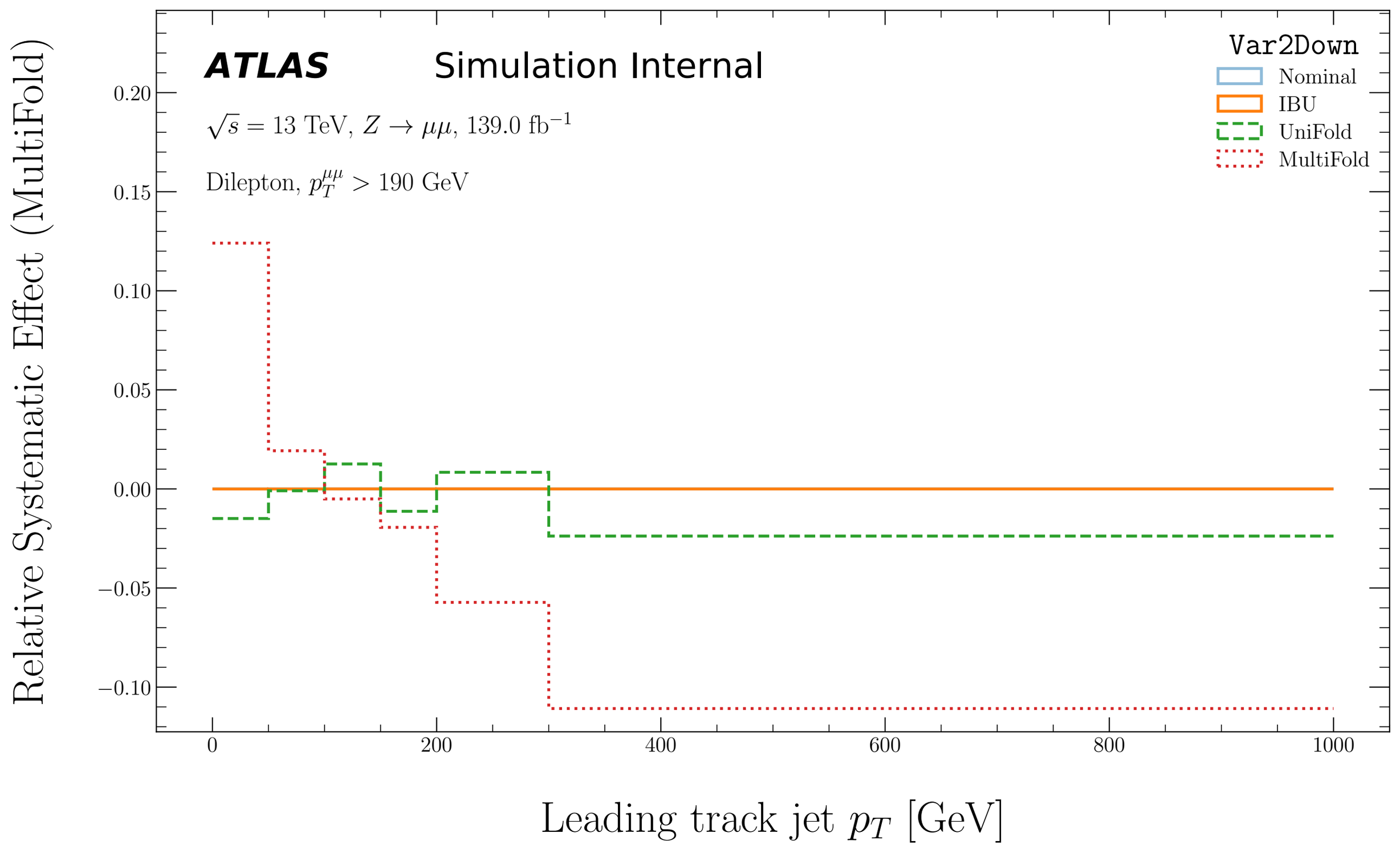

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
0
200
400
600
800
1000
Leading track jet p_T [GeV]

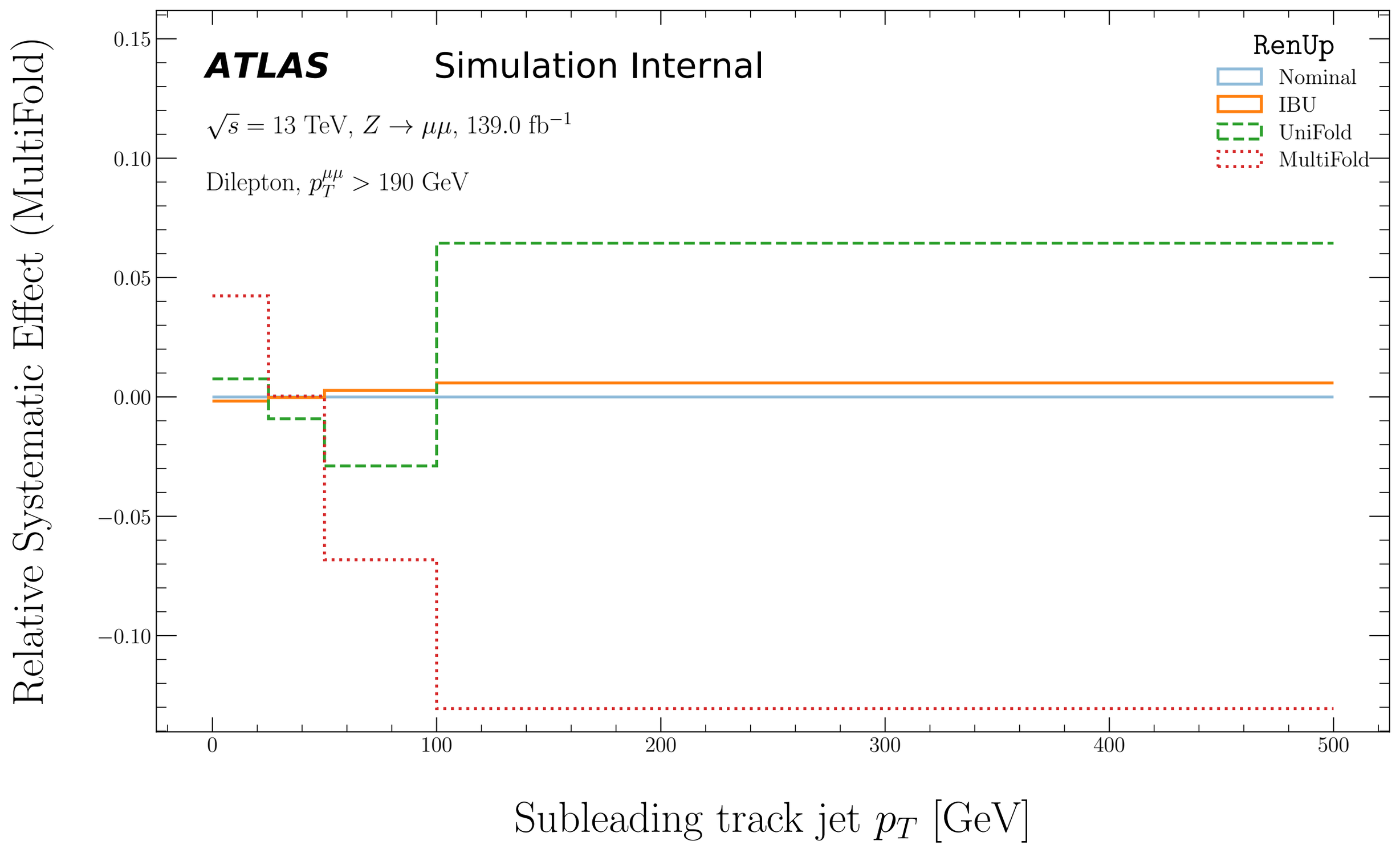

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet p_T [GeV]
0.15
0.10
0.05
0.00
−0.05
−0.10
0
200
400
600
800
1000

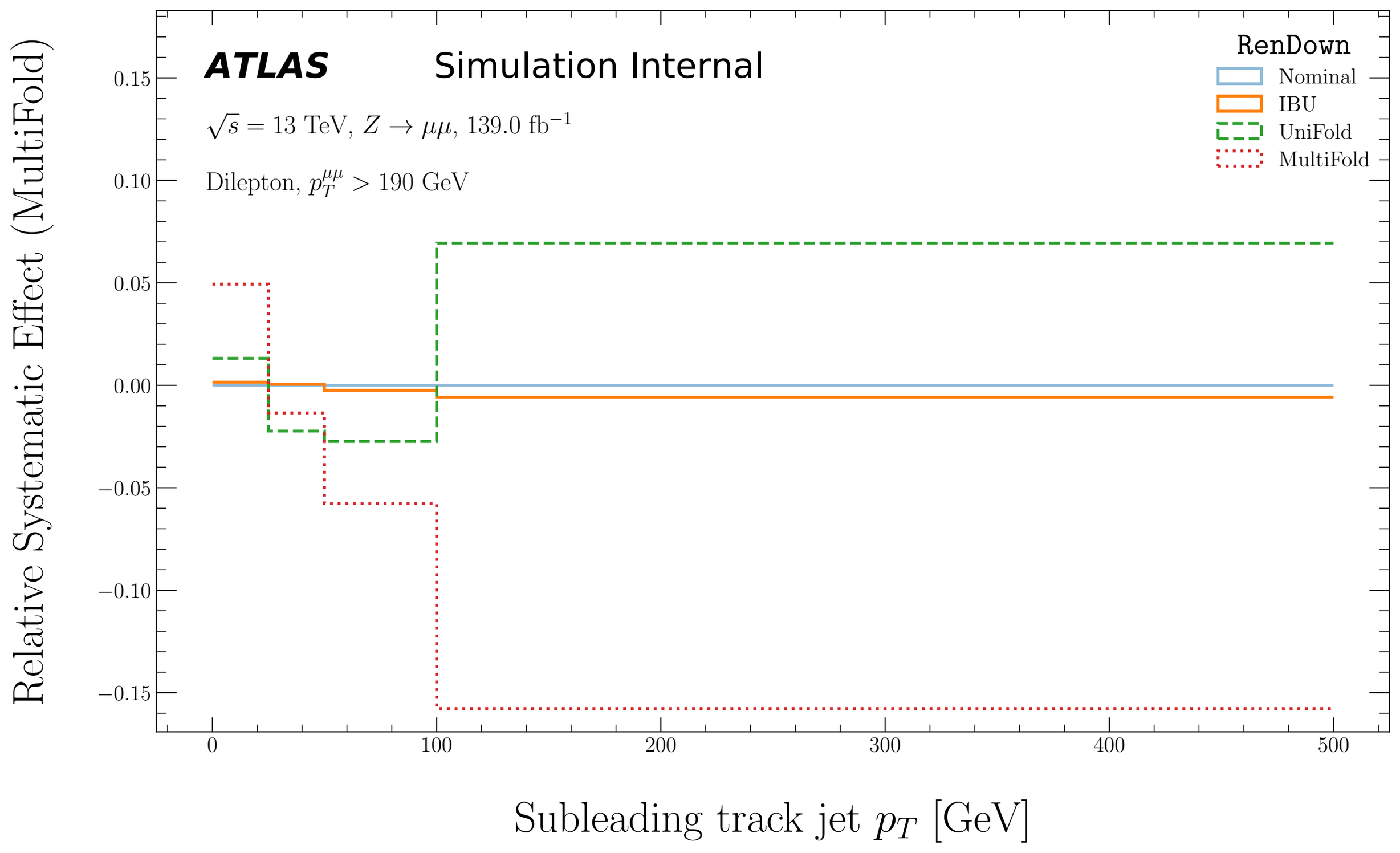

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.125
0.100
0.075
0.050
0.025
0.000
−0.025
−0.050
−0.075
0
200
400
600
800
1000
Leading track jet p_T [GeV]

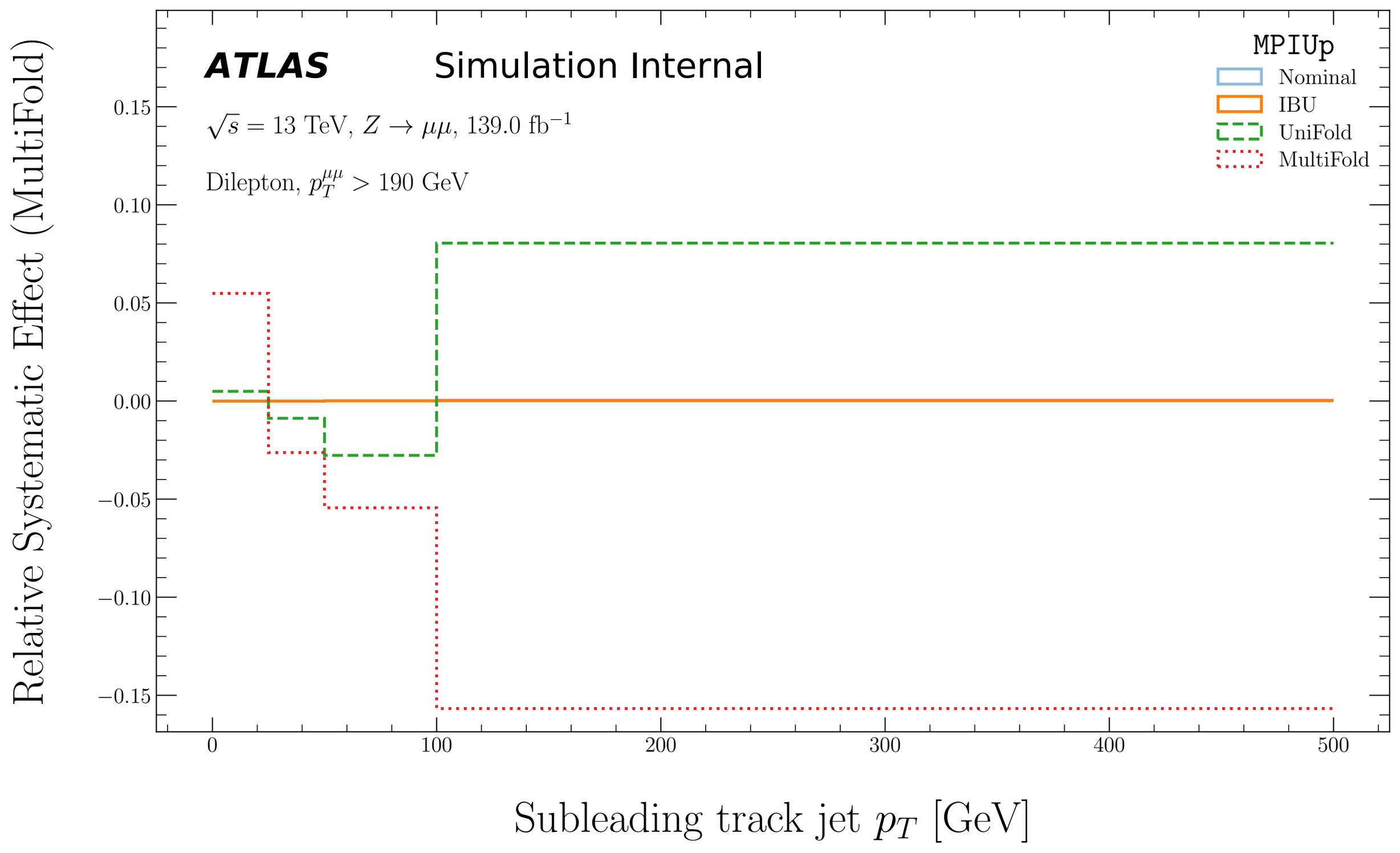

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet p_T [GeV]
0.25
0.20
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
0
200
400
600
800
1000

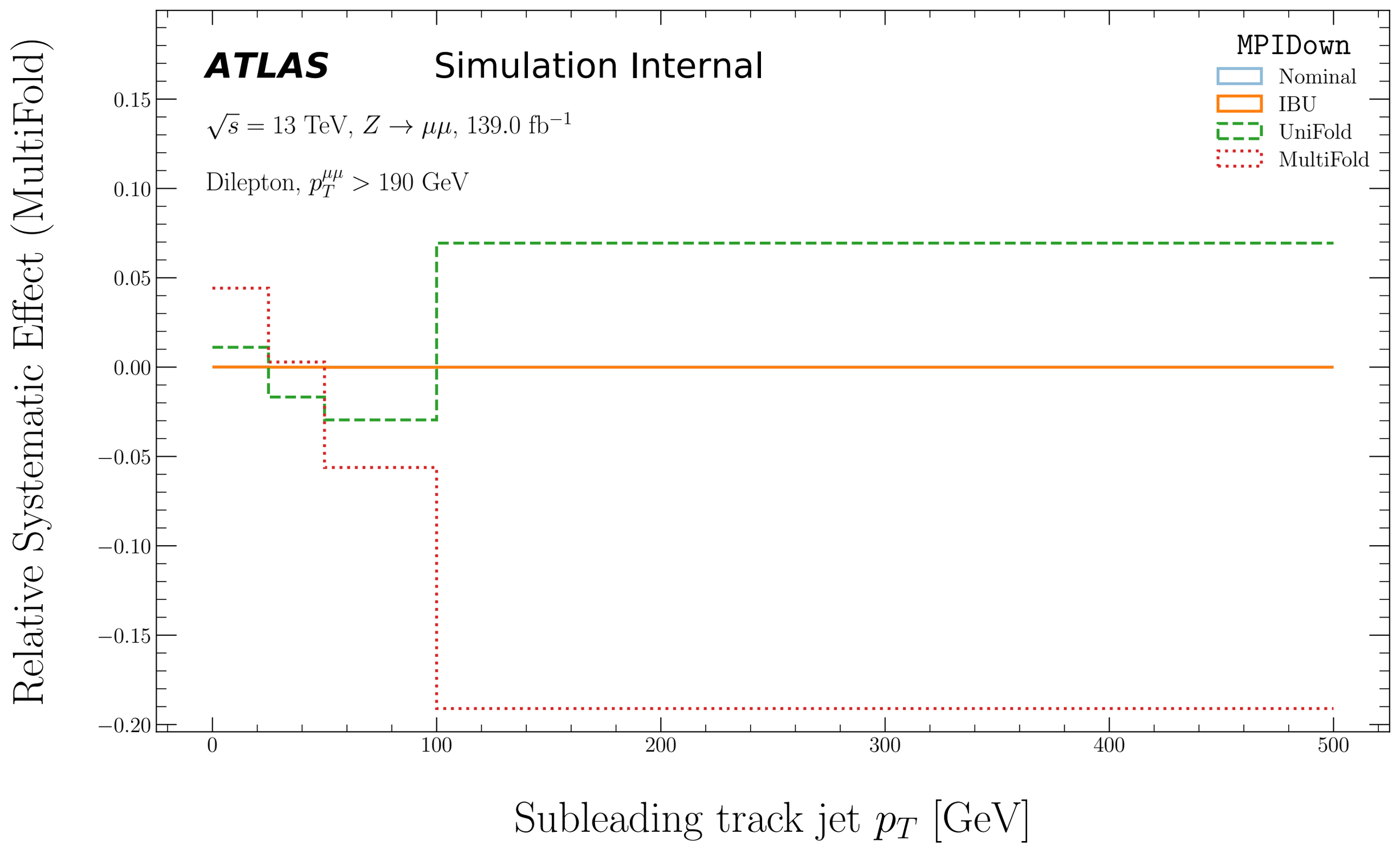

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
0
200
400
600
800
1000
Leading track jet p_T [GeV]

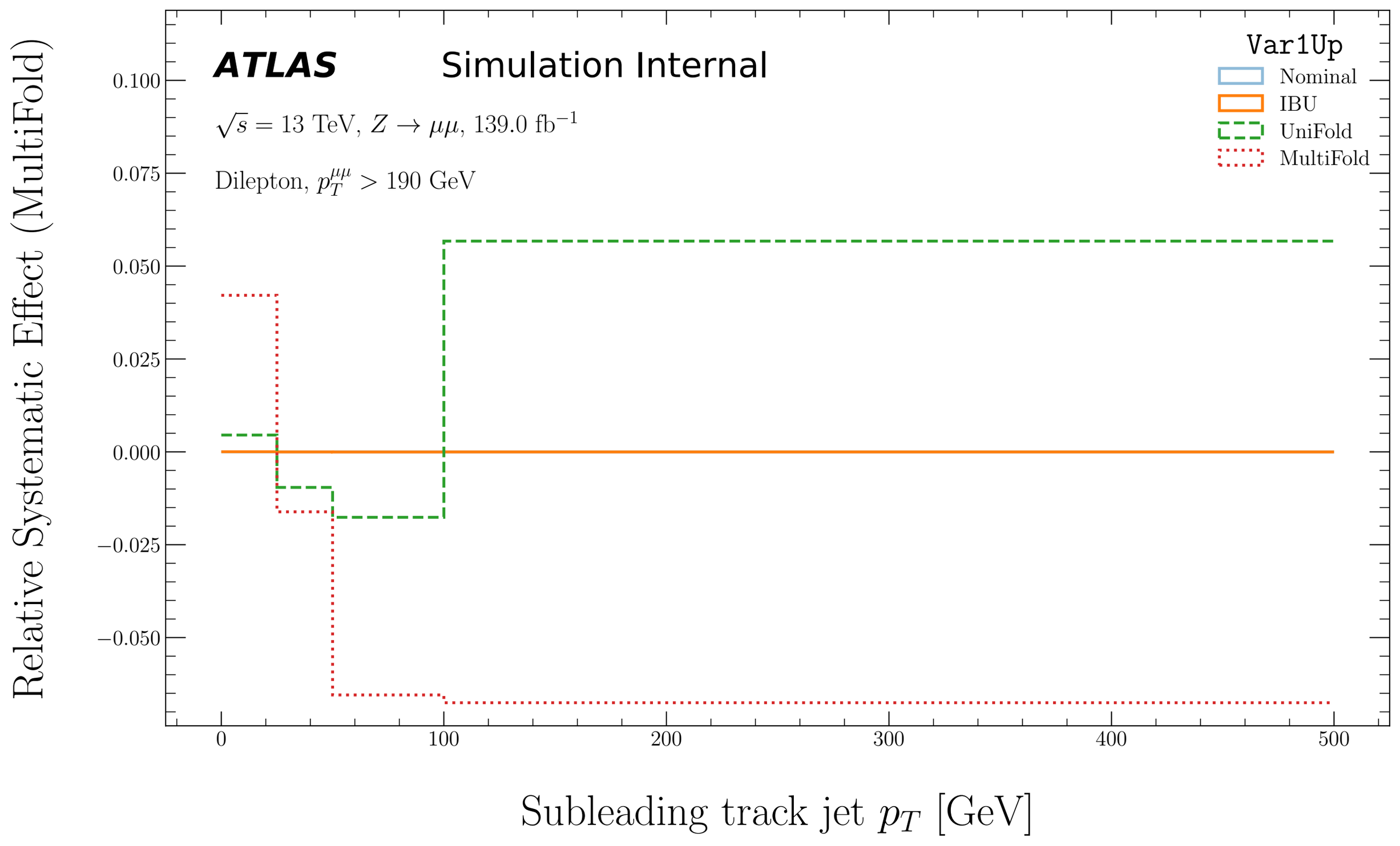

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.20
0.15
0.10
0.05
0.00
−0.05
−0.10
0
200
400
600
800
1000
Leading track jet p_T [GeV]

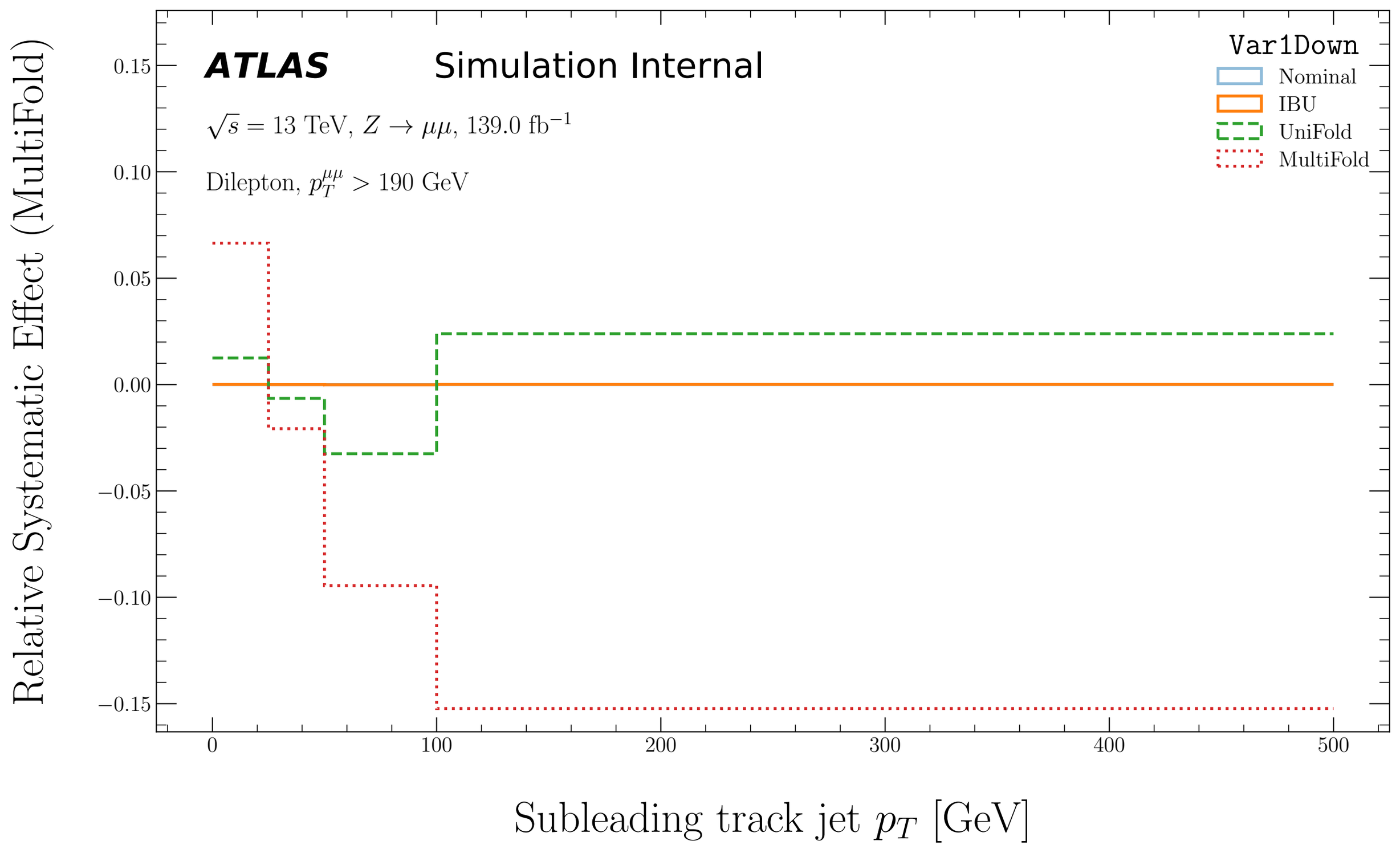

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
0
100
200
300
400
500
Subleading track jet p_T [GeV]

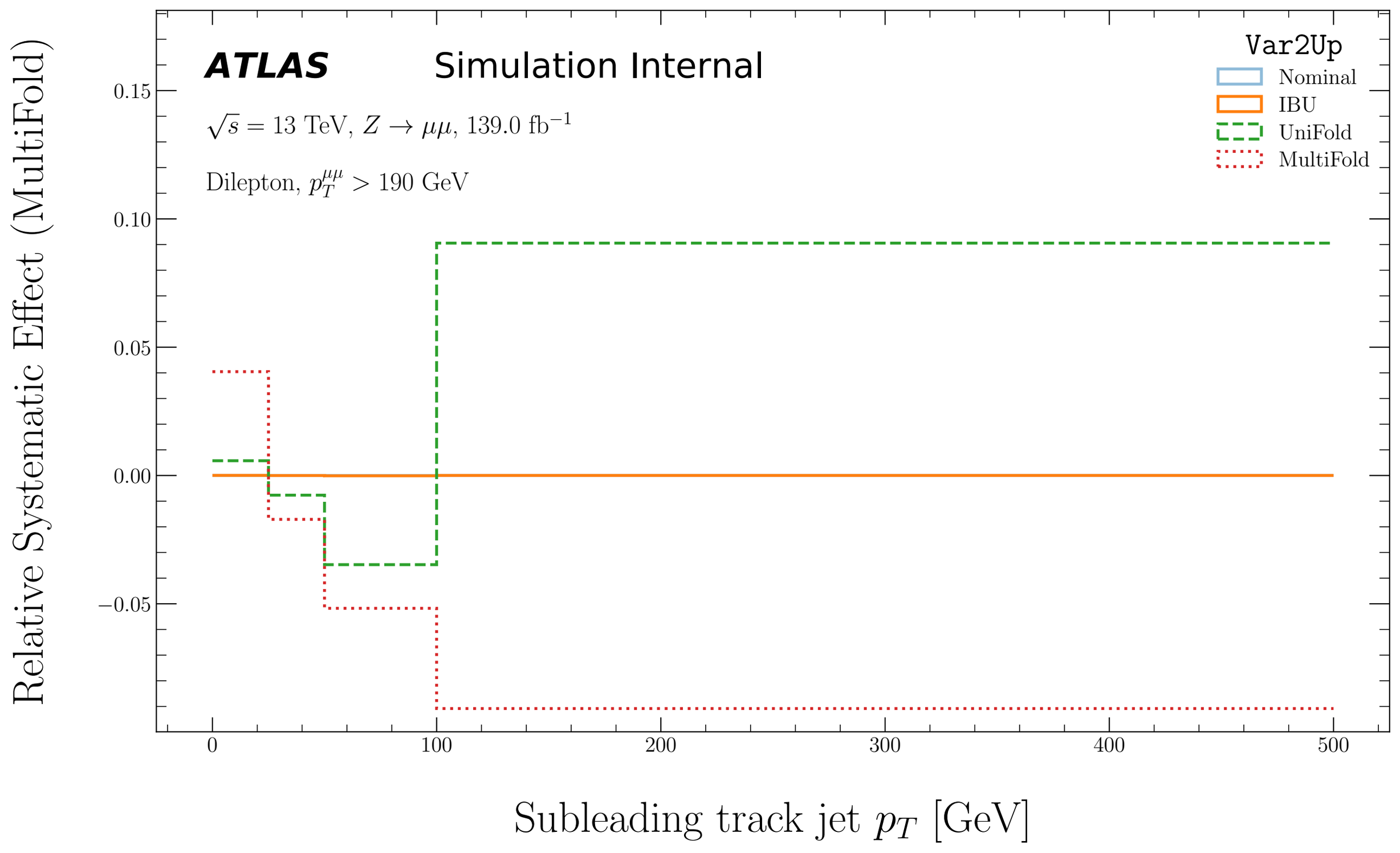

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
0
100
200
300
400
500
Subleading track jet p_T [GeV]

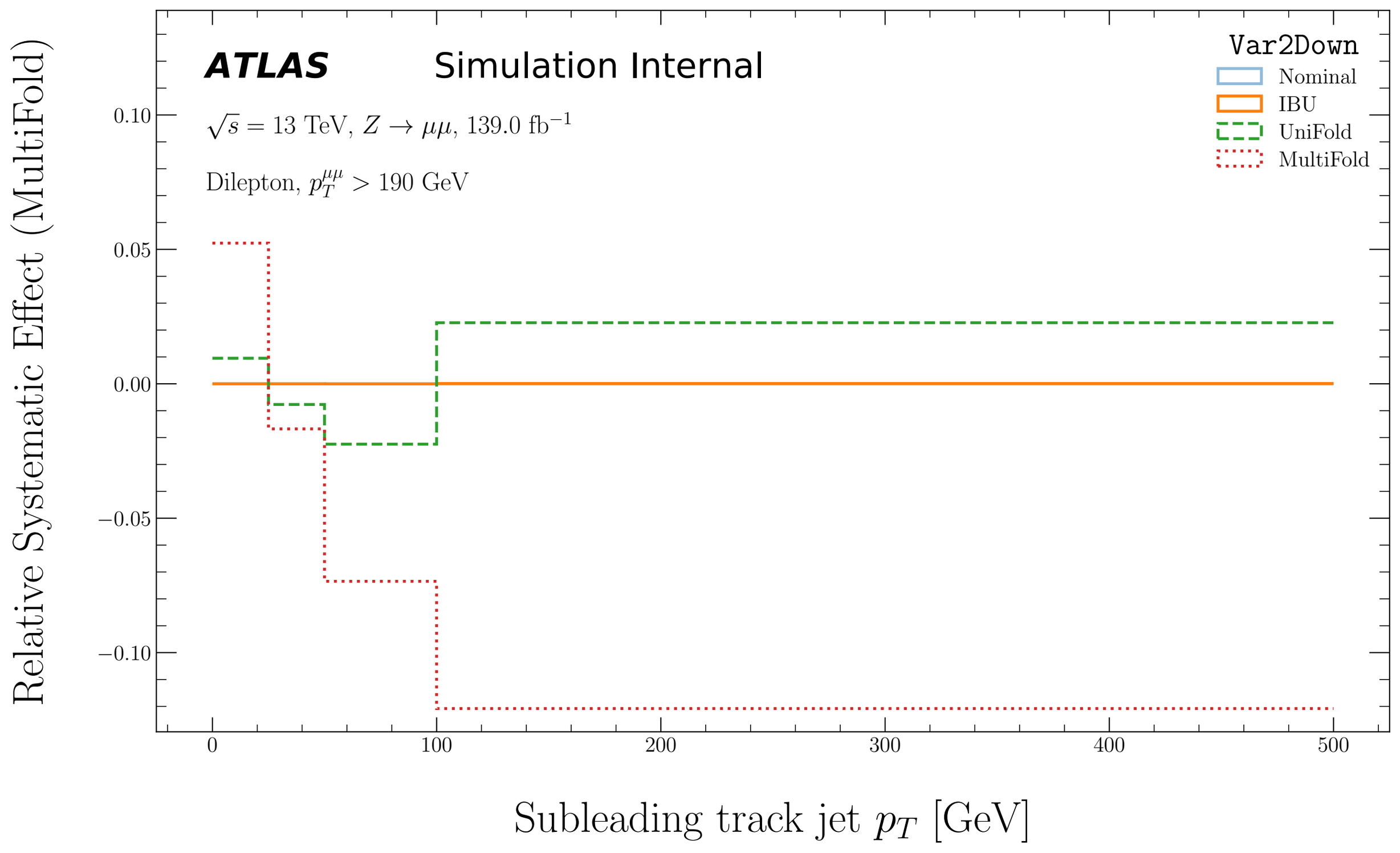

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
0
100
200
300
400
500
Subleading track jet p_T [GeV]

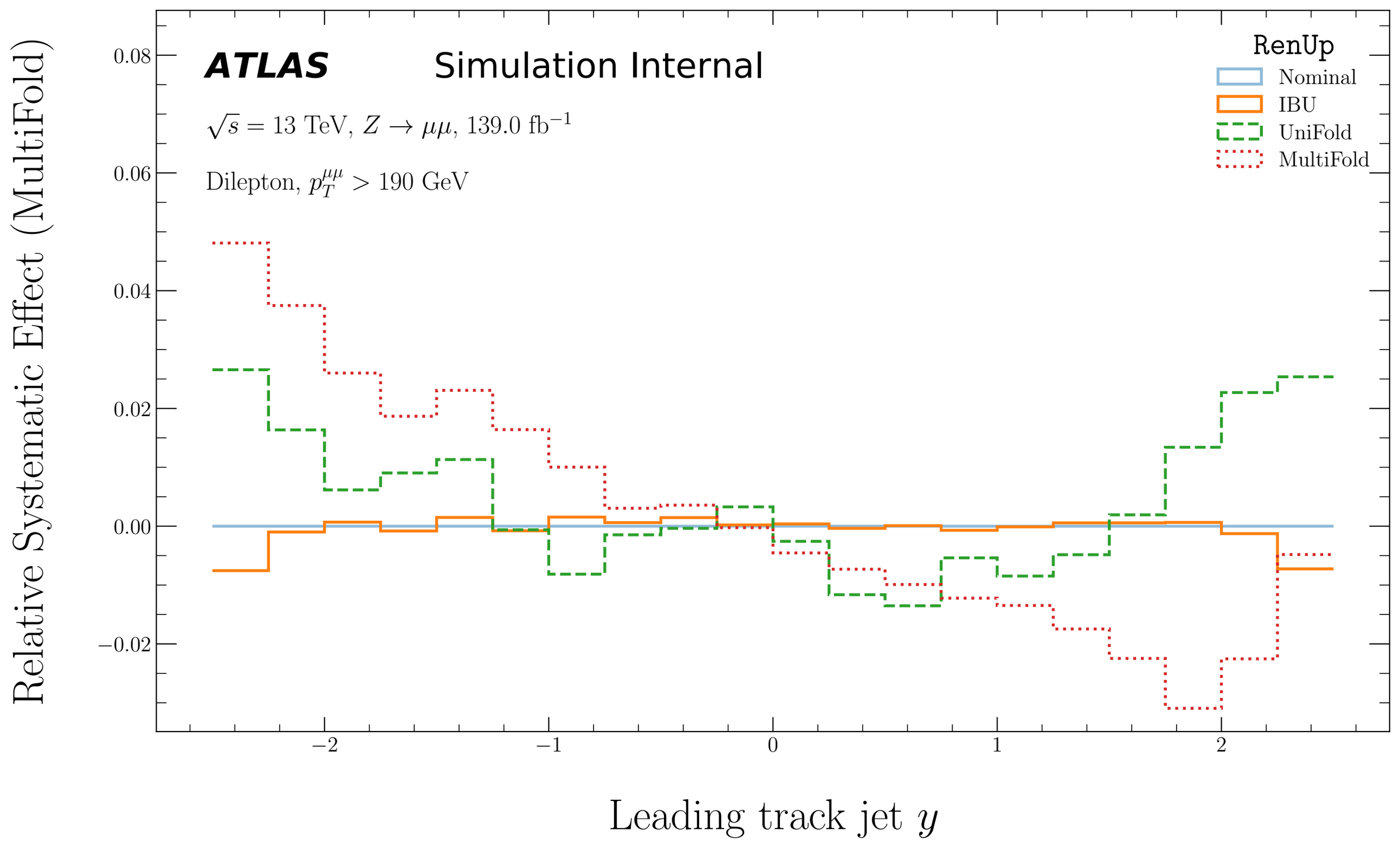

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
−0.20
0
100
200
300
400
500
Subleading track jet p_T [GeV]

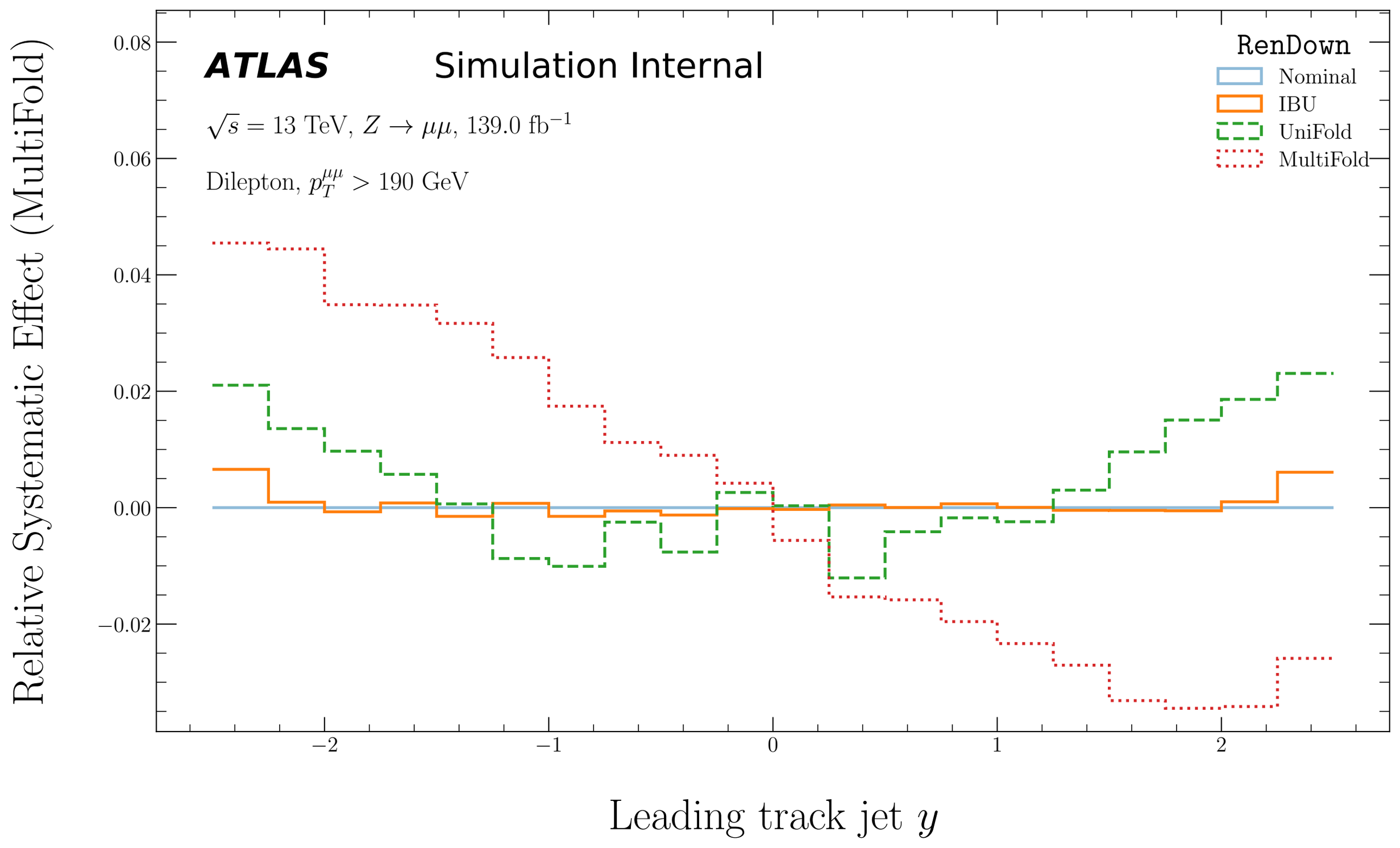

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.100
0.075
0.050
0.025
0.000
−0.025
−0.050
0
100
200
300
400
500
Subleading track jet p_T [GeV]

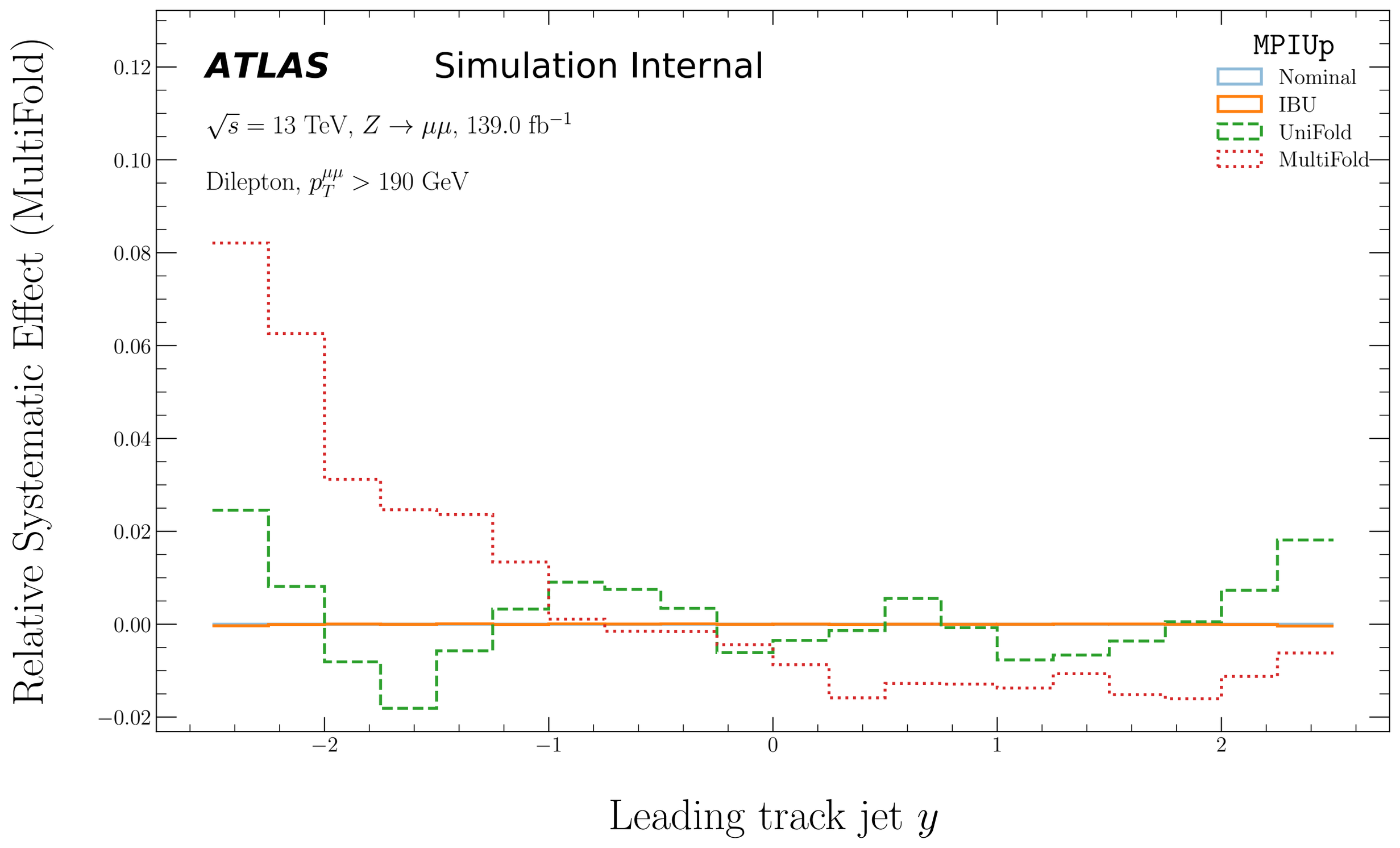

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
0
100
200
300
400
500
Subleading track jet p_T [GeV]

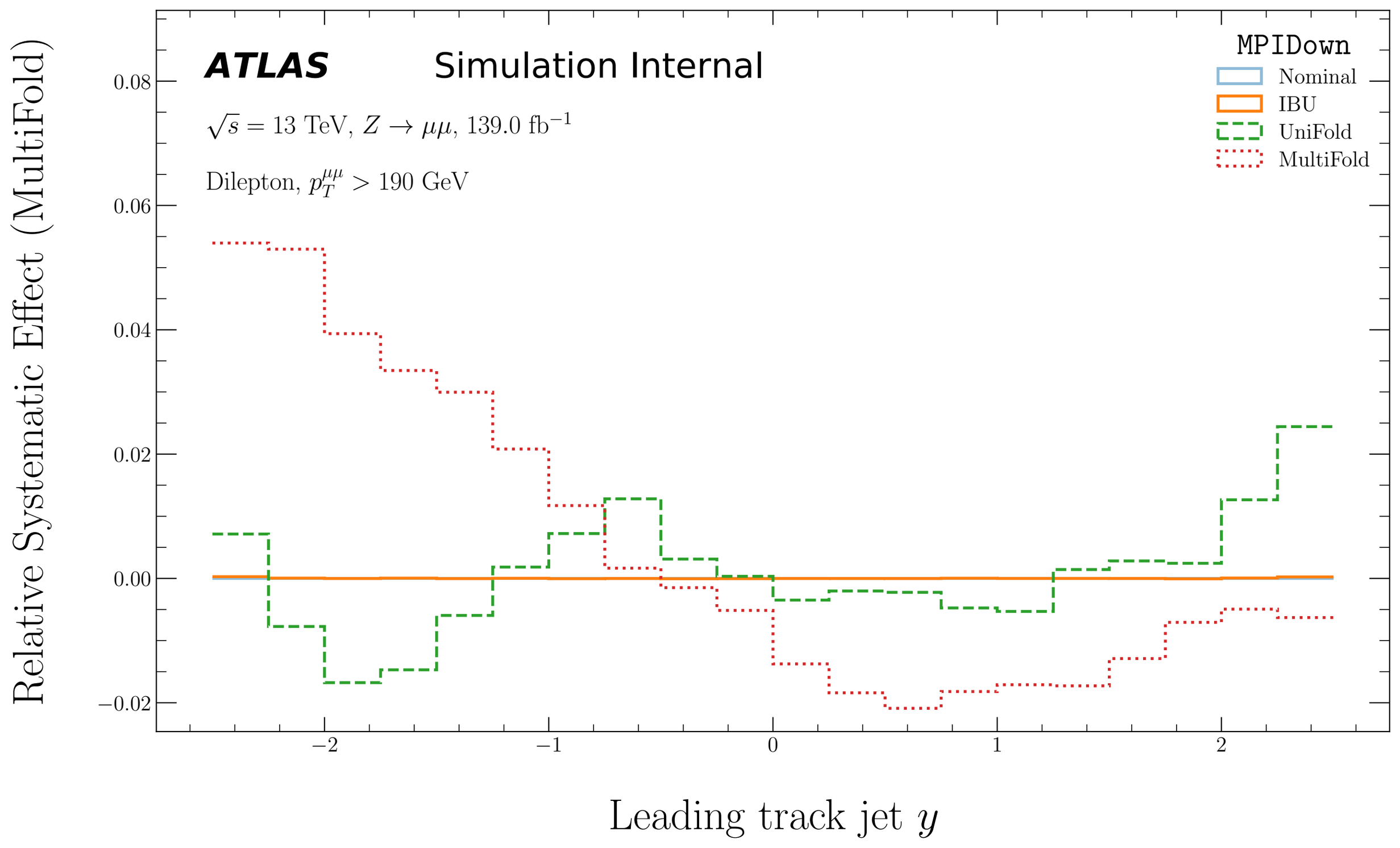

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
0
100
200
300
400
500
Subleading track jet p_T [GeV]

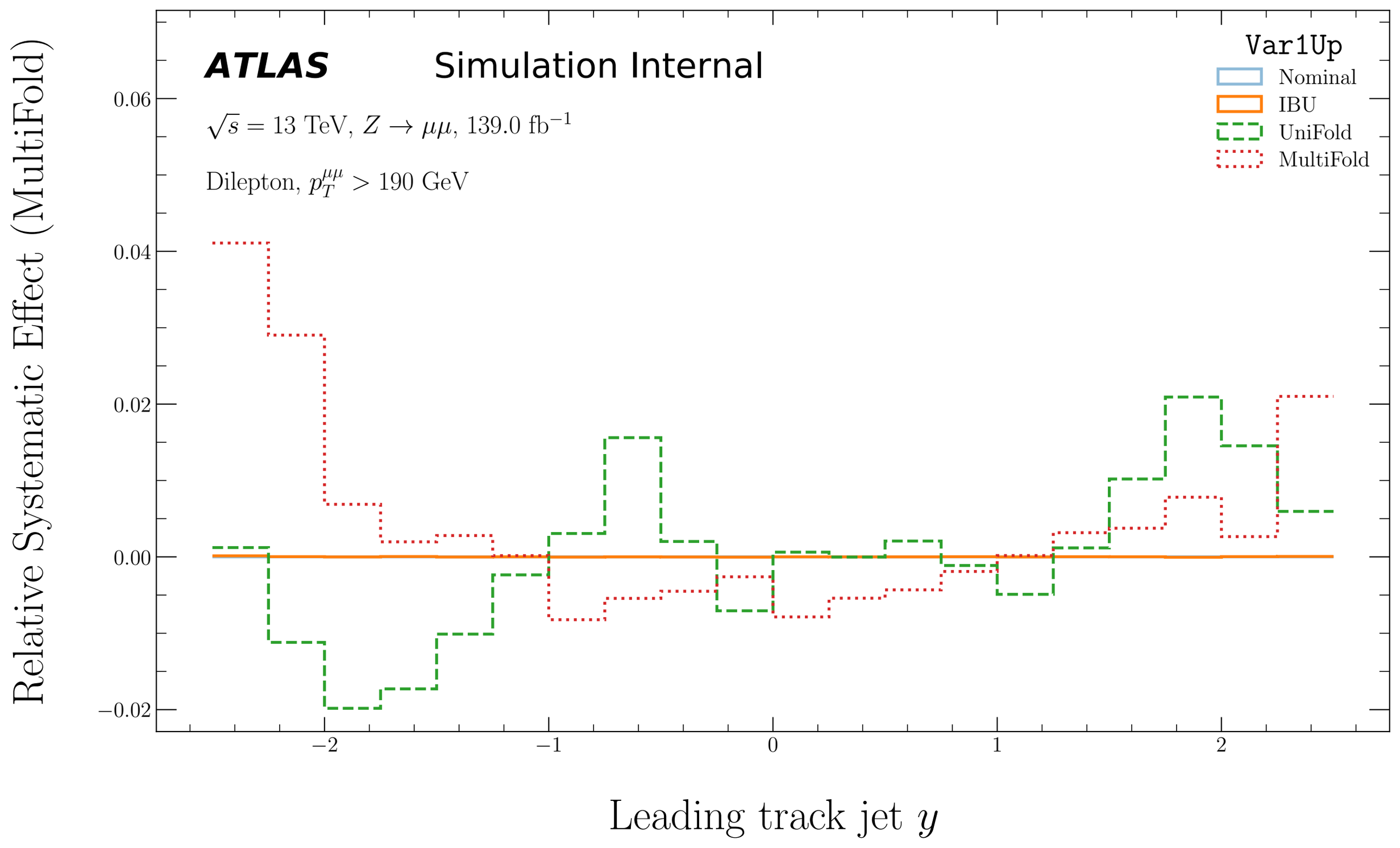

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.10
0.05
0.00
−0.05
−0.10
0
100
200
300
400
500
Subleading track jet p_T [GeV]

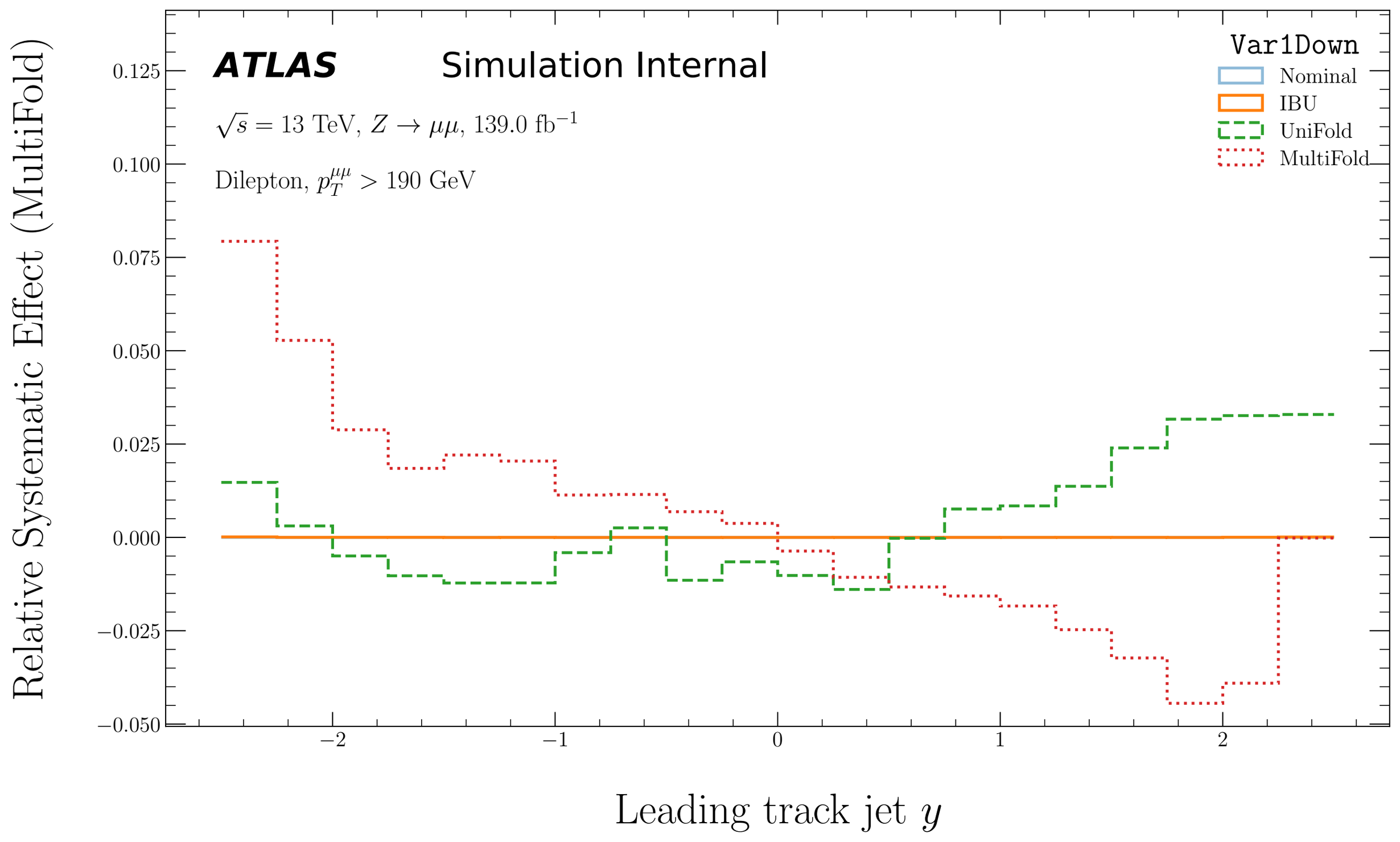

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
Leading track jet y

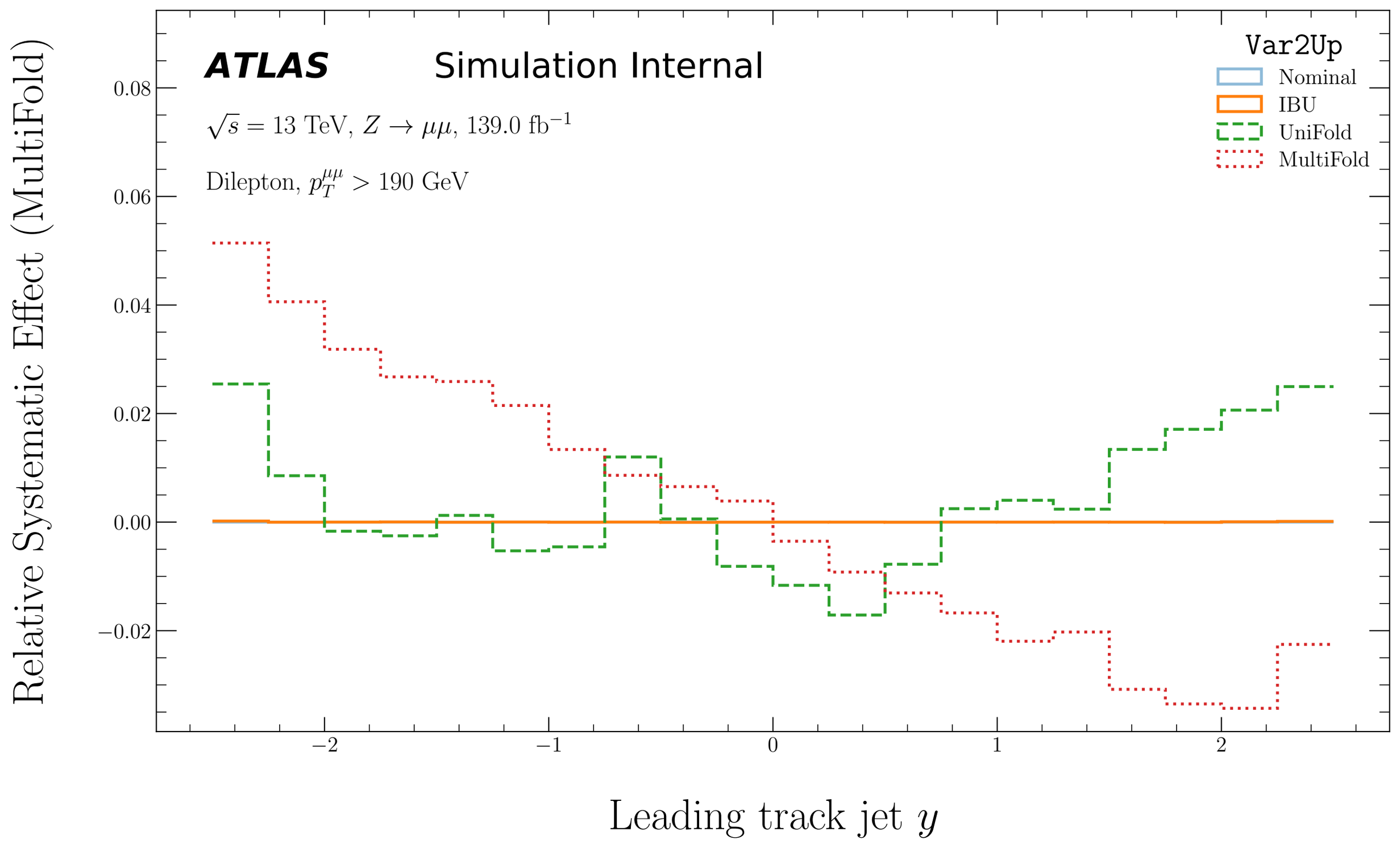

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet y
0.08
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2

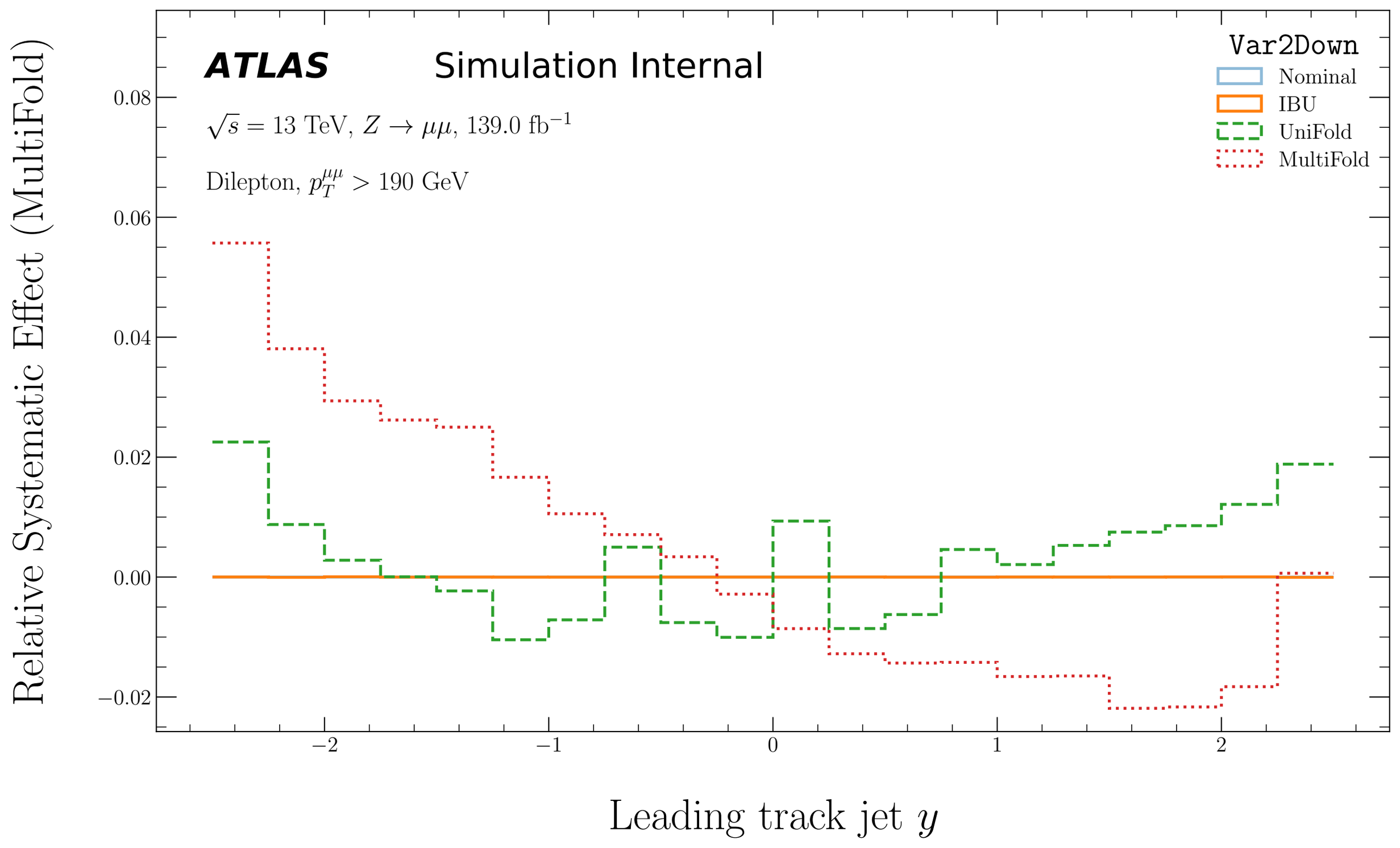

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet y
0.12
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2

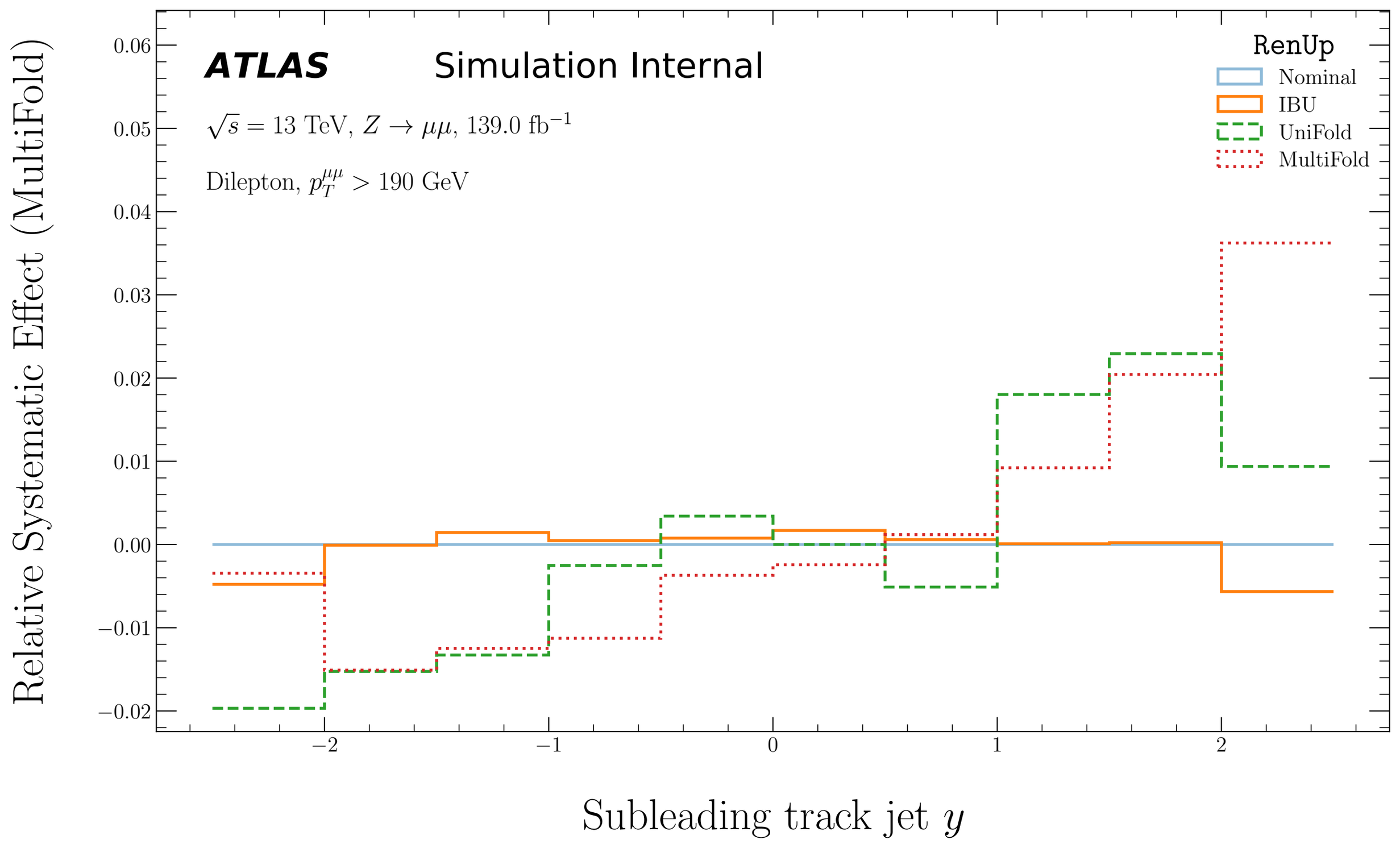

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
Leading track jet y

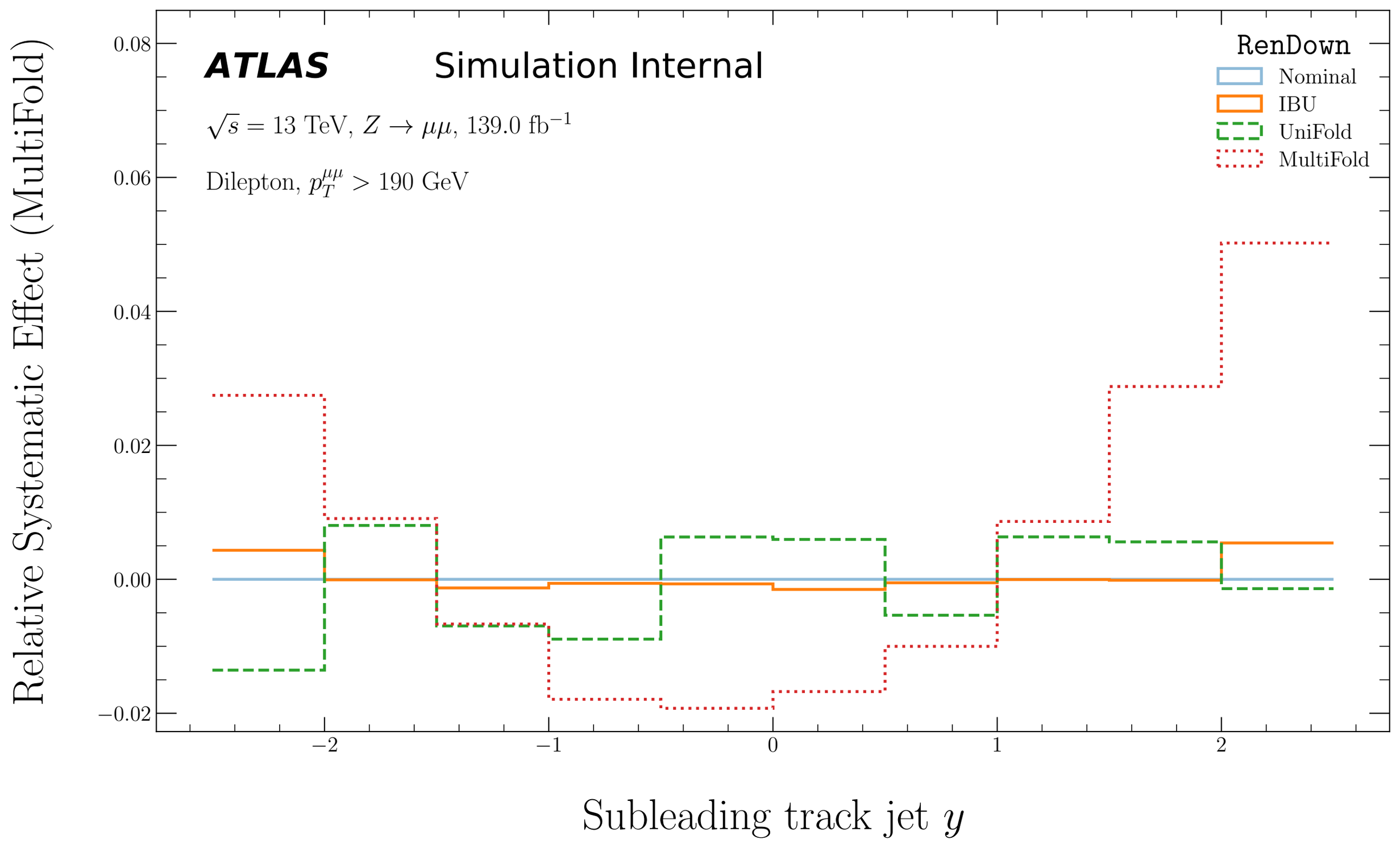

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
Leading track jet y

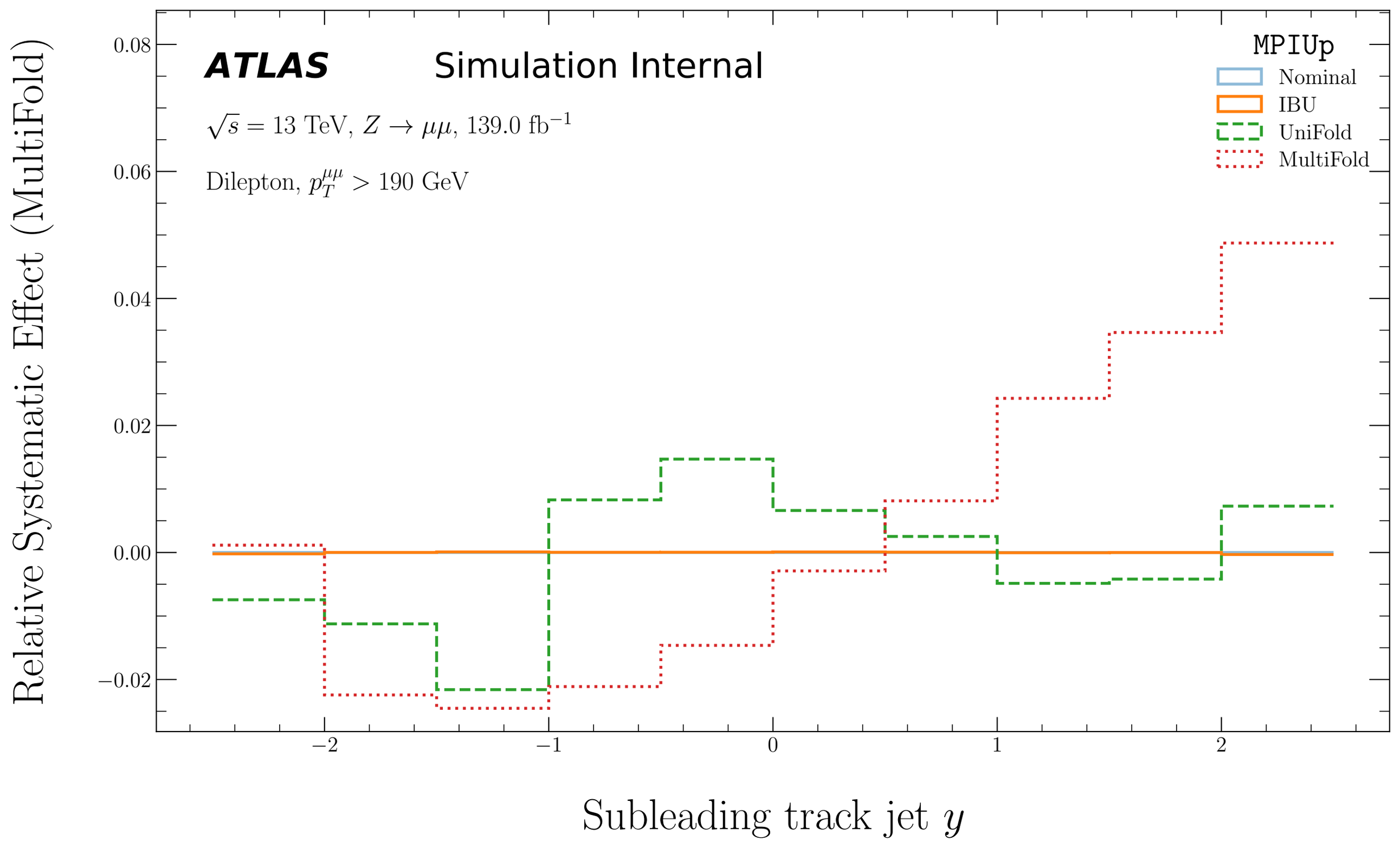

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet y
0.125
0.100
0.075
0.050
0.025
0.000
−0.025
−0.050
−2
−1
0
1
2

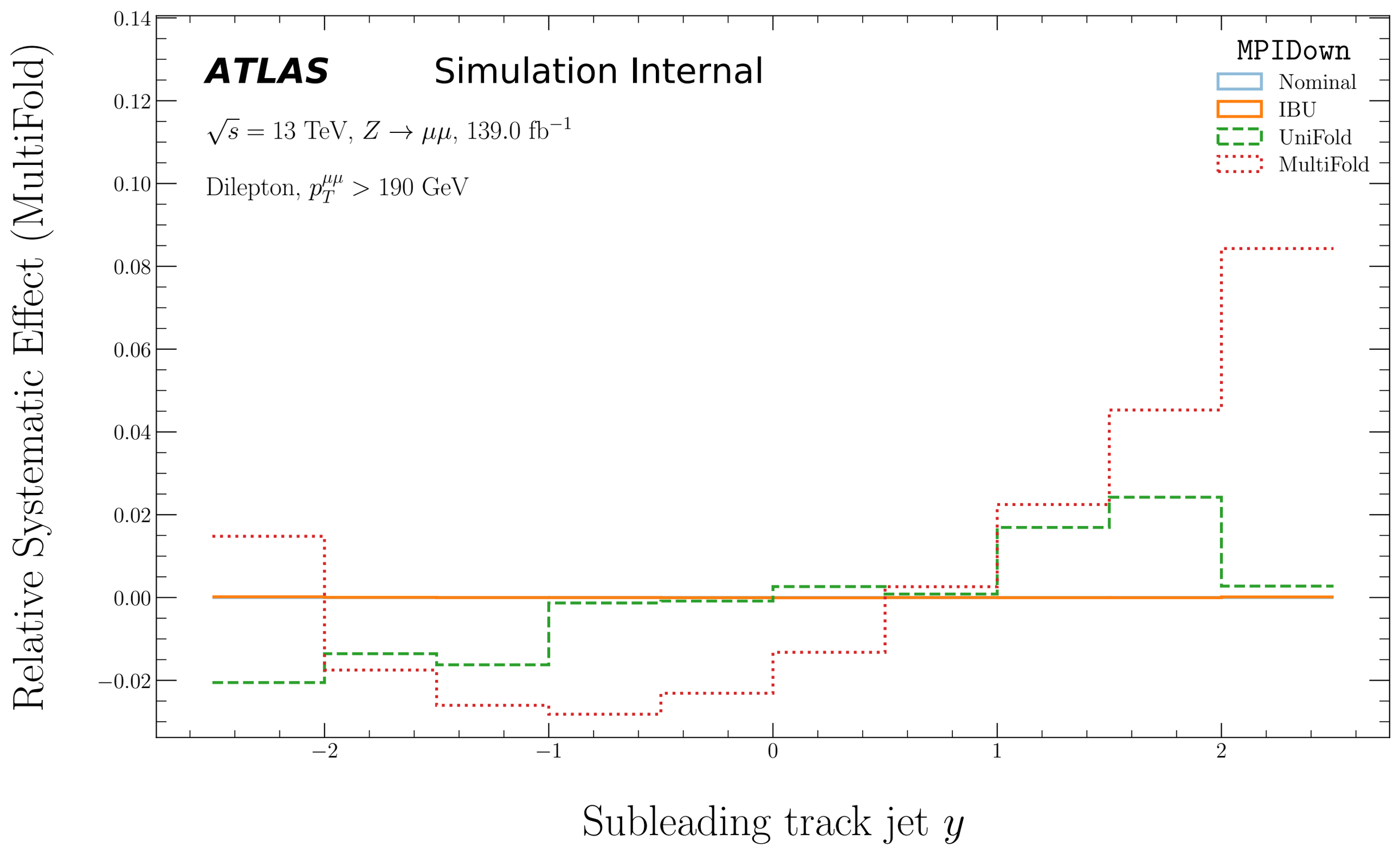

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
Leading track jet y

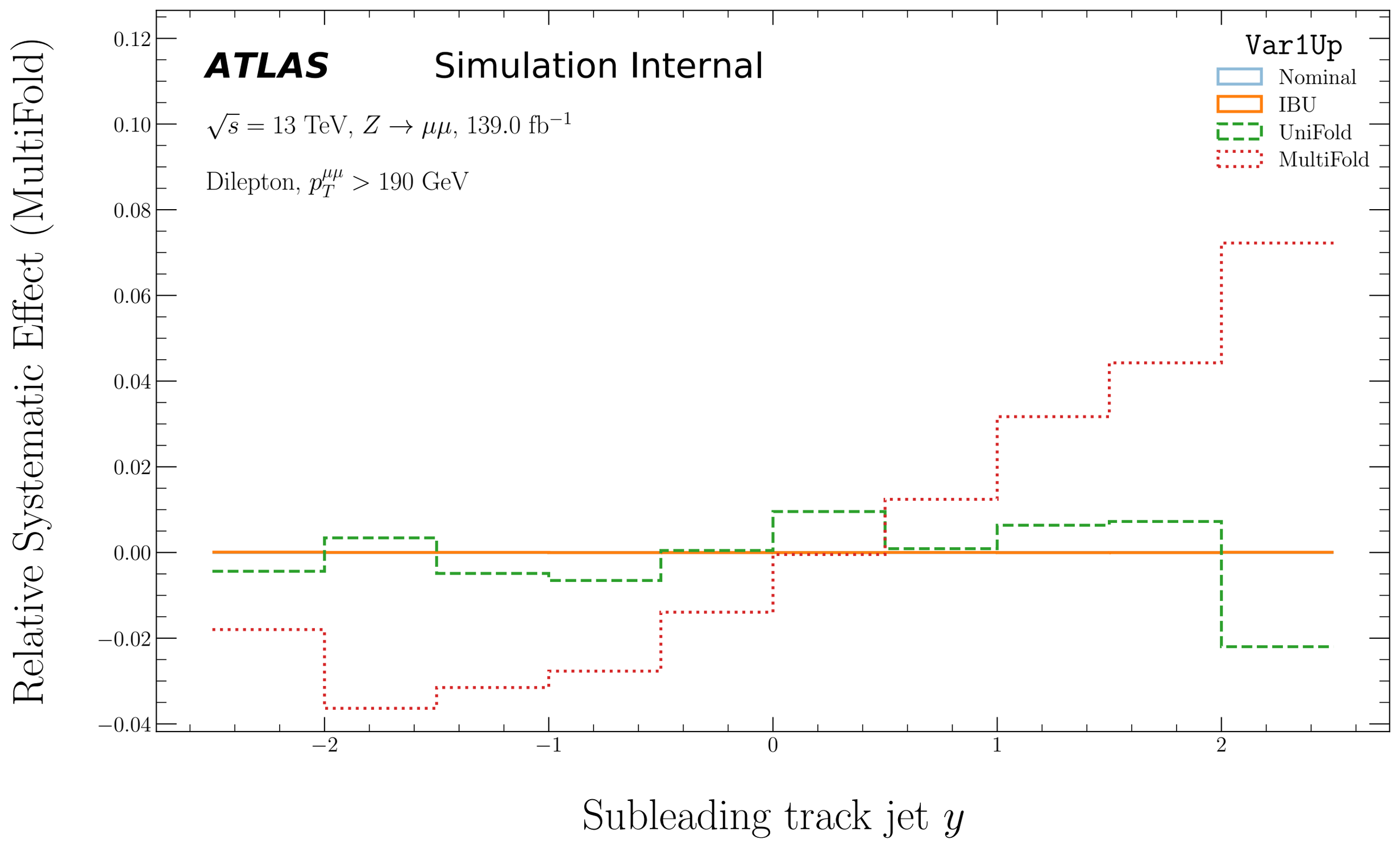

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
Leading track jet y

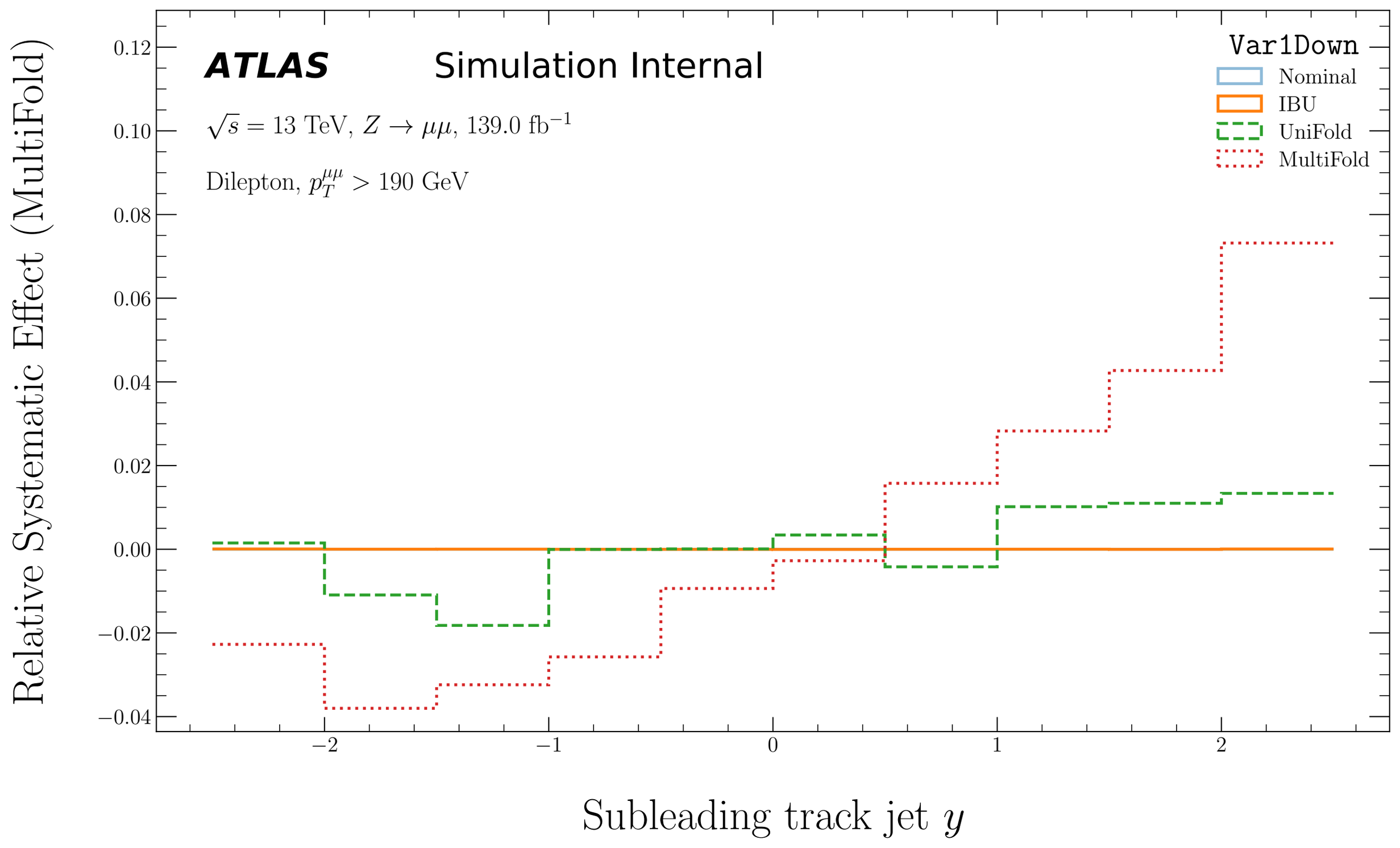

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet y
0.06
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
−2
−1
0
1
2

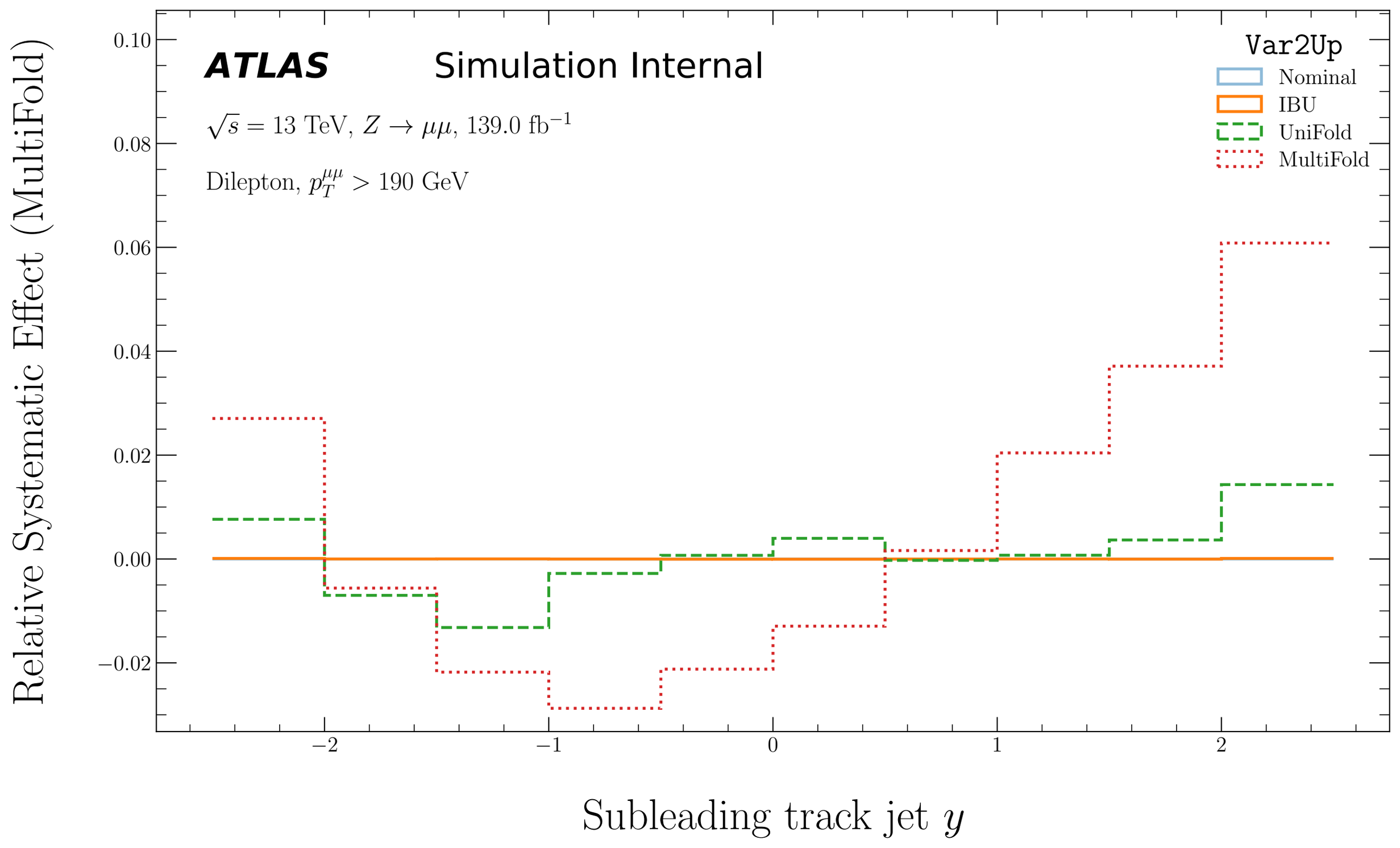

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
Subleading track jet y

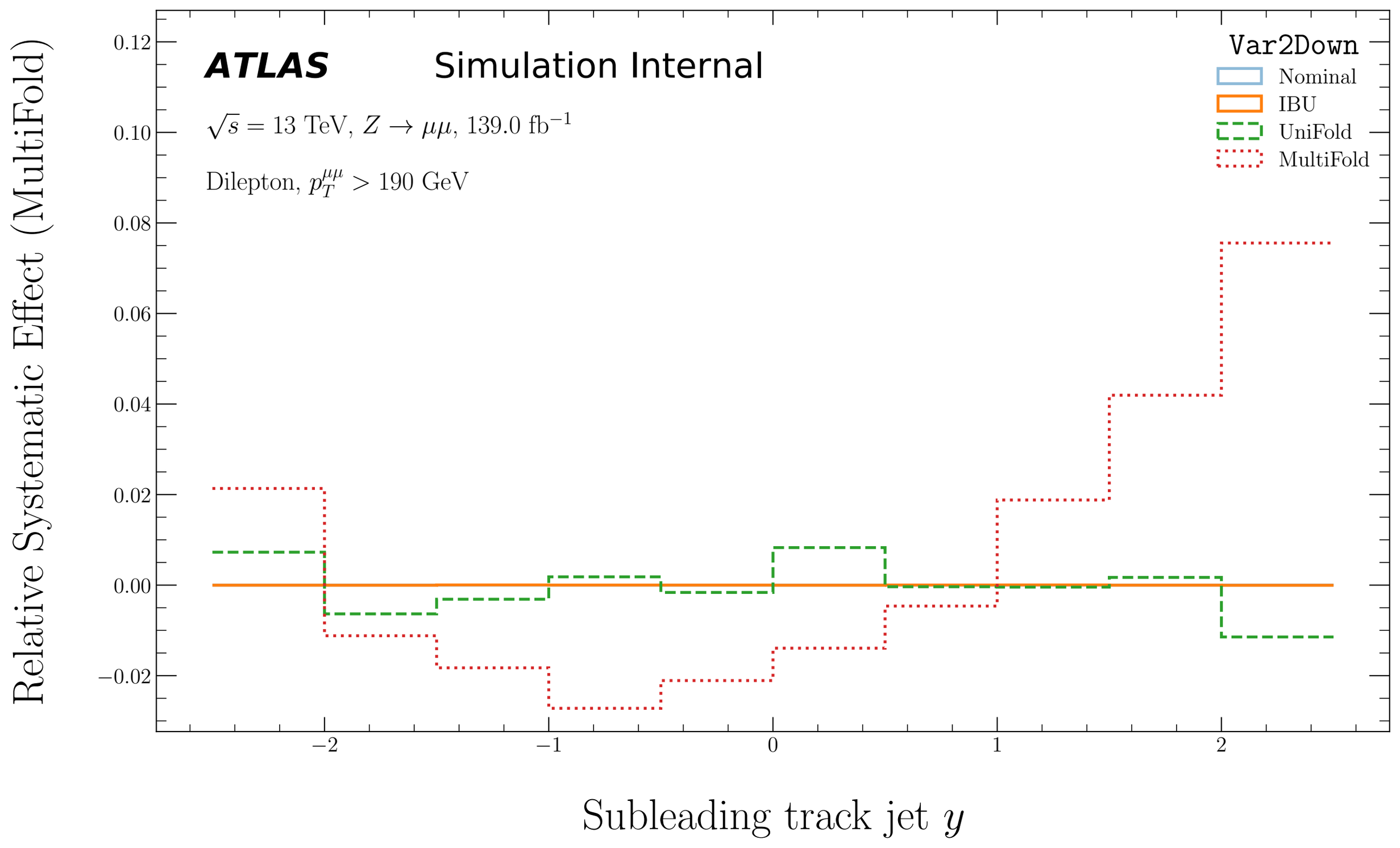

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet y
0.08
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2

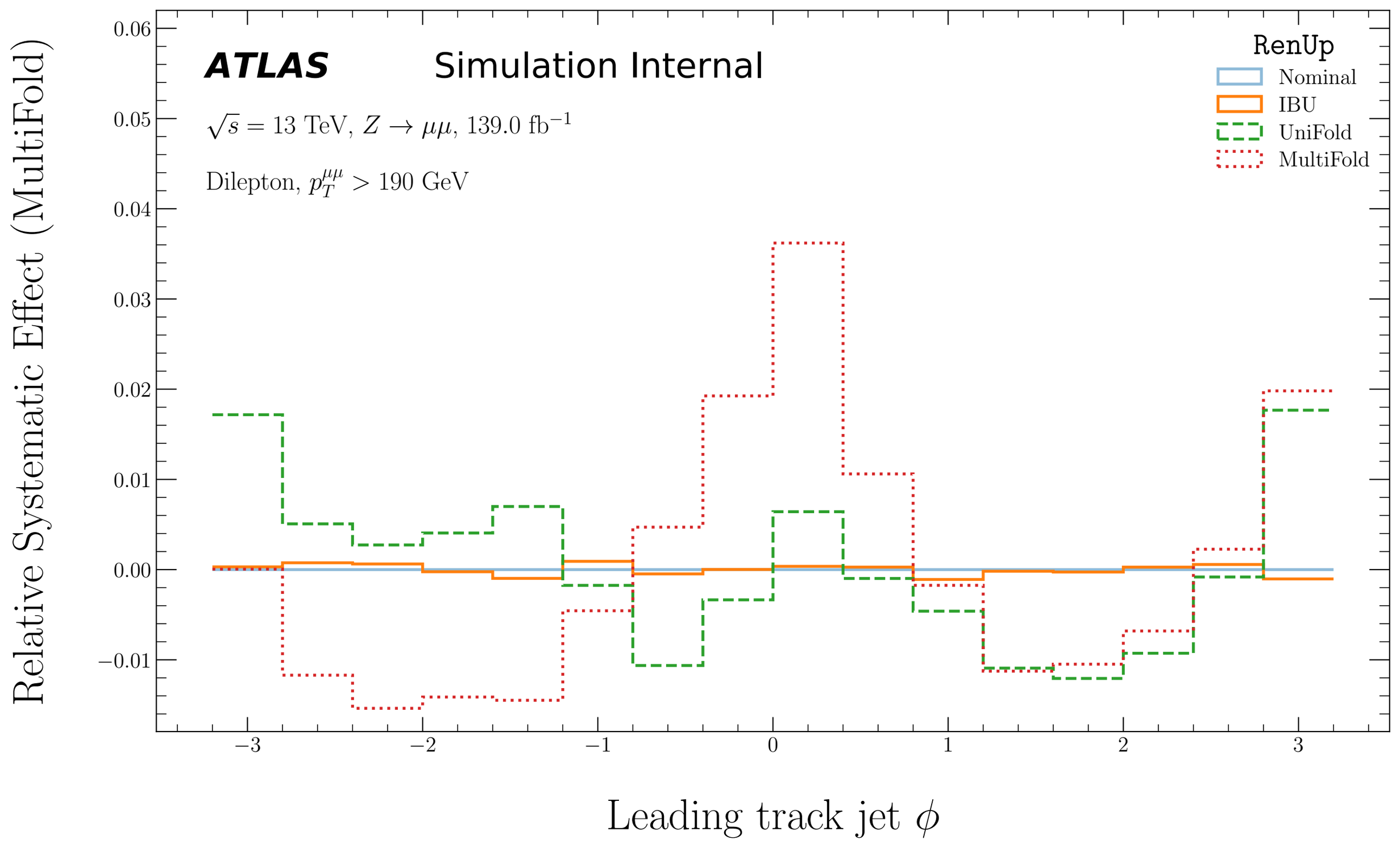

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet y
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2

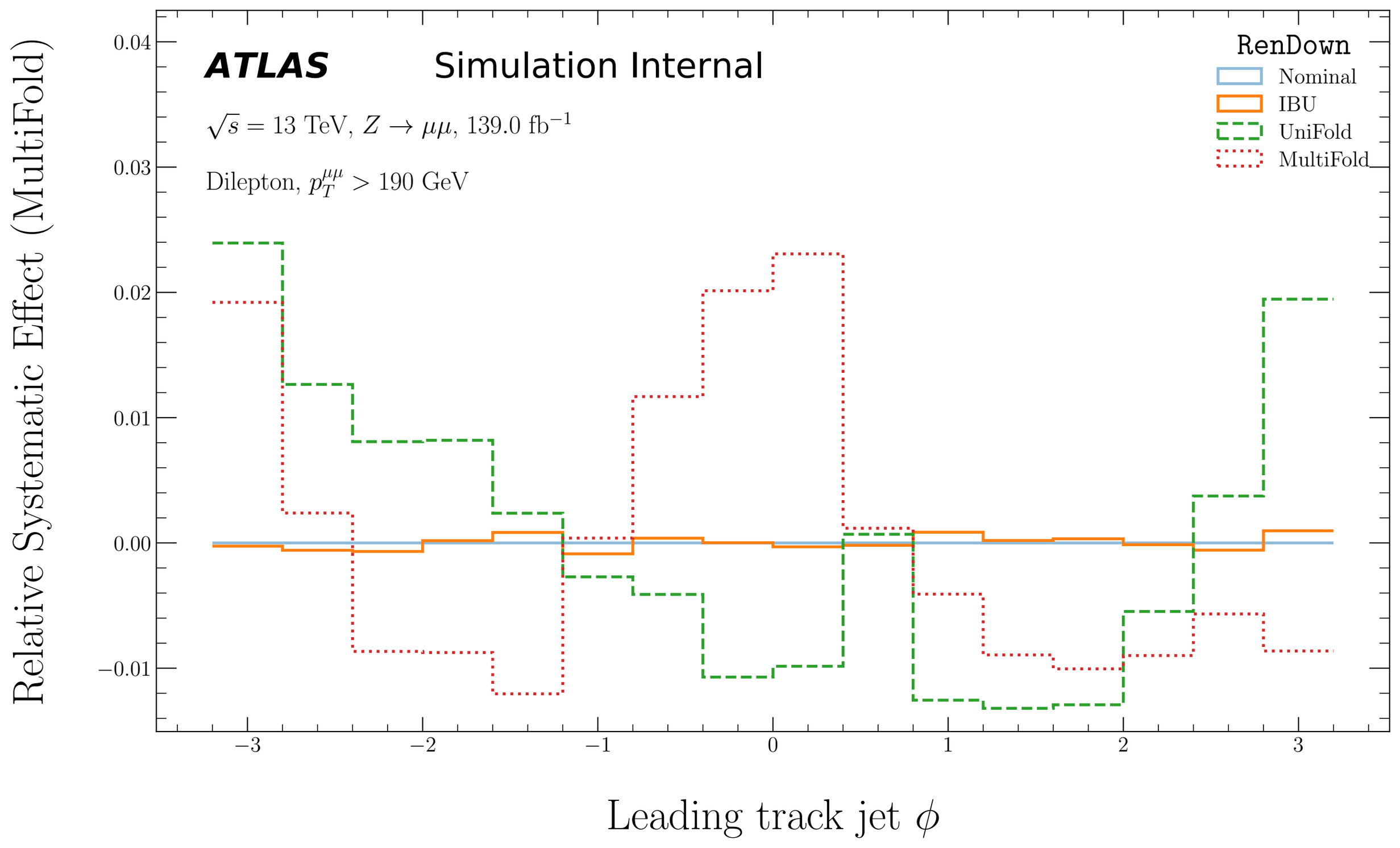

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet y
0.12
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
−0.04
−2
−1
0
1
2

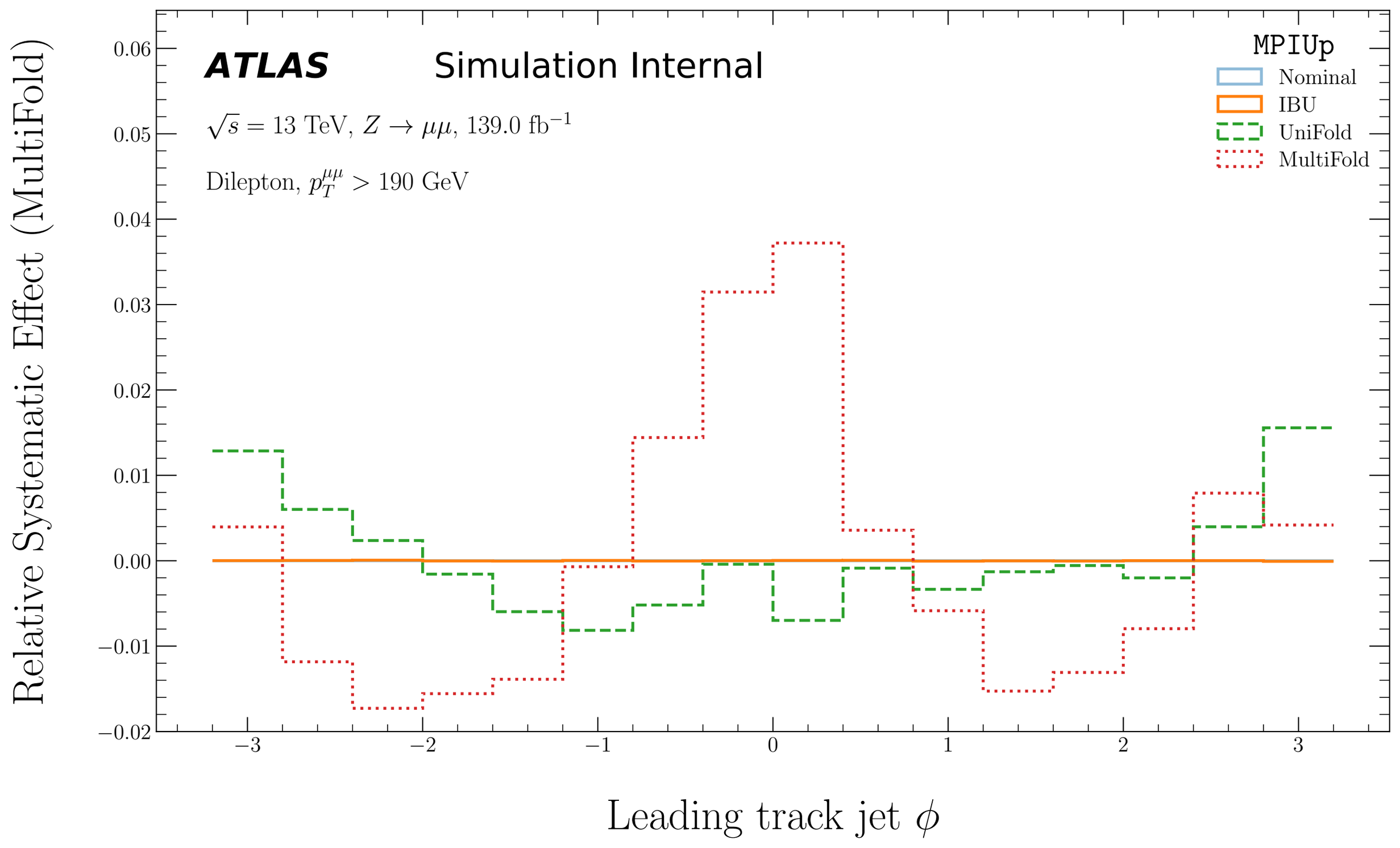

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet y
0.12
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
−0.04
−2
−1
0
1
2

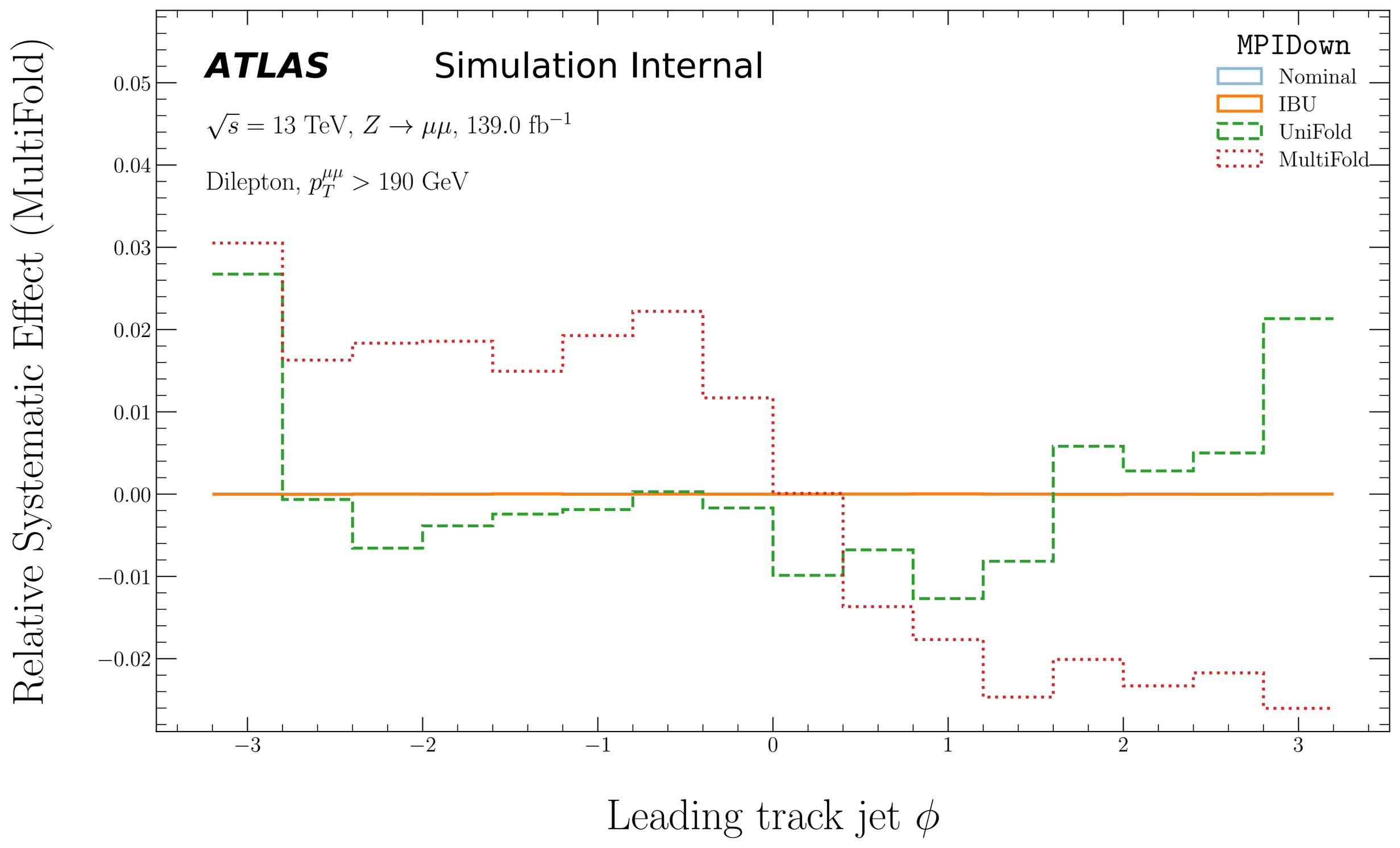

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet y
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2

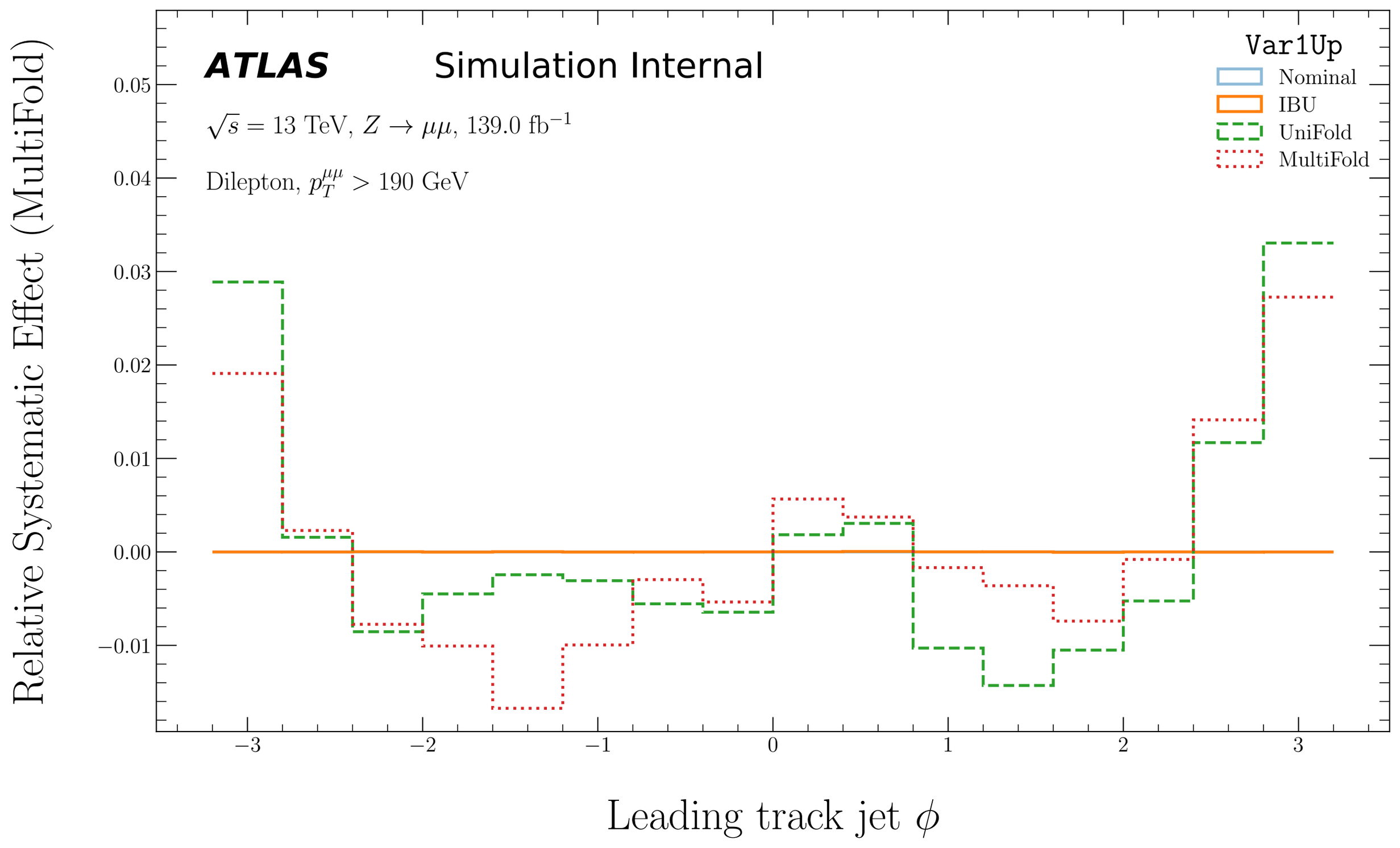

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.12
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
Subleading track jet y

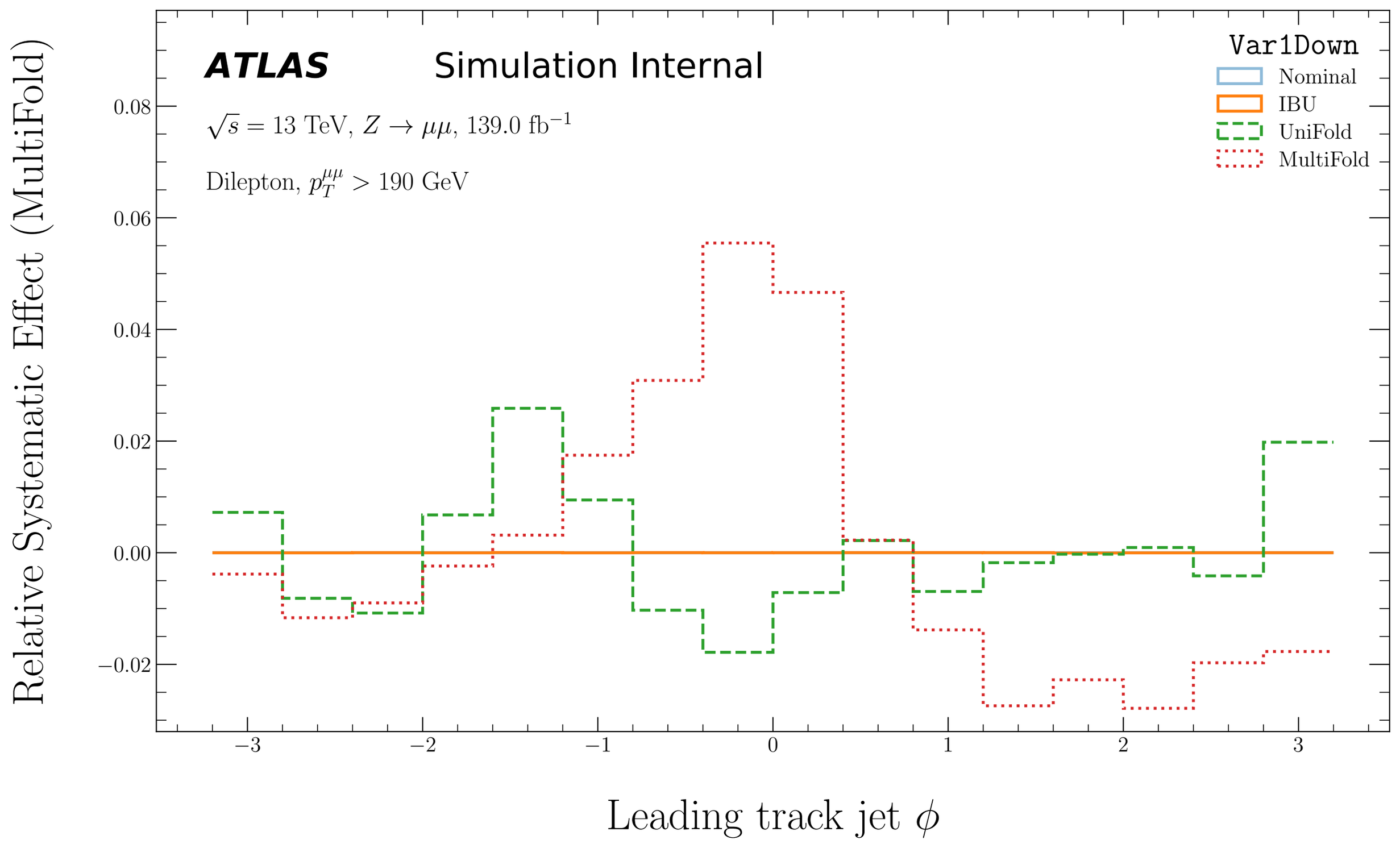

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet ϕ
0.06
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−3
−2
−1
0
1
2
3

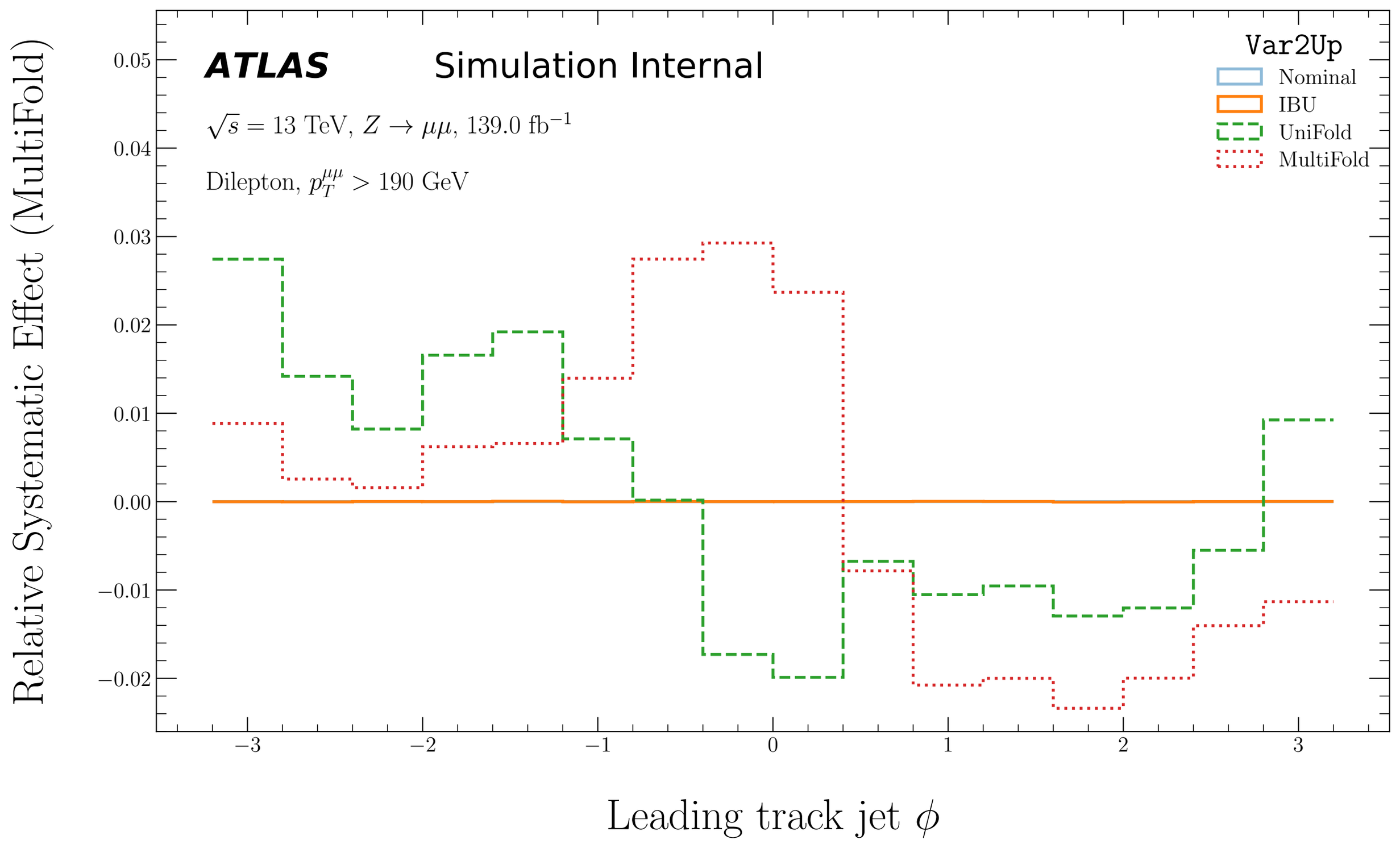

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet ϕ
0.04
0.03
0.02
0.01
0.00
−0.01
−3
−2
−1
0
1
2
3

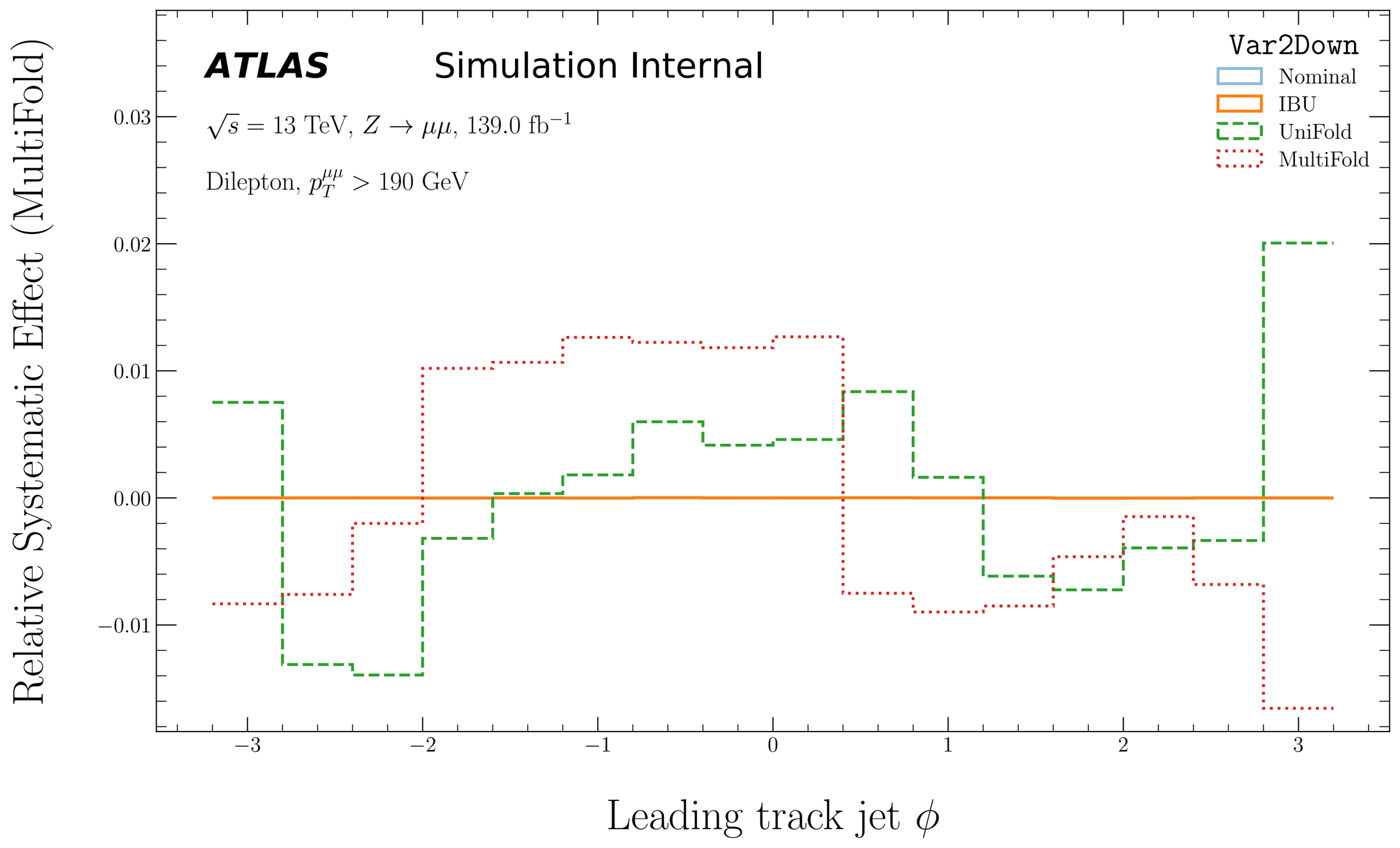

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet ϕ
0.06
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
−3
−2
−1
0
1
2
3

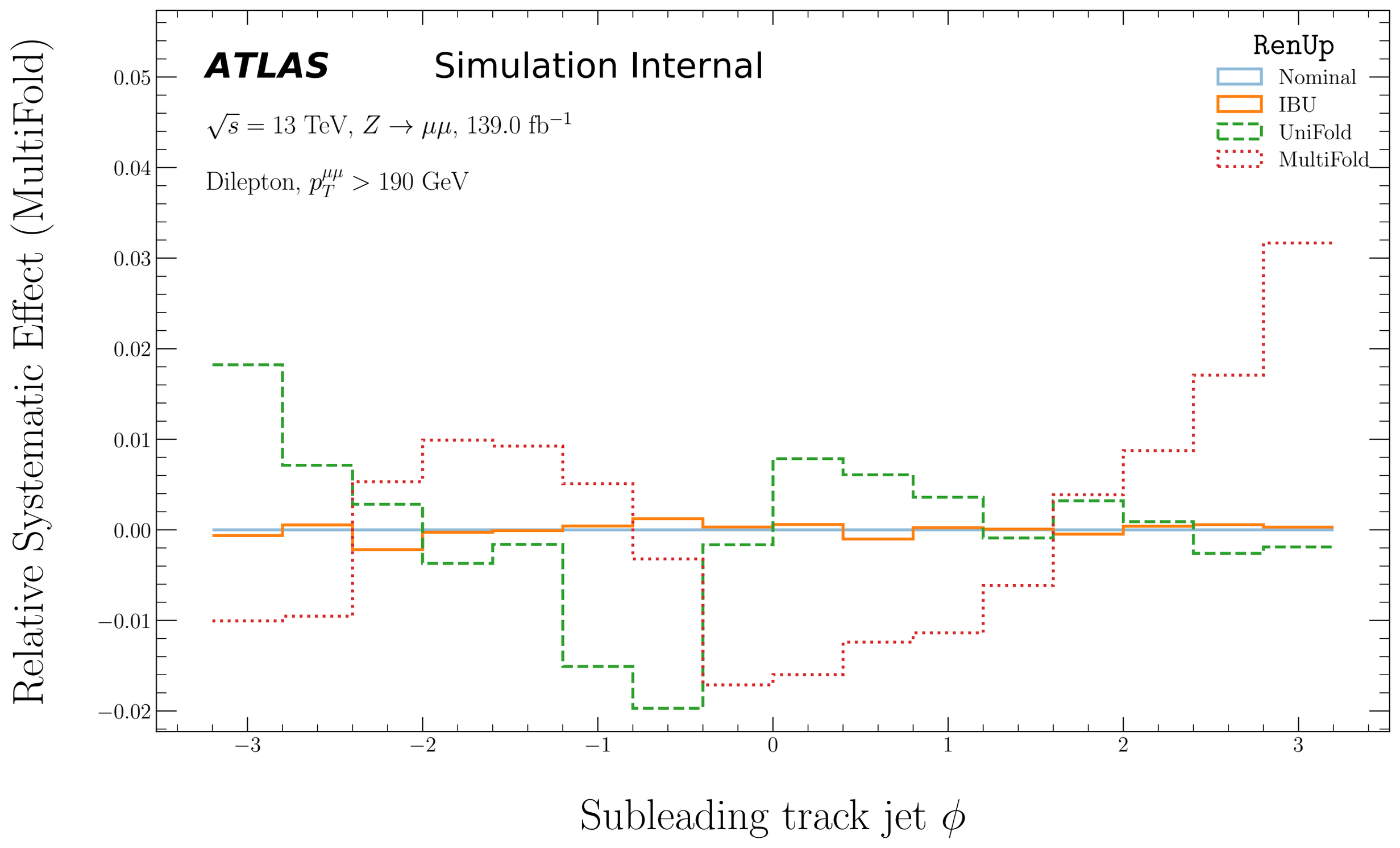

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet ϕ
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
−3
−2
−1
0
1
2
3

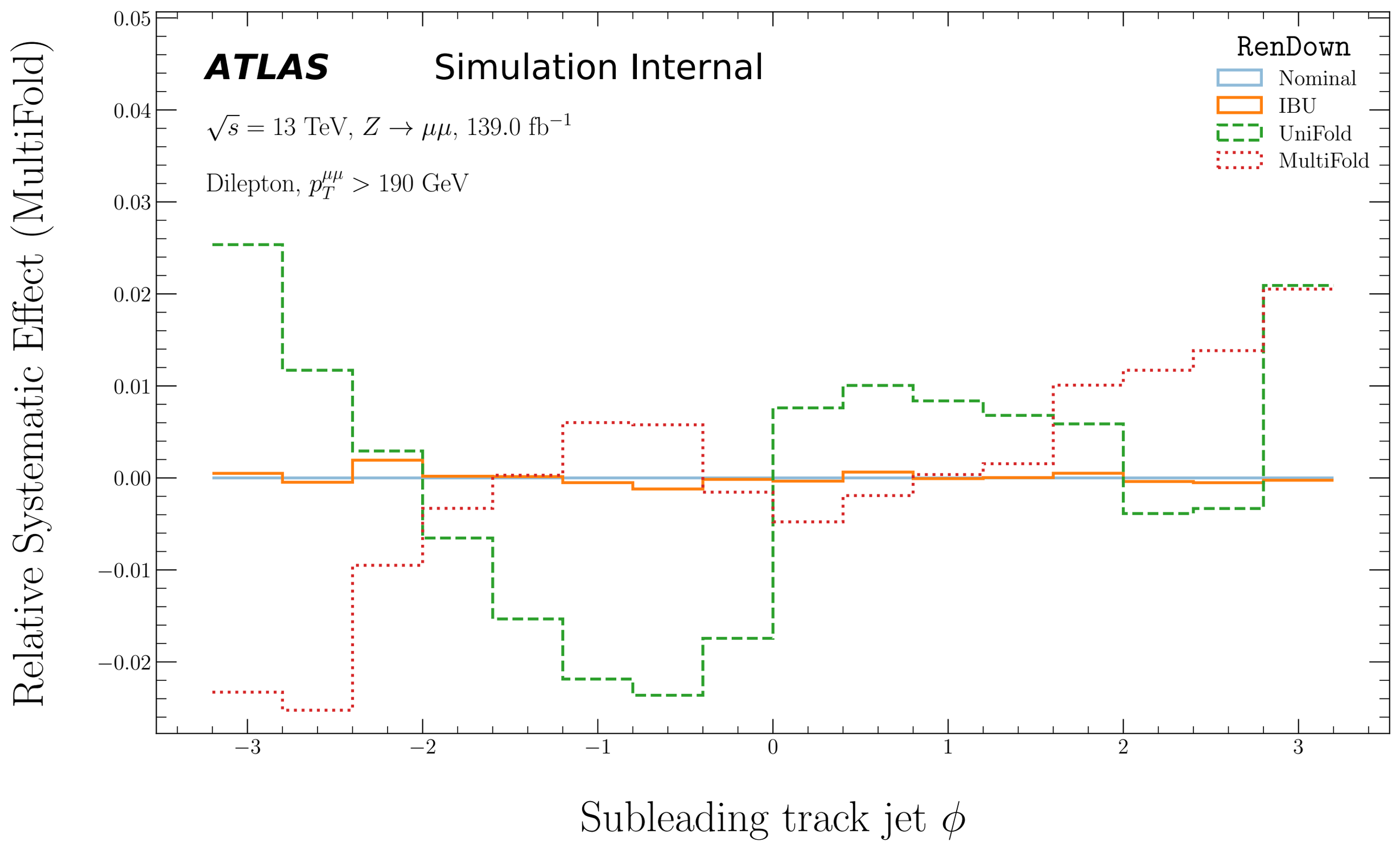

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−3
−2
−1
0
1
2
3
Leading track jet ϕ

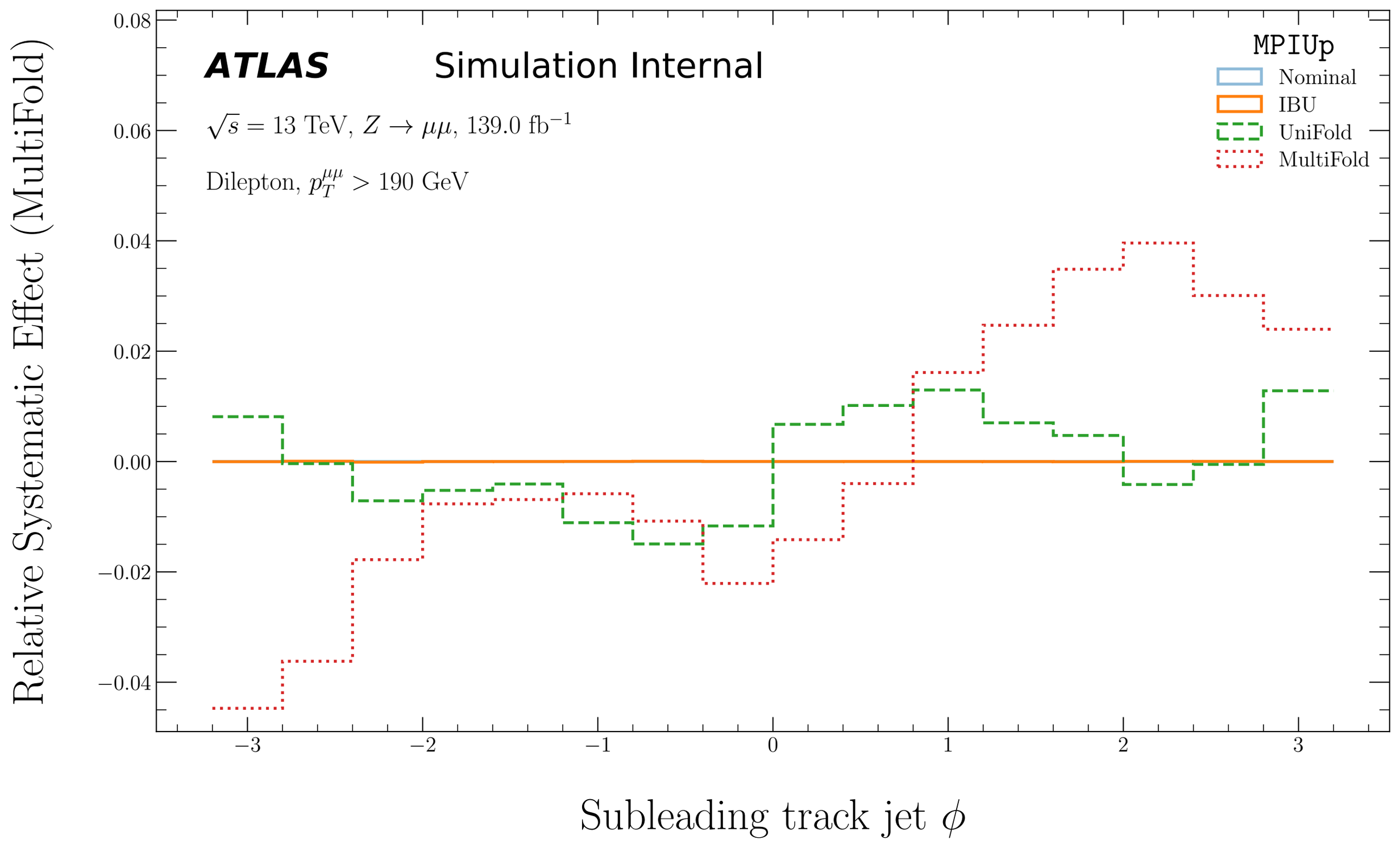

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
−3
−2
−1
0
1
2
3
Leading track jet ϕ

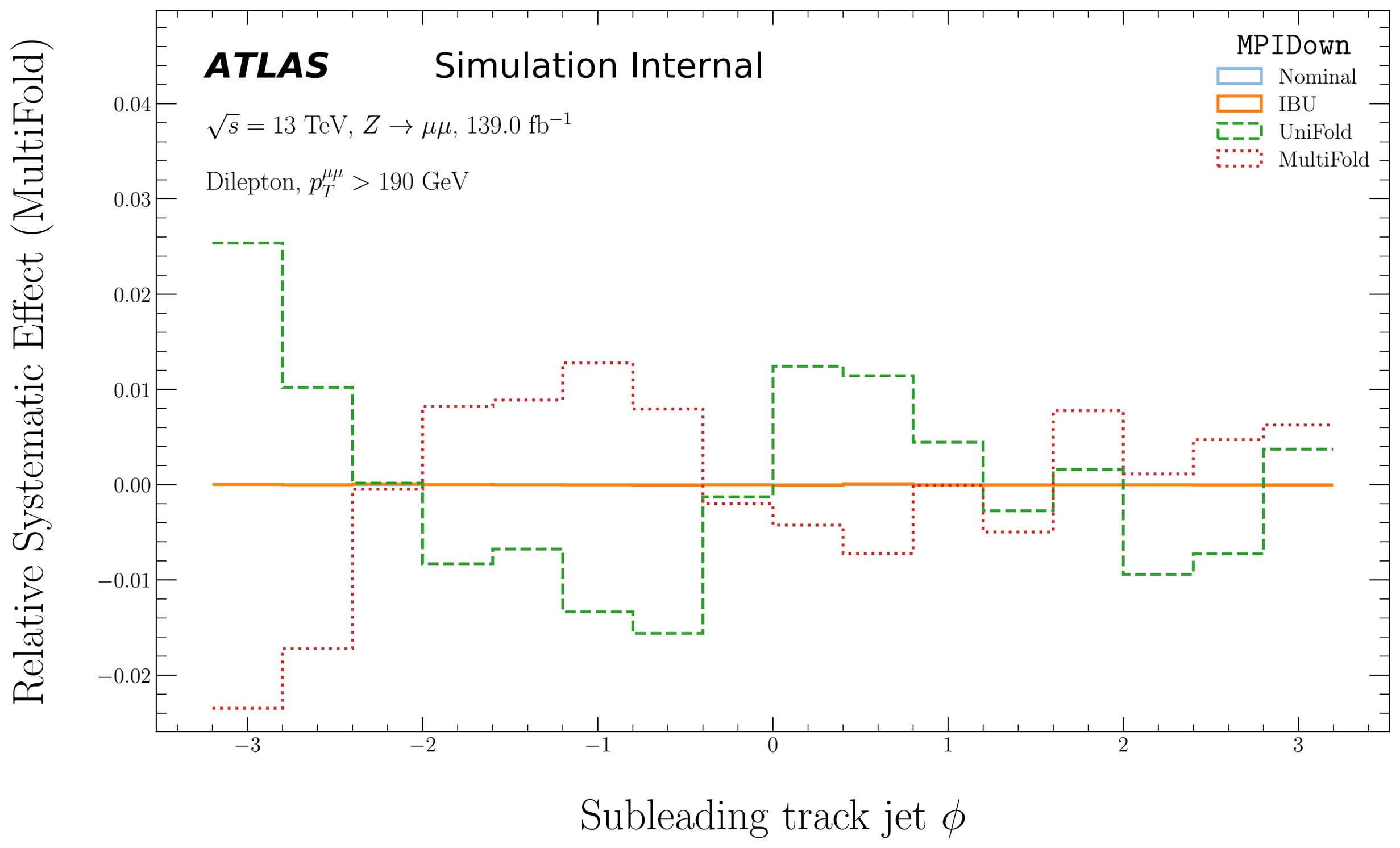

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet ϕ
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
−3
−2
−1
0
1
2
3

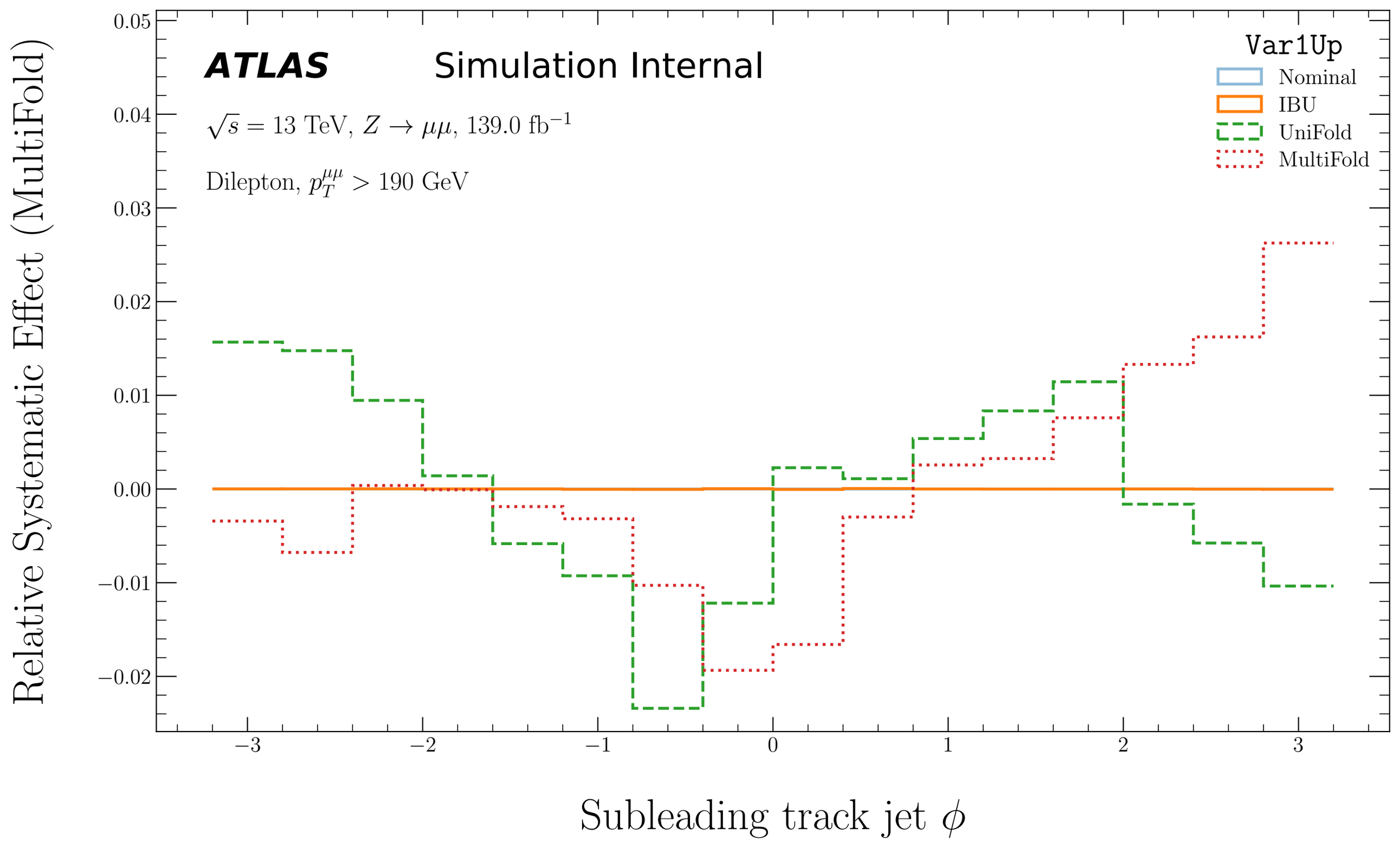

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.03
0.02
0.01
0.00
−0.01
−3
−2
−1
0
1
2
3
Leading track jet ϕ

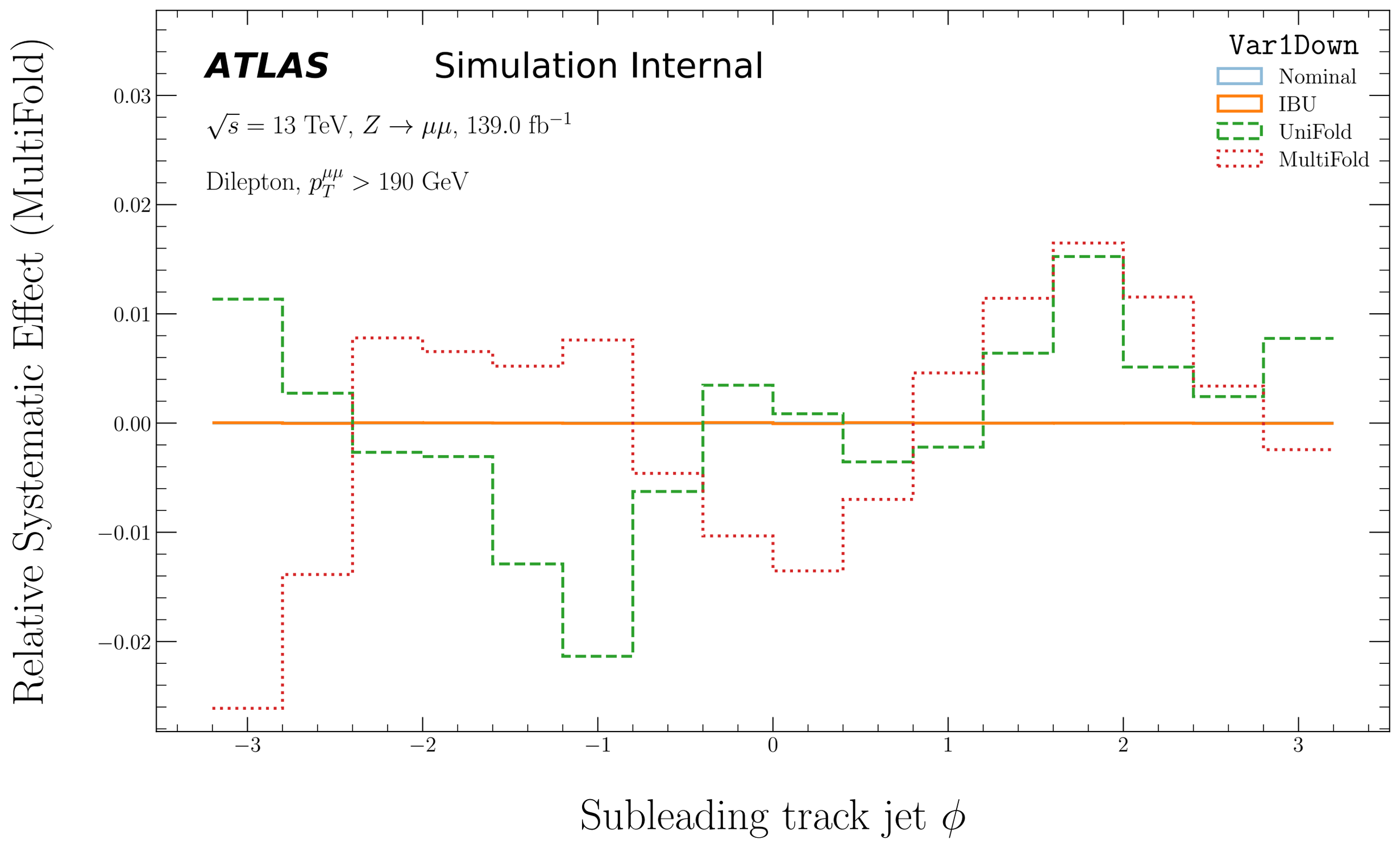

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet ϕ
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
−3
−2
−1
0
1
2
3

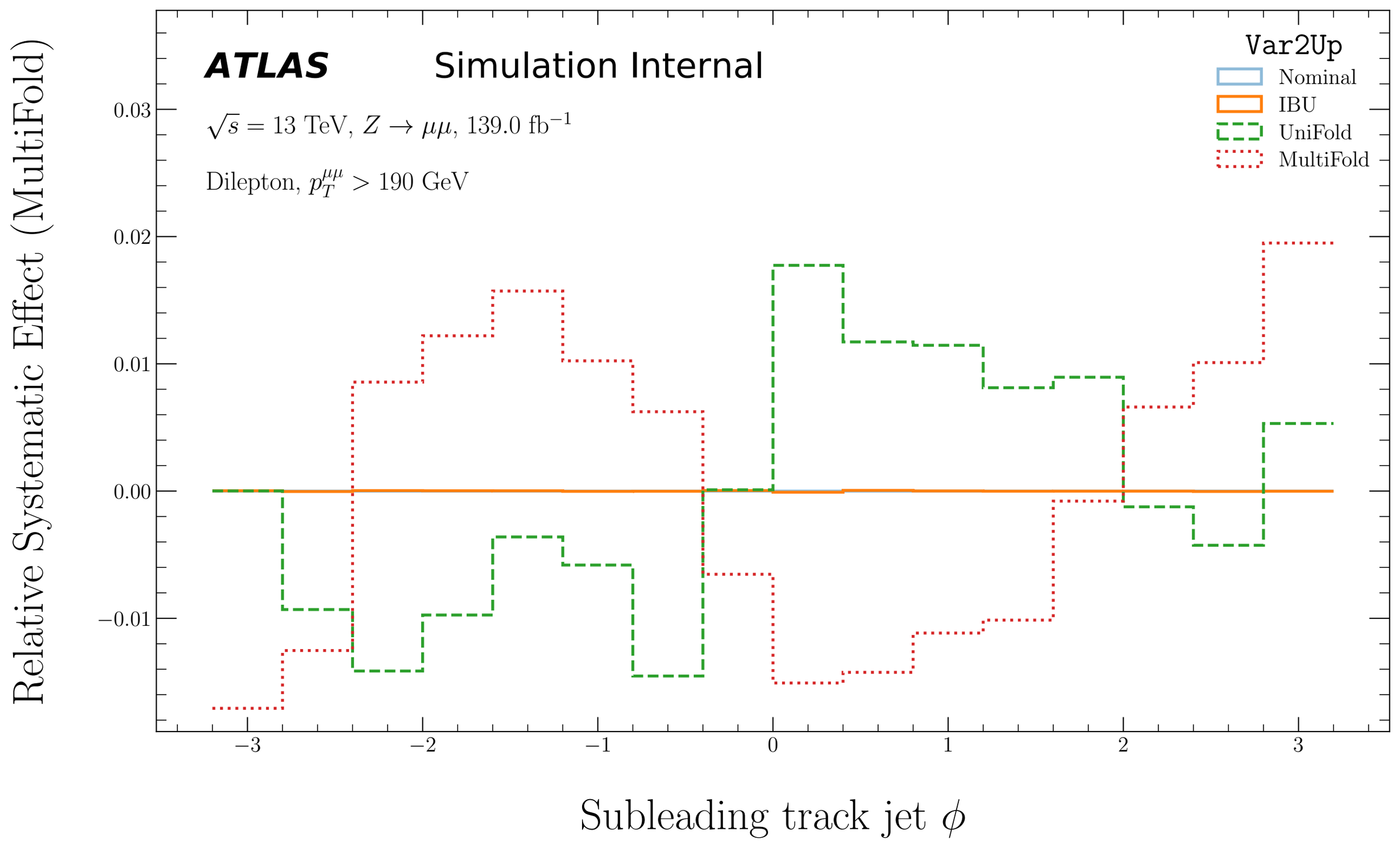

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet ϕ
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
−3
−2
−1
0
1
2
3

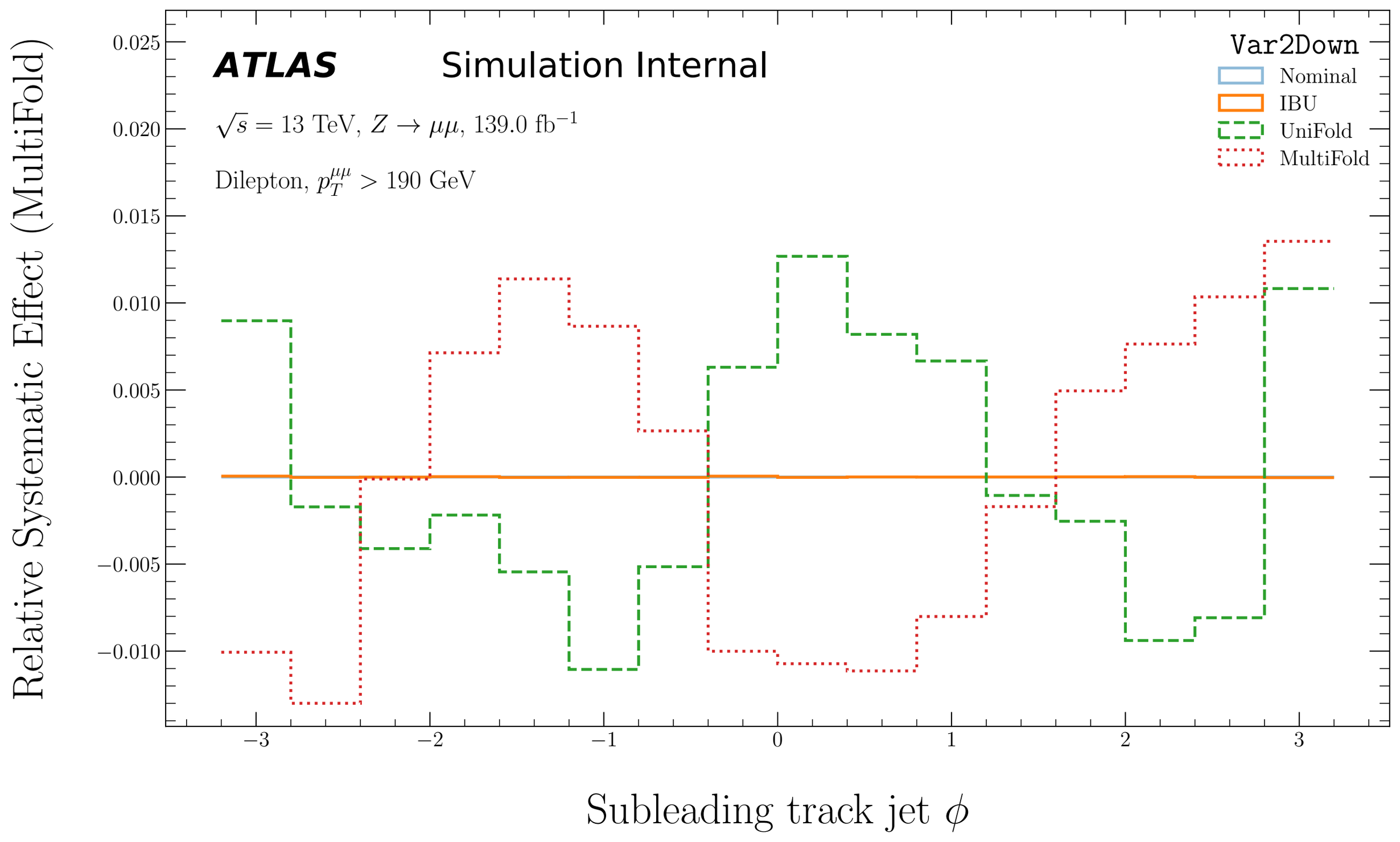

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet ϕ
0.08
0.06
0.04
0.02
0.00
−0.02
−0.04
−3
−2
−1
0
1
2
3

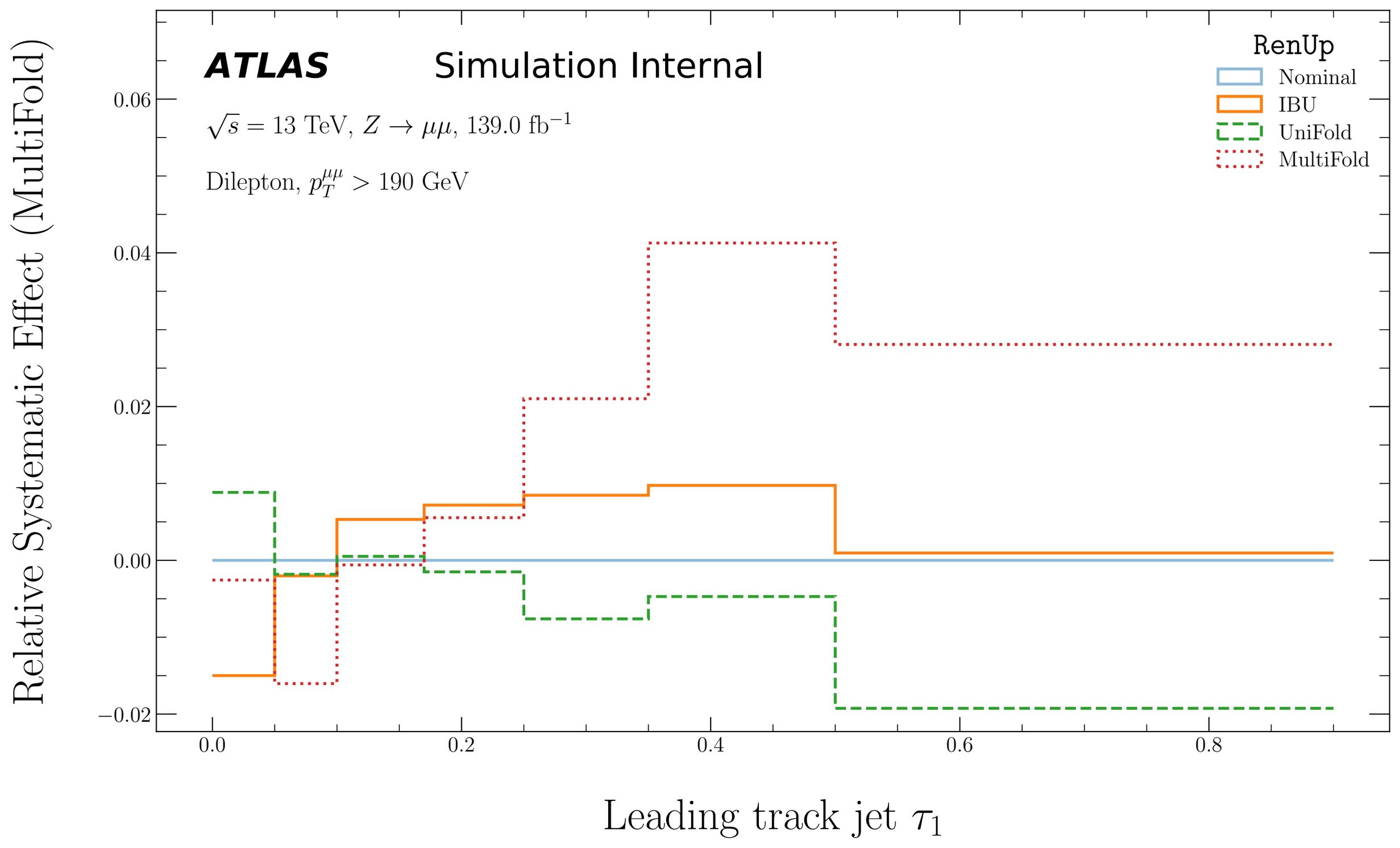

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet ϕ
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
−3
−2
−1
0
1
2
3

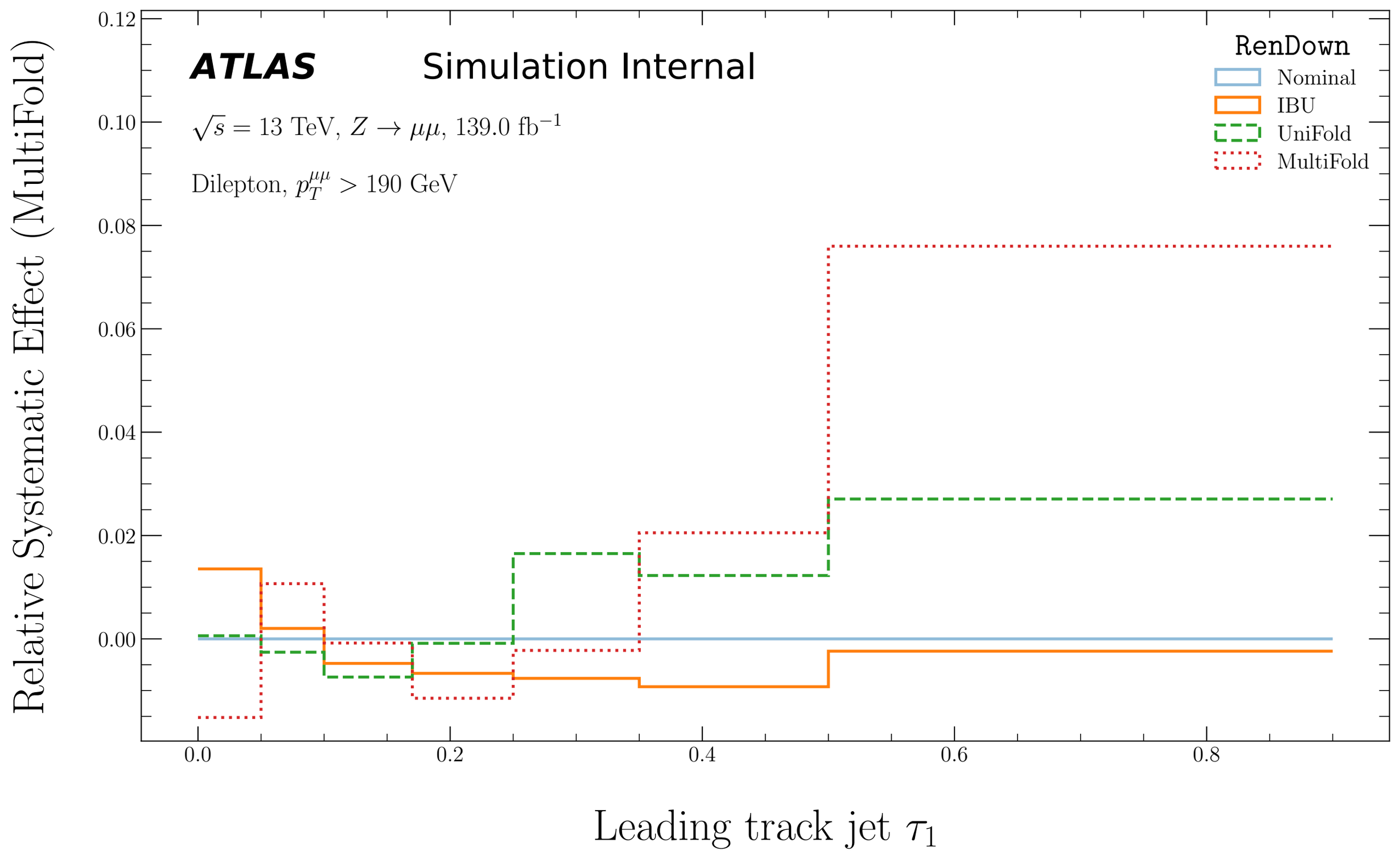

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet ϕ
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
−3
−2
−1
0
1
2
3

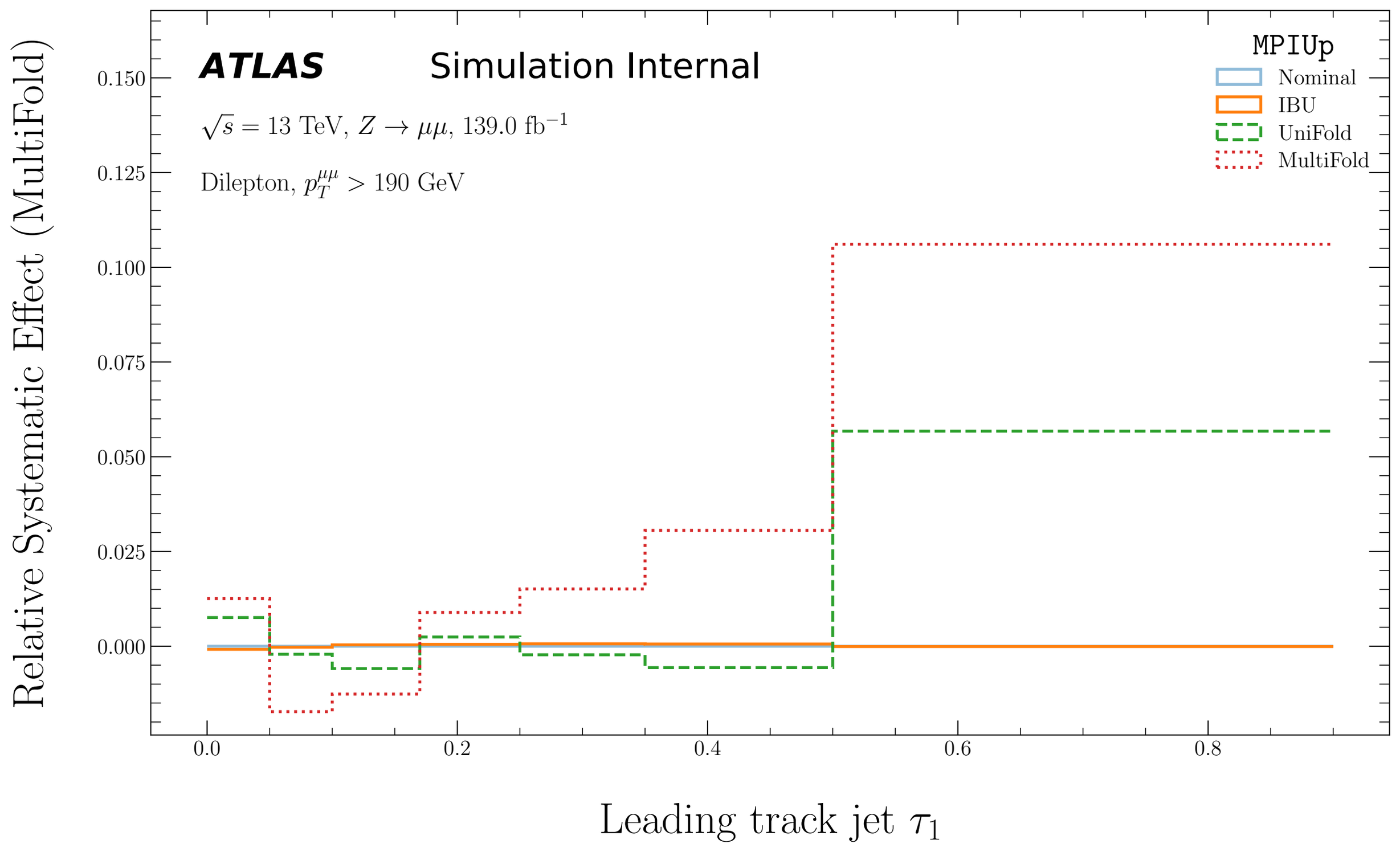

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.03
0.02
0.01
0.00
−0.01
−0.02
−3
−2
−1
0
1
2
3
Subleading track jet ϕ

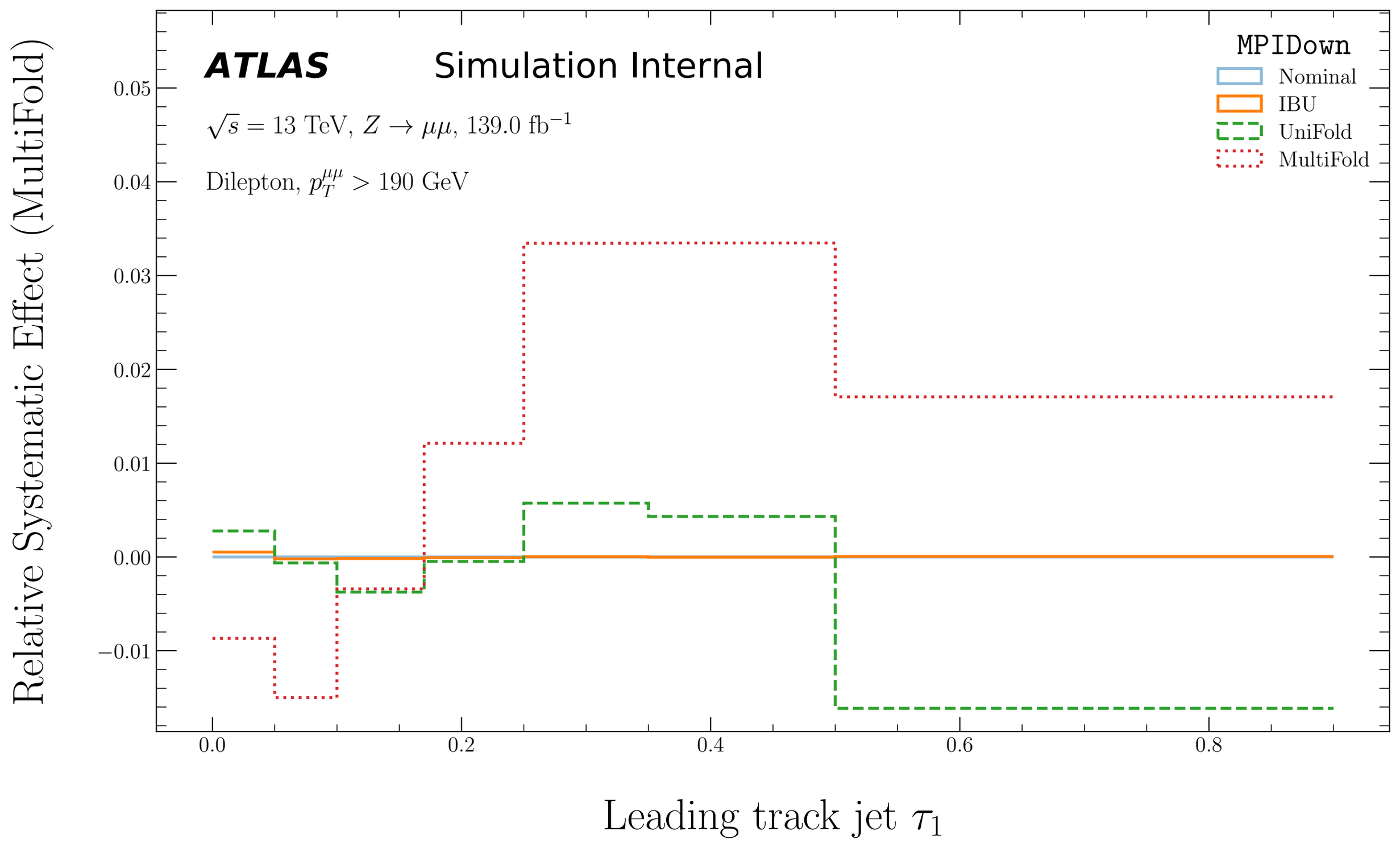

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.03
0.02
0.01
0.00
−0.01
−3
−2
−1
0
1
2
3
Subleading track jet ϕ

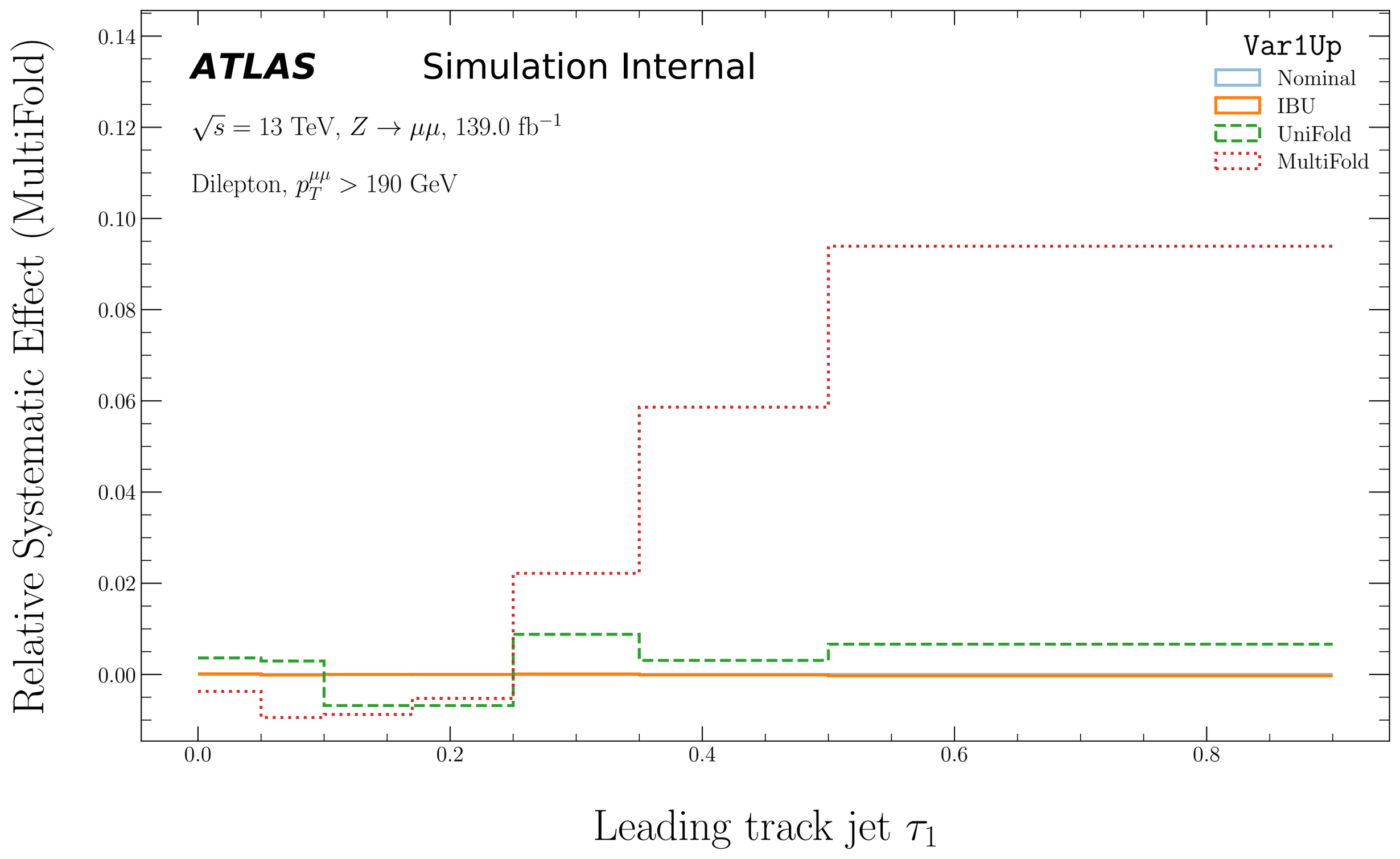

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet ϕ
0.025
0.020
0.015
0.010
0.005
0.000
−0.005
−0.010
−3
−2
−1
0
1
2
3

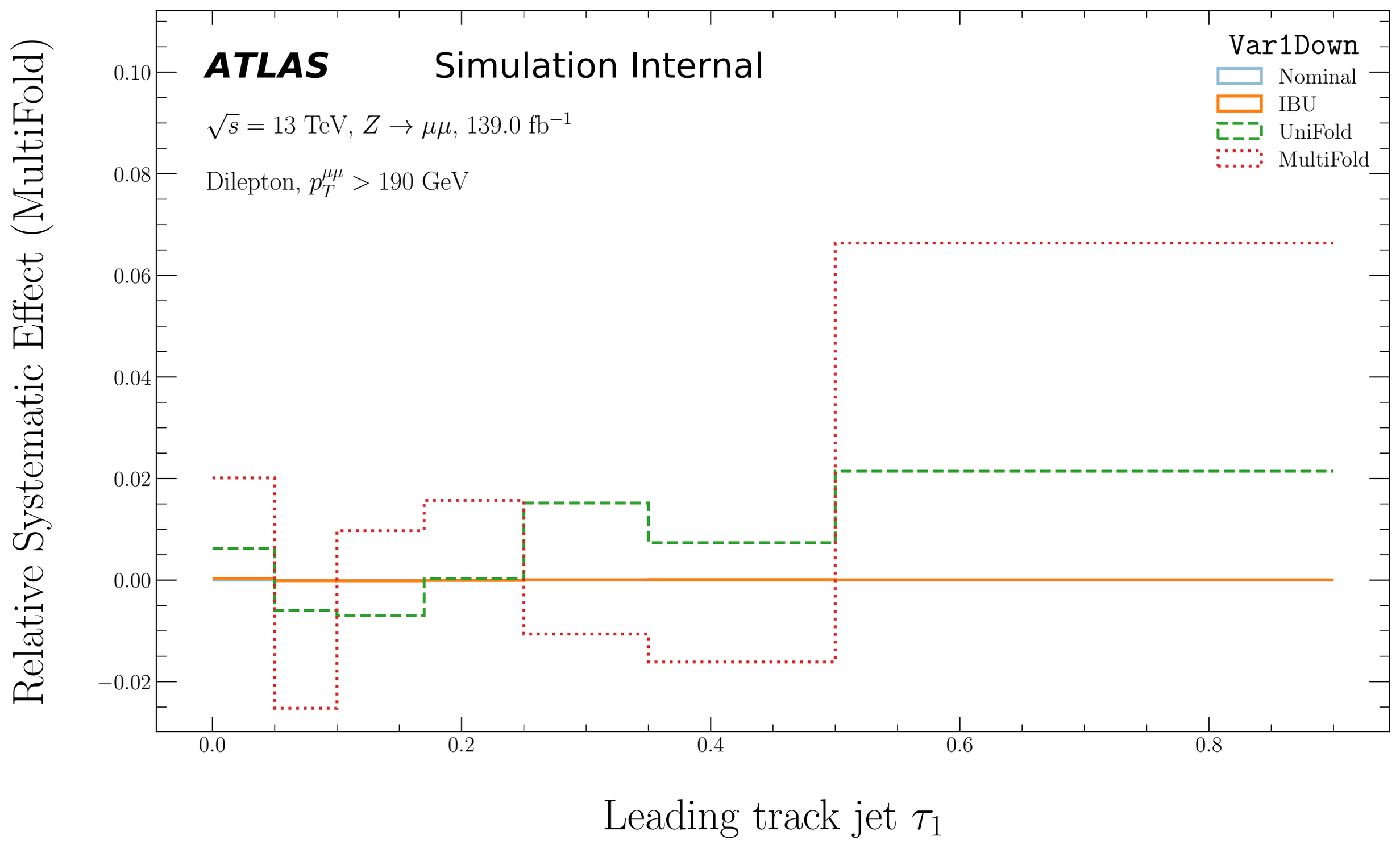

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.06
0.04
0.02
0.00
−0.02
0.0
0.2
0.4
0.6
0.8
Leading track jet τ_1

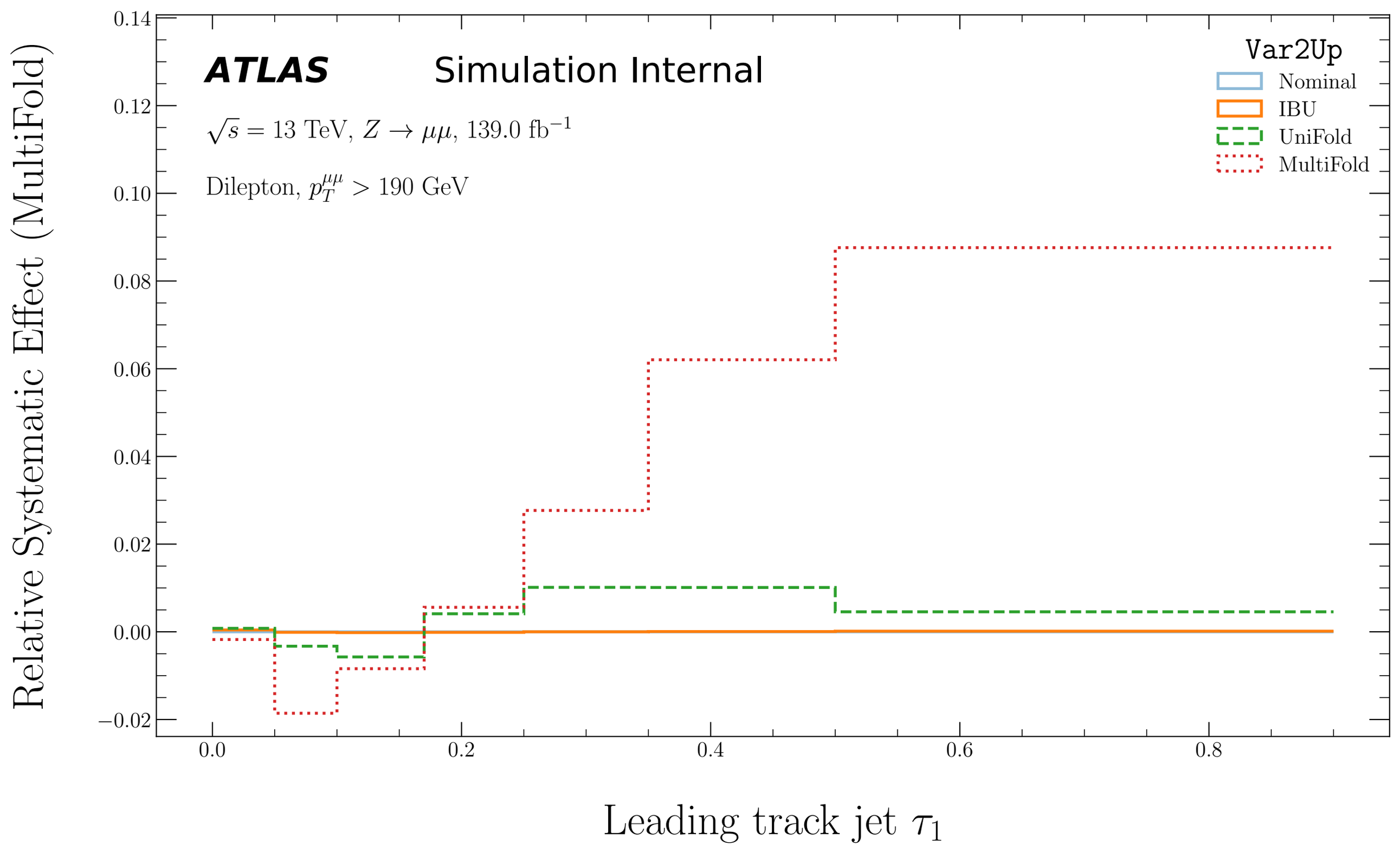

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet τ_1
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.0
0.2
0.4
0.6
0.8

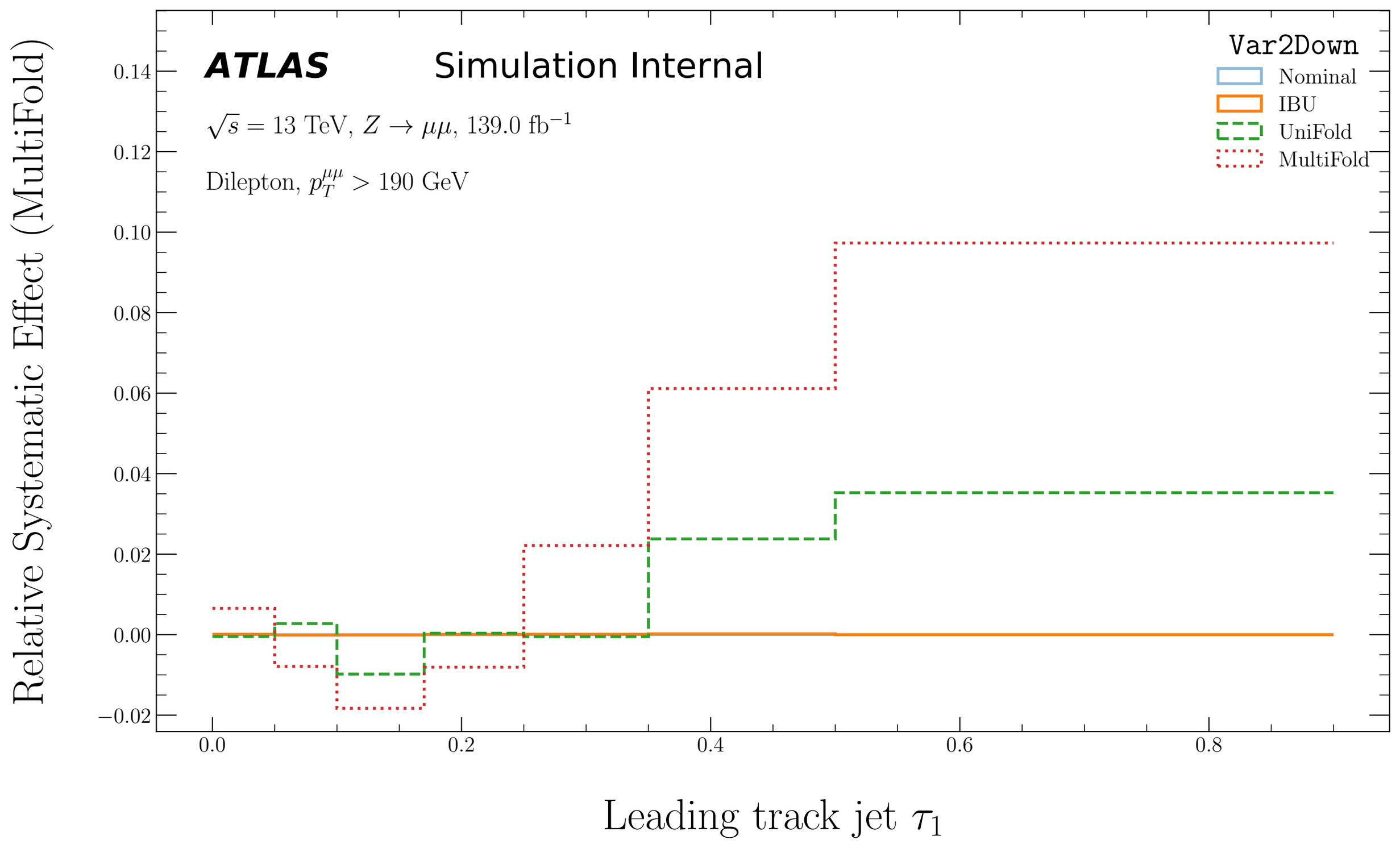

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.150
0.125
0.100
0.075
0.050
0.025
0.000
0.0
0.2
0.4
0.6
0.8
Leading track jet τ_1

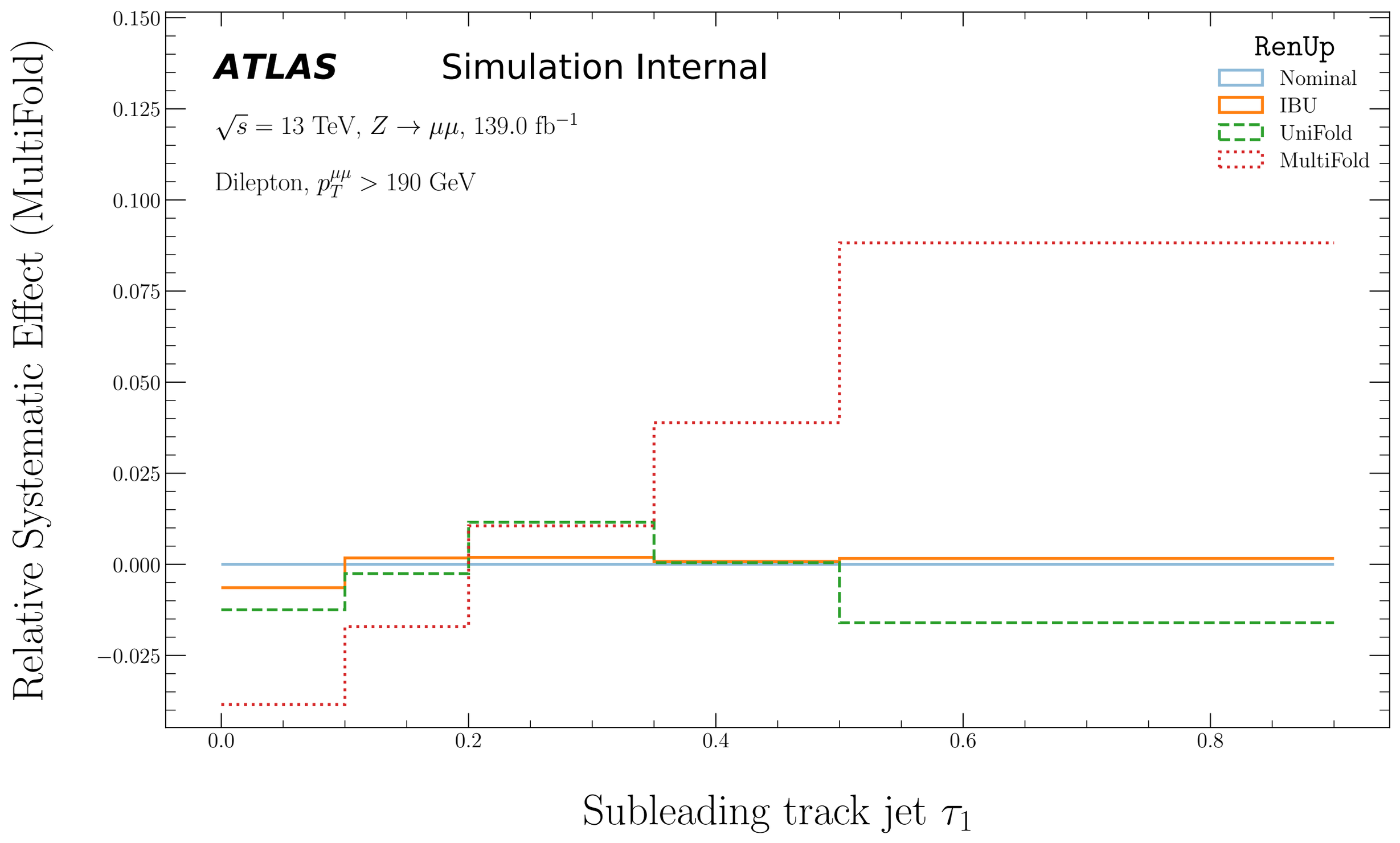

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
0.0
0.2
0.4
0.6
0.8
Leading track jet τ_1

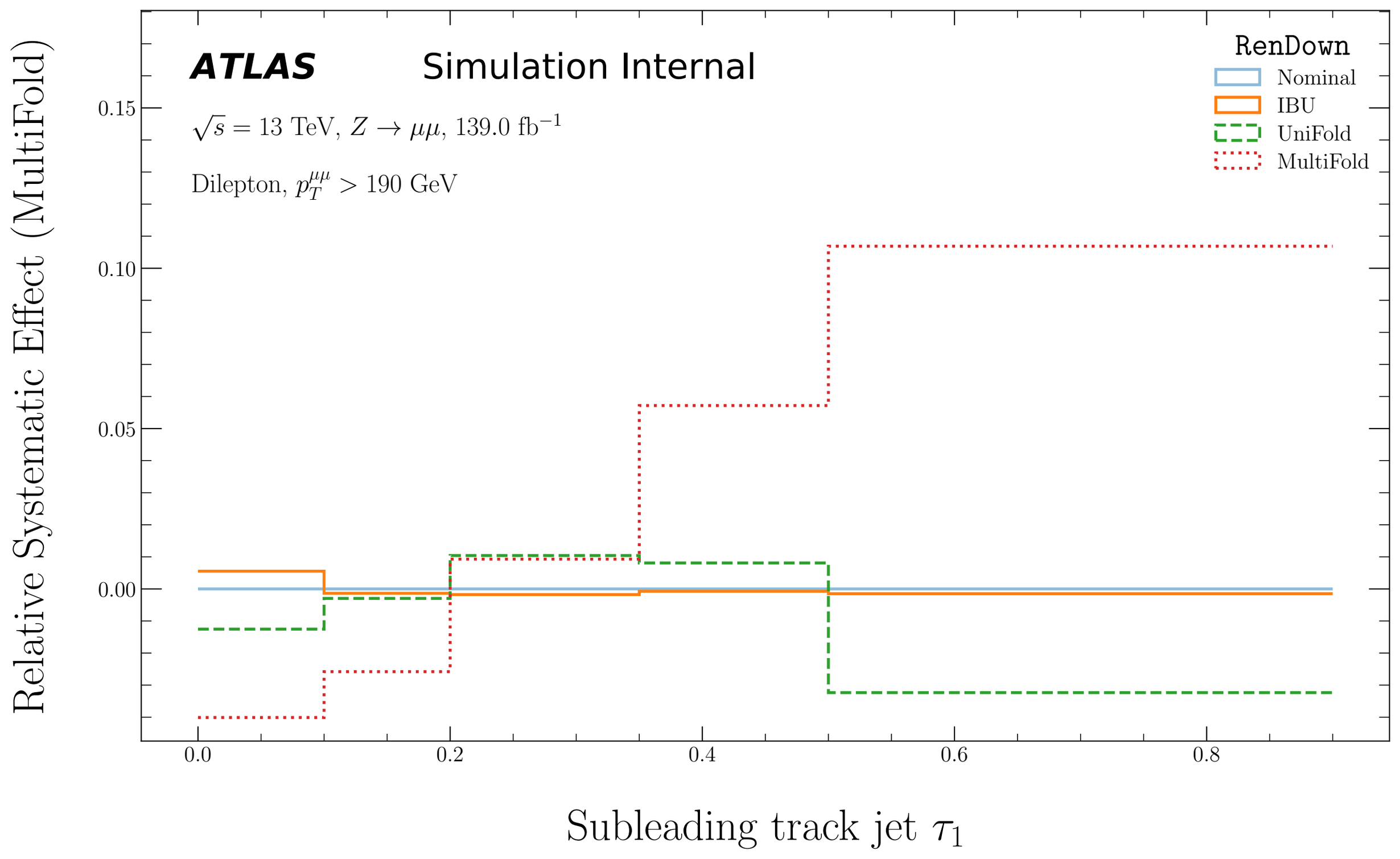

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet τ_1
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.0
0.2
0.4
0.6
0.8

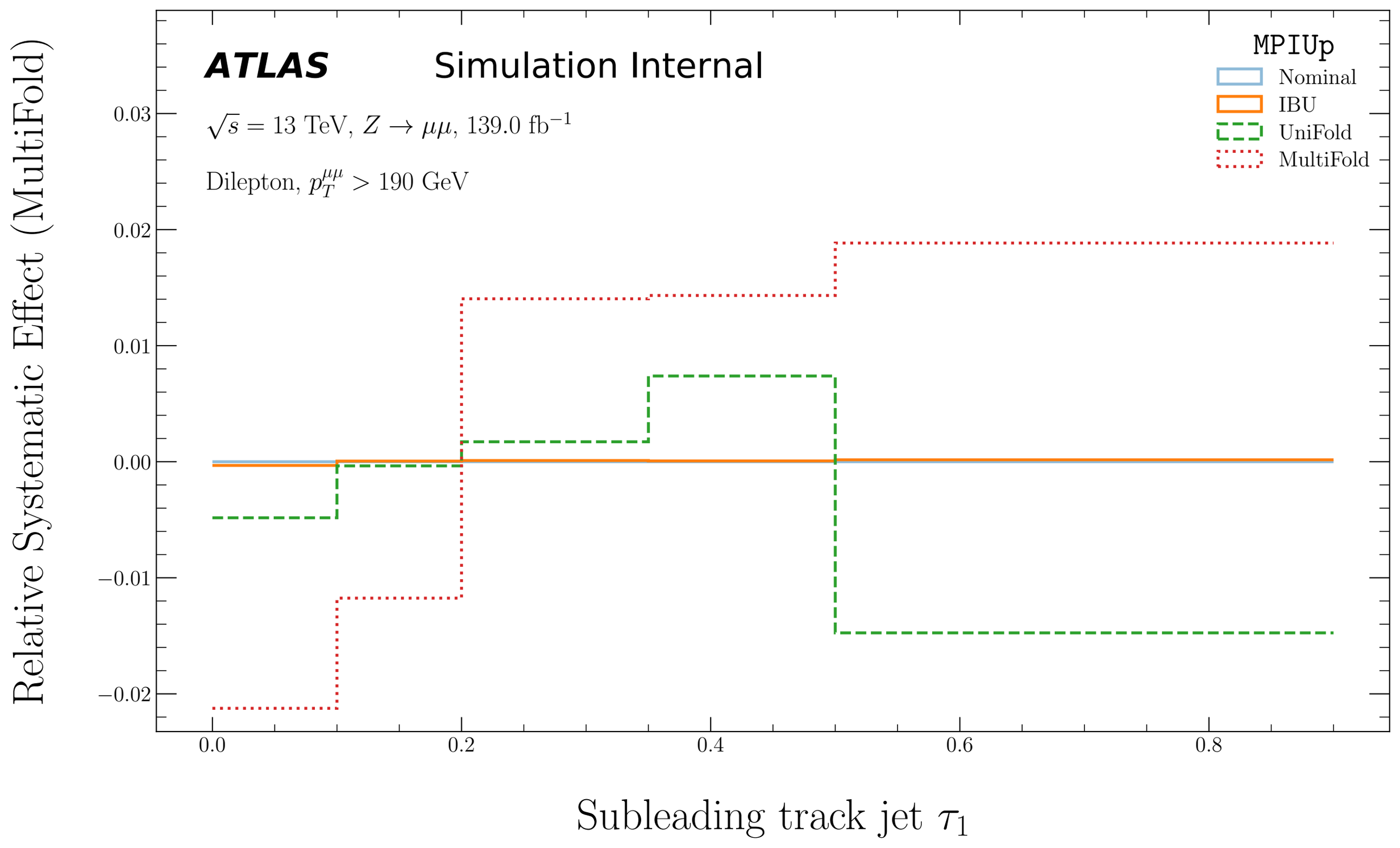

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
0.0
0.2
0.4
0.6
0.8
Leading track jet τ_1

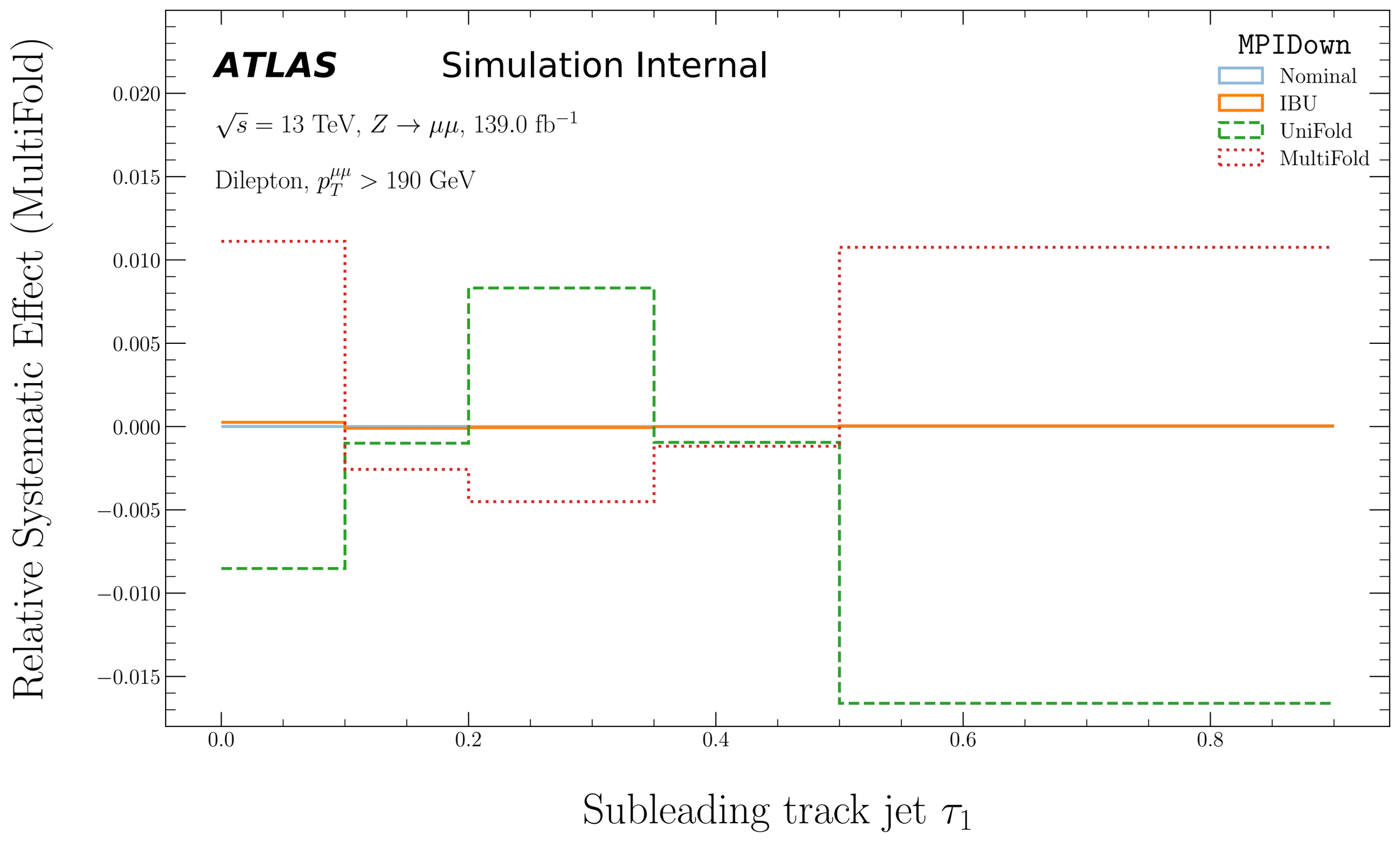

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet τ_1
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
0.0
0.2
0.4
0.6
0.8

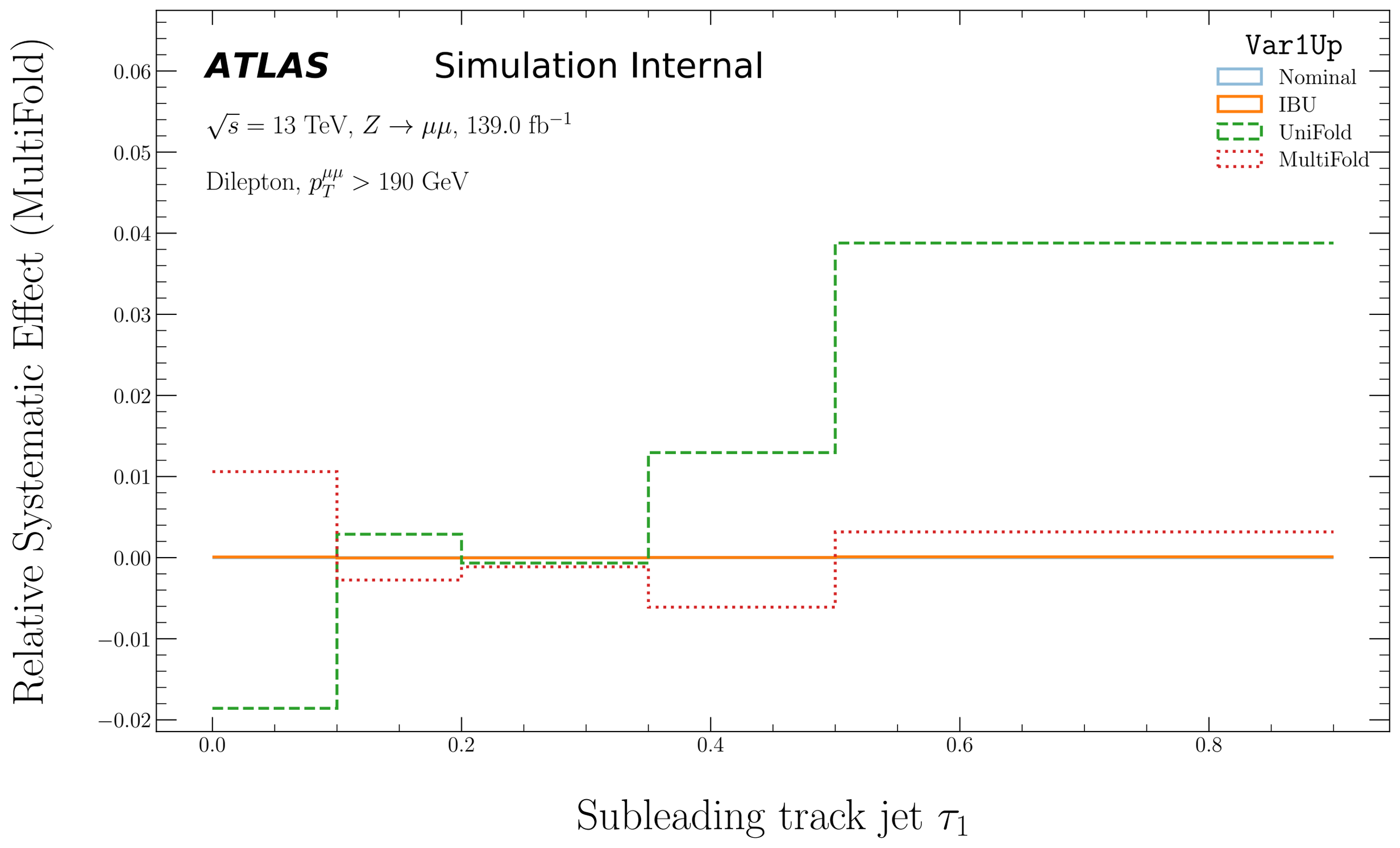

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet τ_1
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
0.0
0.2
0.4
0.6
0.8

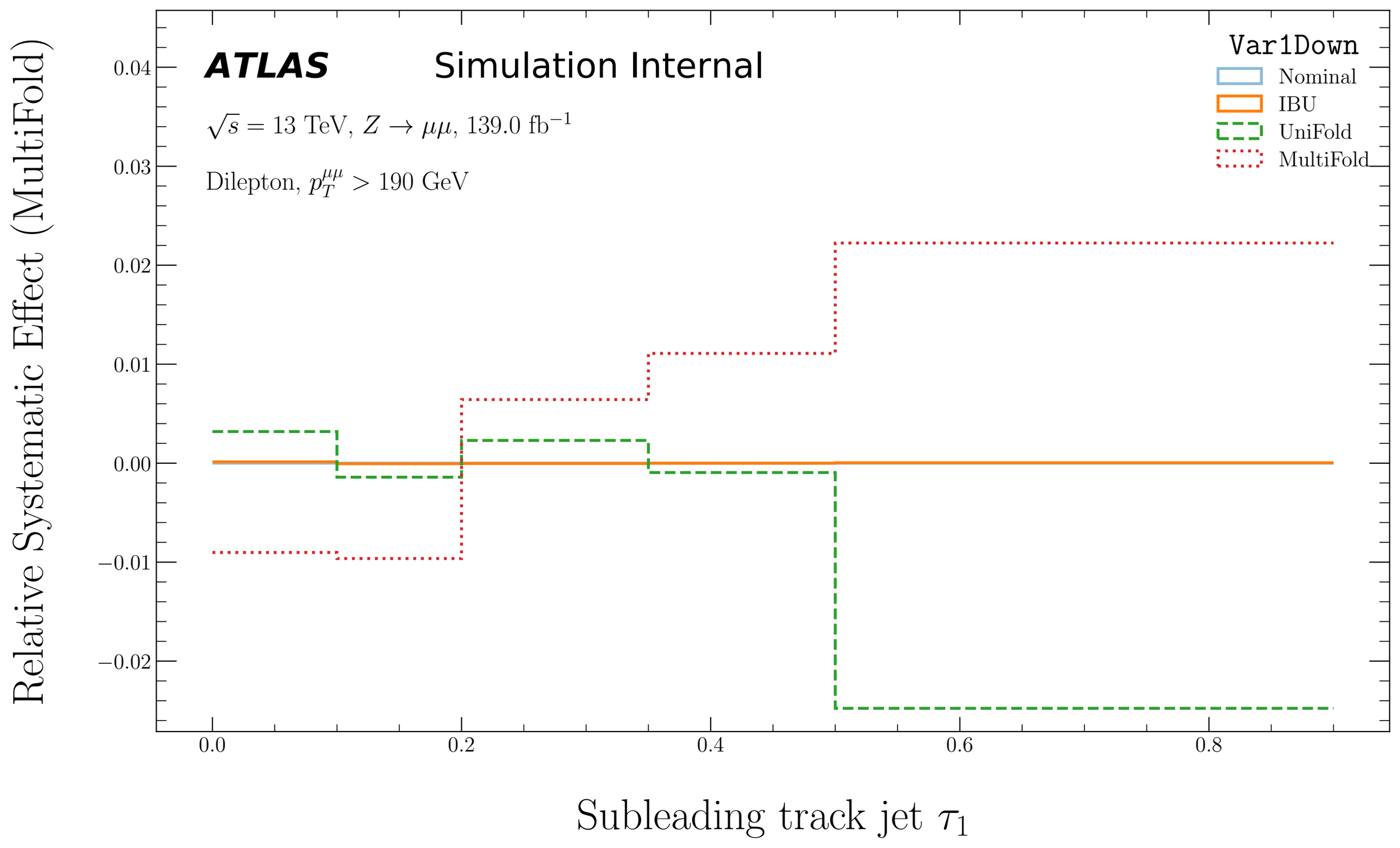

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet τ_1
0.150
0.125
0.100
0.075
0.050
0.025
0.000
−0.025
0.0
0.2
0.4
0.6
0.8

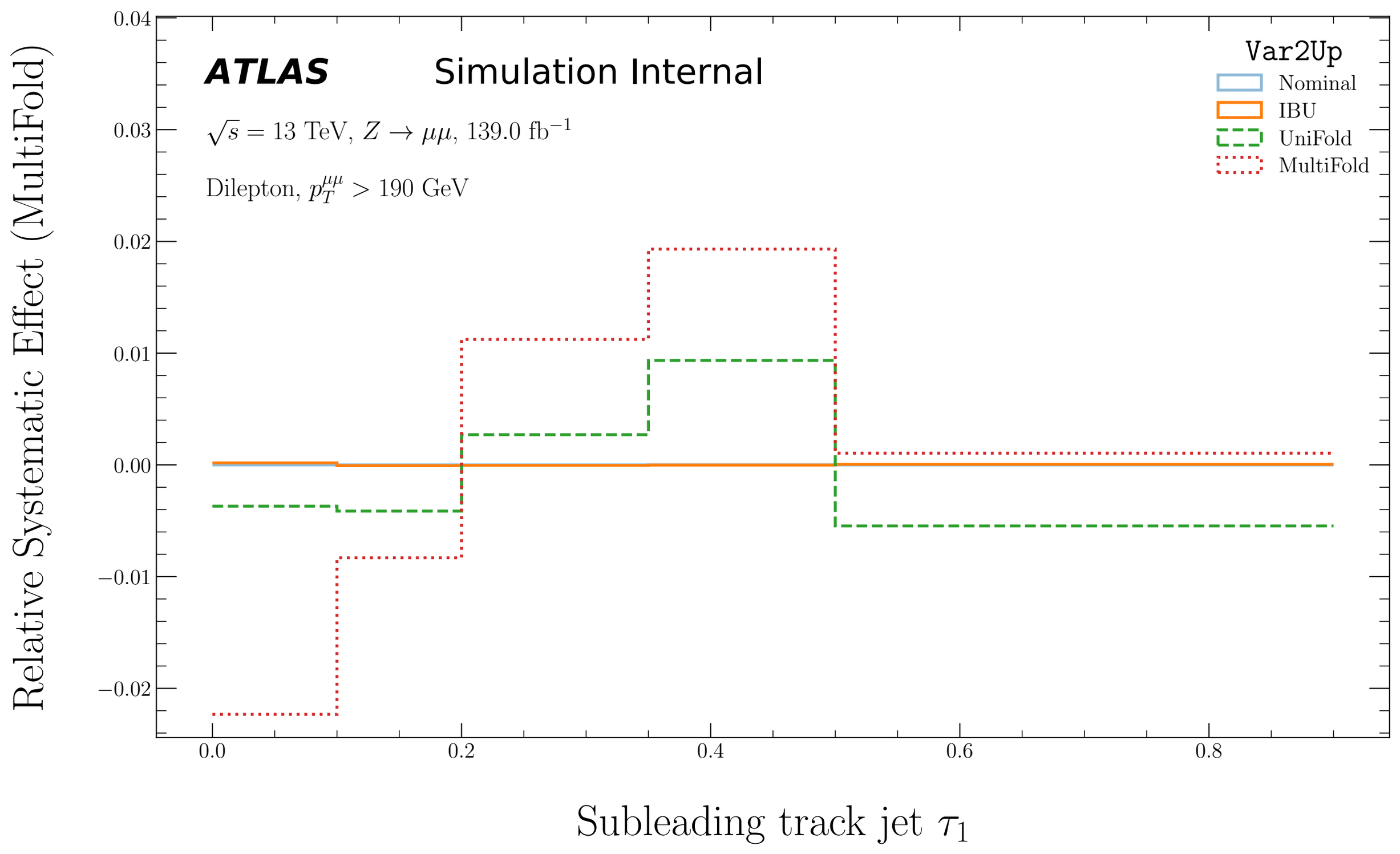

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
0.0
0.2
0.4
0.6
0.8
Subleading track jet τ_1

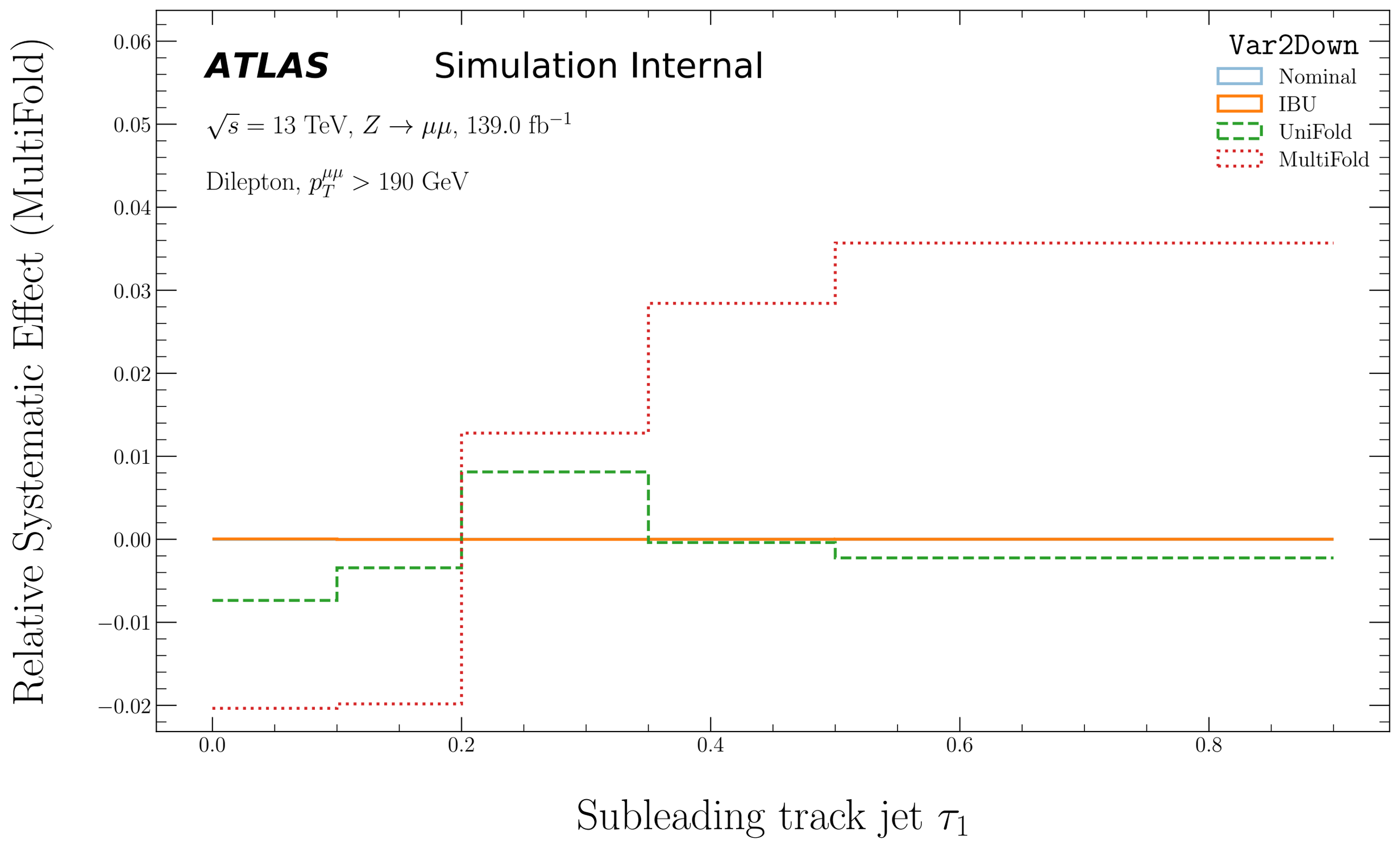

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.03
0.02
0.01
0.00
−0.01
−0.02
0.0
0.2
0.4
0.6
0.8
Subleading track jet τ_1

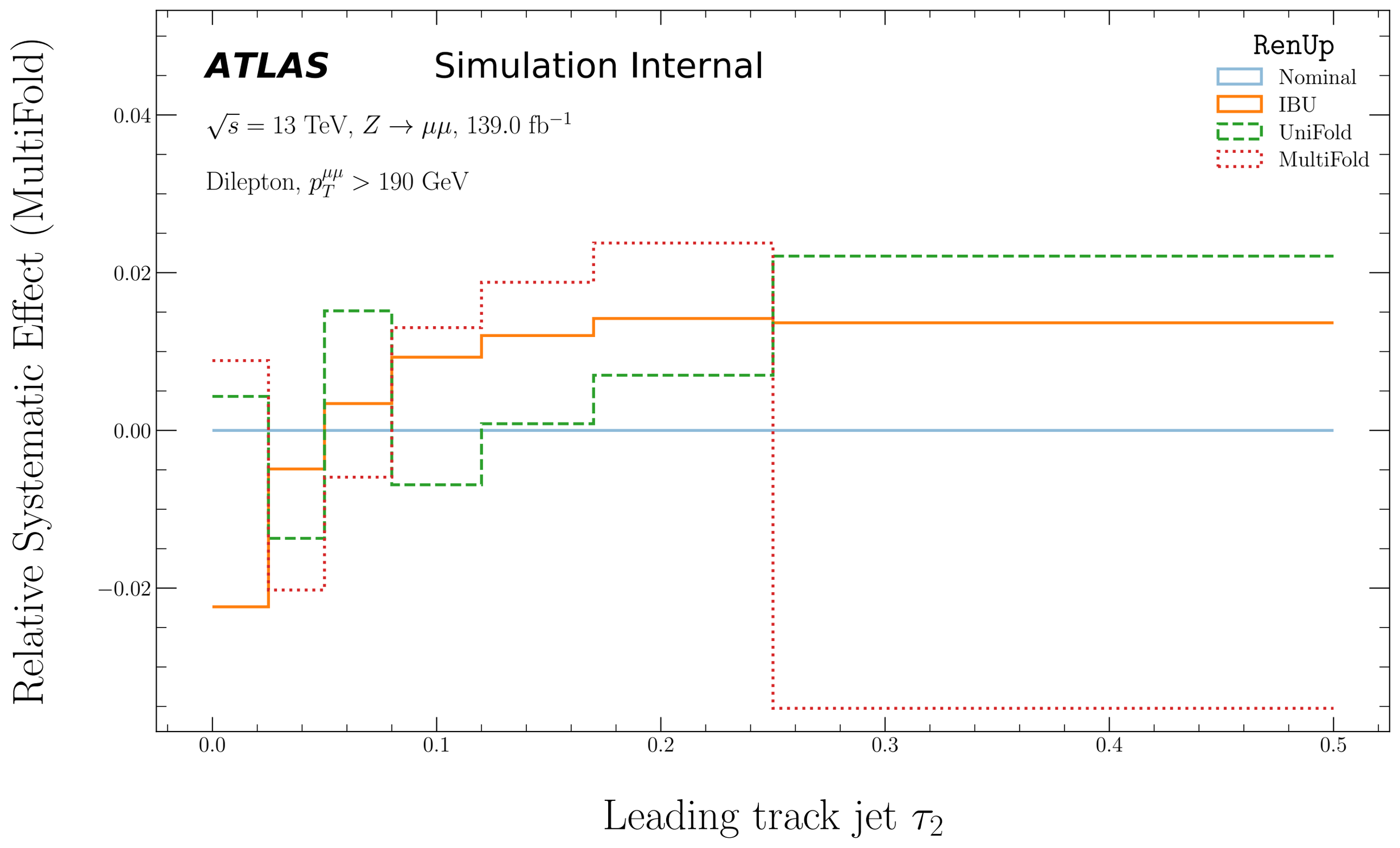

ATLAS
Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet τ_1
0.020
0.015
0.010
0.005
0.000
−0.005
−0.010
−0.015
0.0
0.2
0.4
0.6
0.8

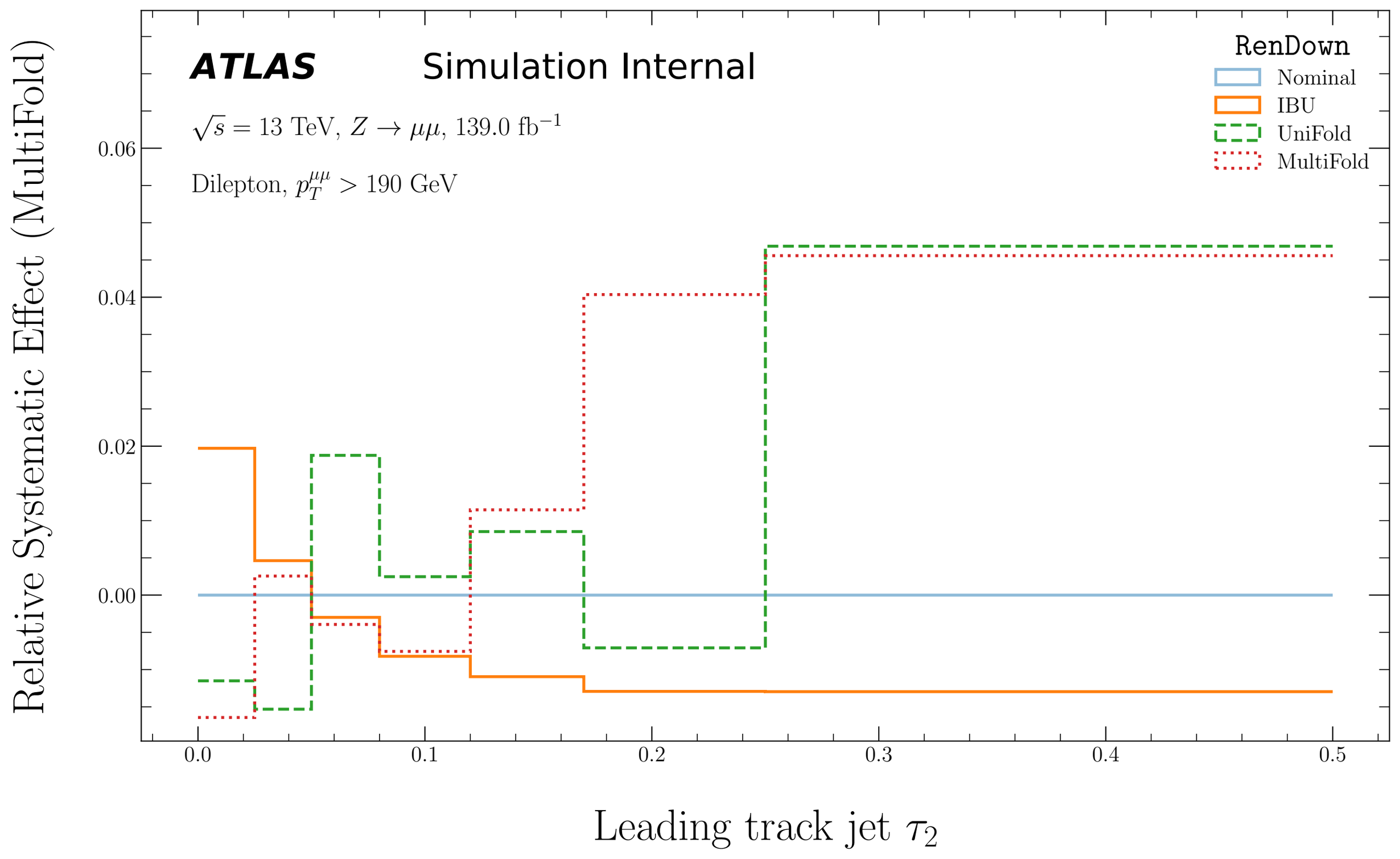

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet τ_1
0.06
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
0.0
0.2
0.4
0.6
0.8

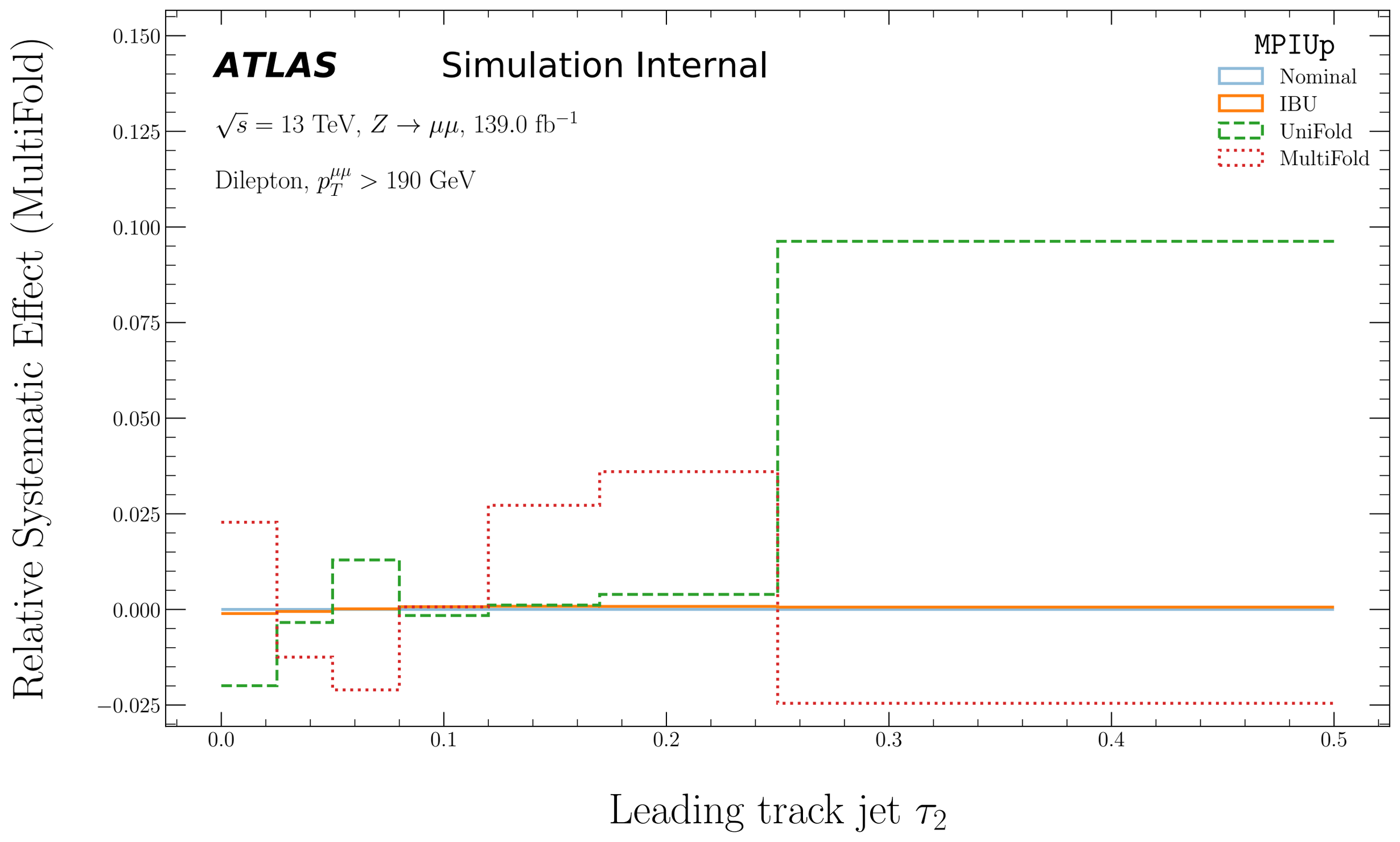

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
0.0
0.2
0.4
0.6
0.8
Subleading track jet τ_1

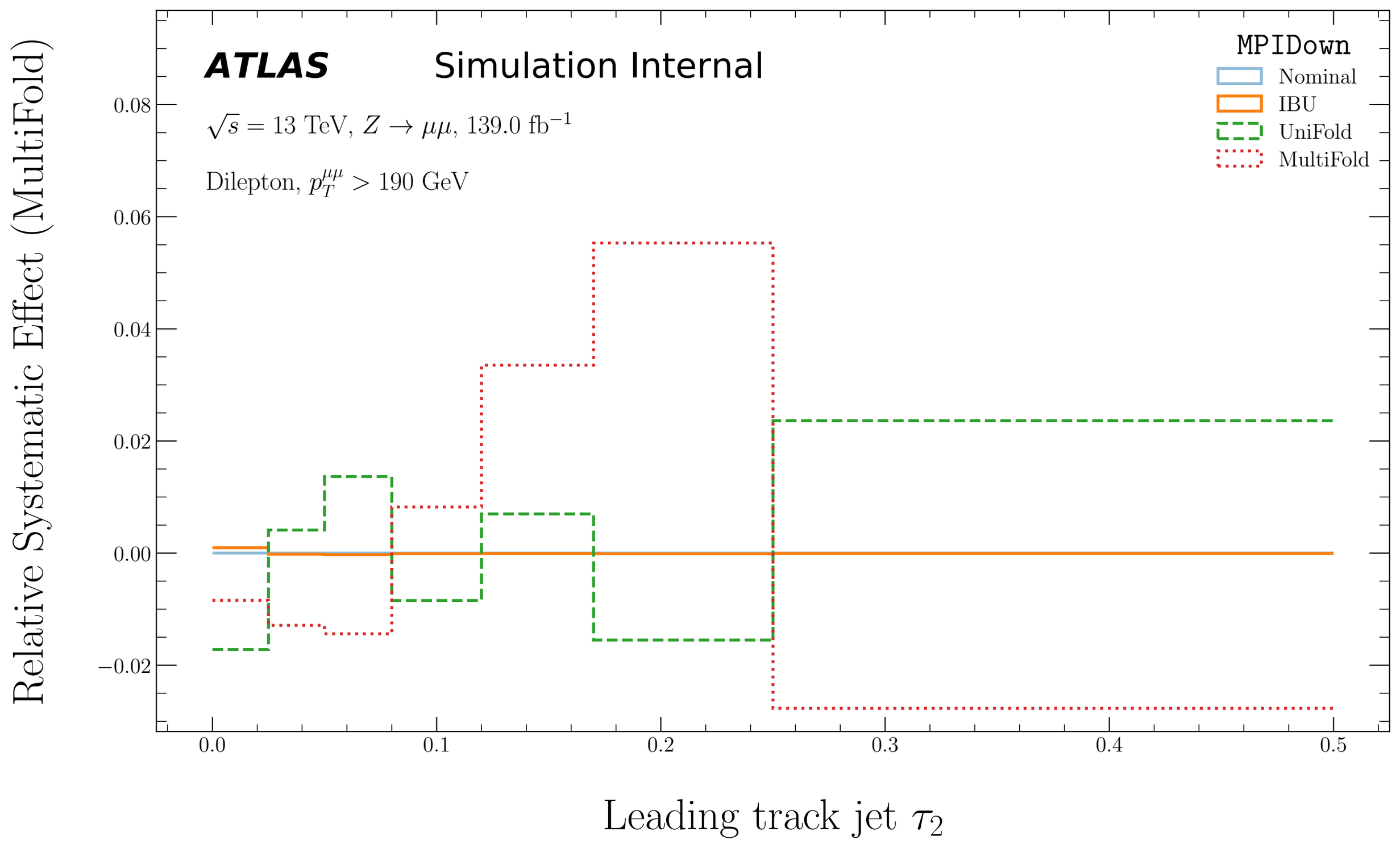

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet τ_1
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
0.0
0.2
0.4
0.6
0.8

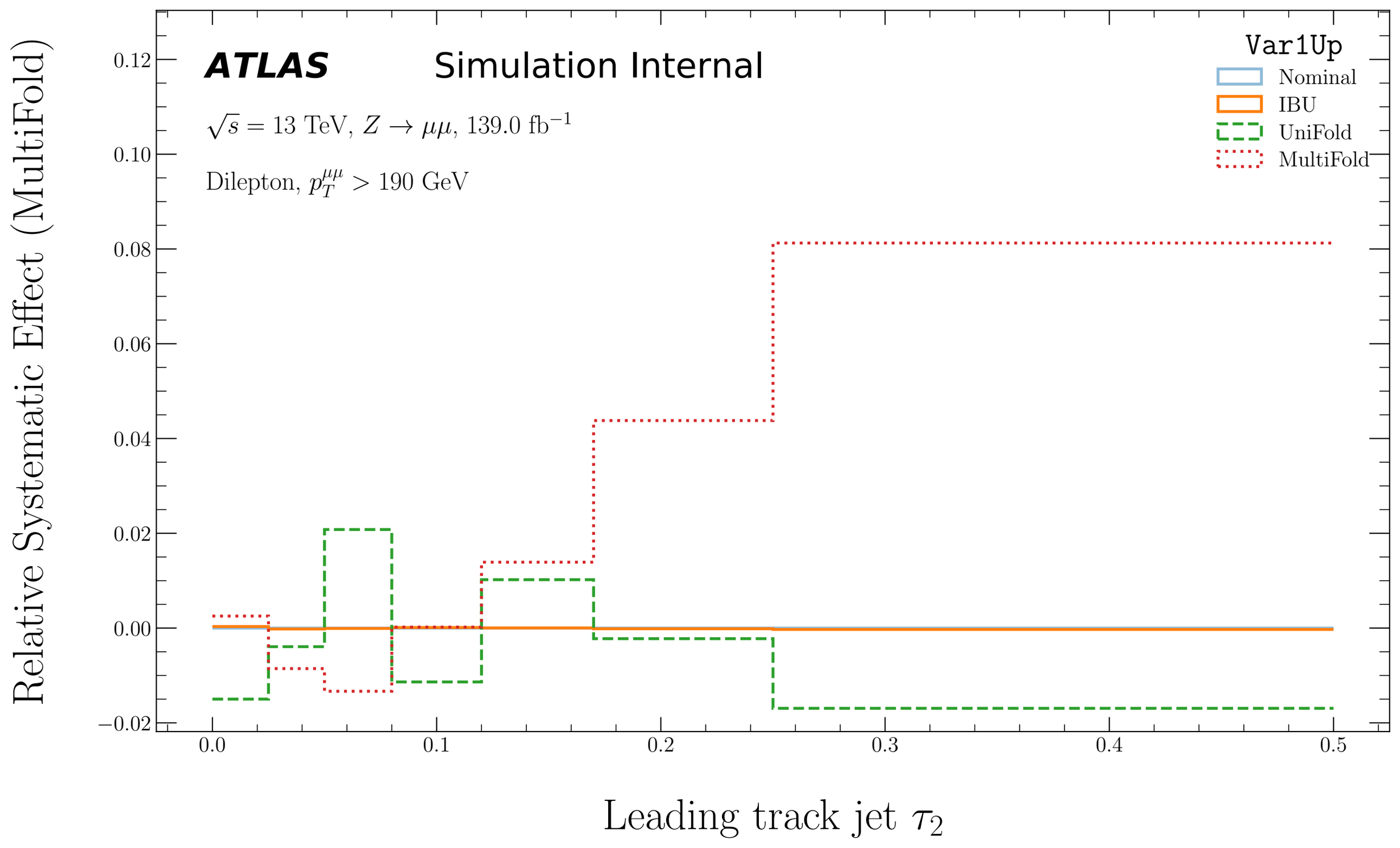

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.06
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
0.0
0.2
0.4
0.6
0.8
Subleading track jet τ_1

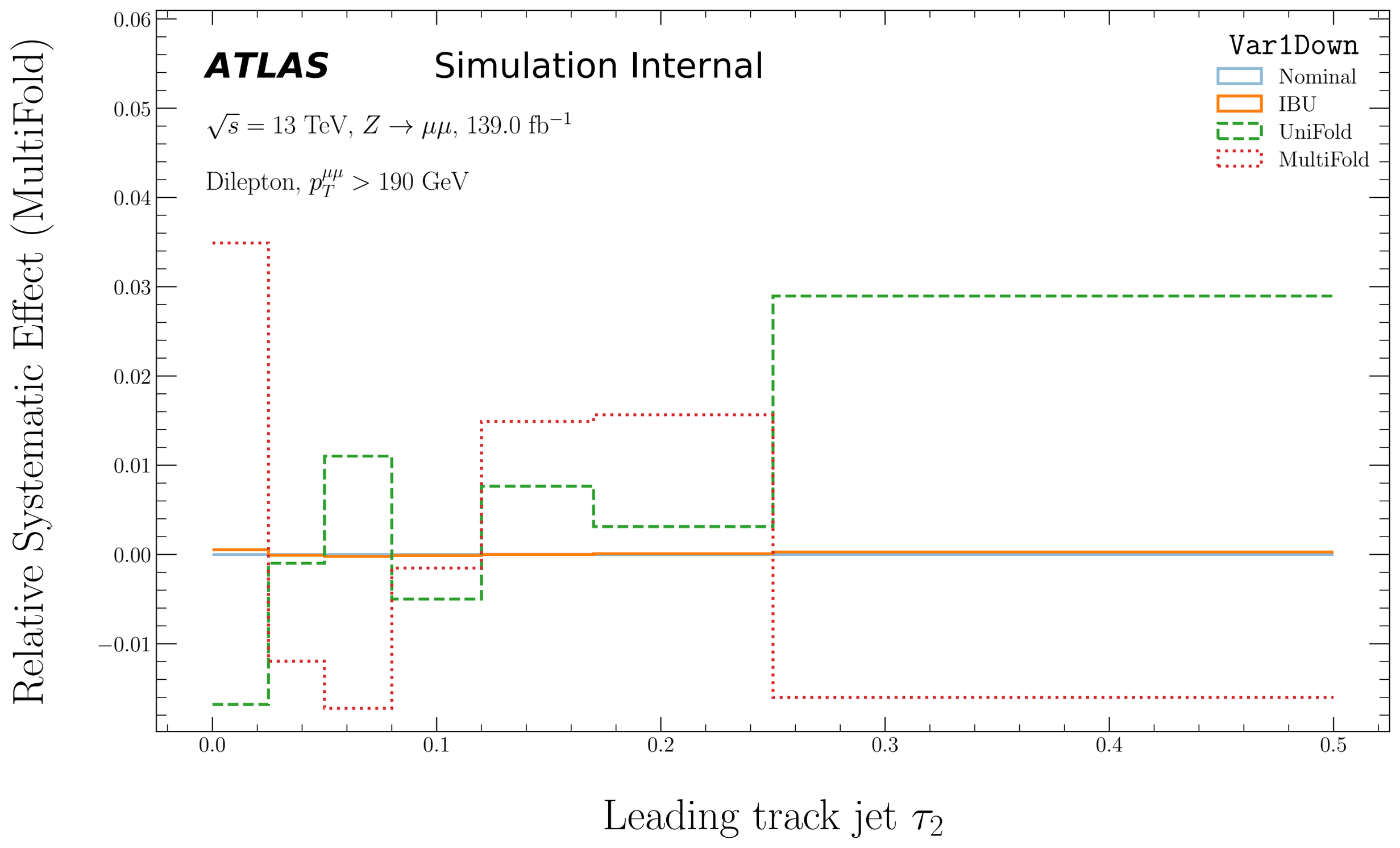

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.04
0.02
0.00
−0.02
0.0
0.1
0.2
0.3
0.4
0.5
Leading track jet τ_2

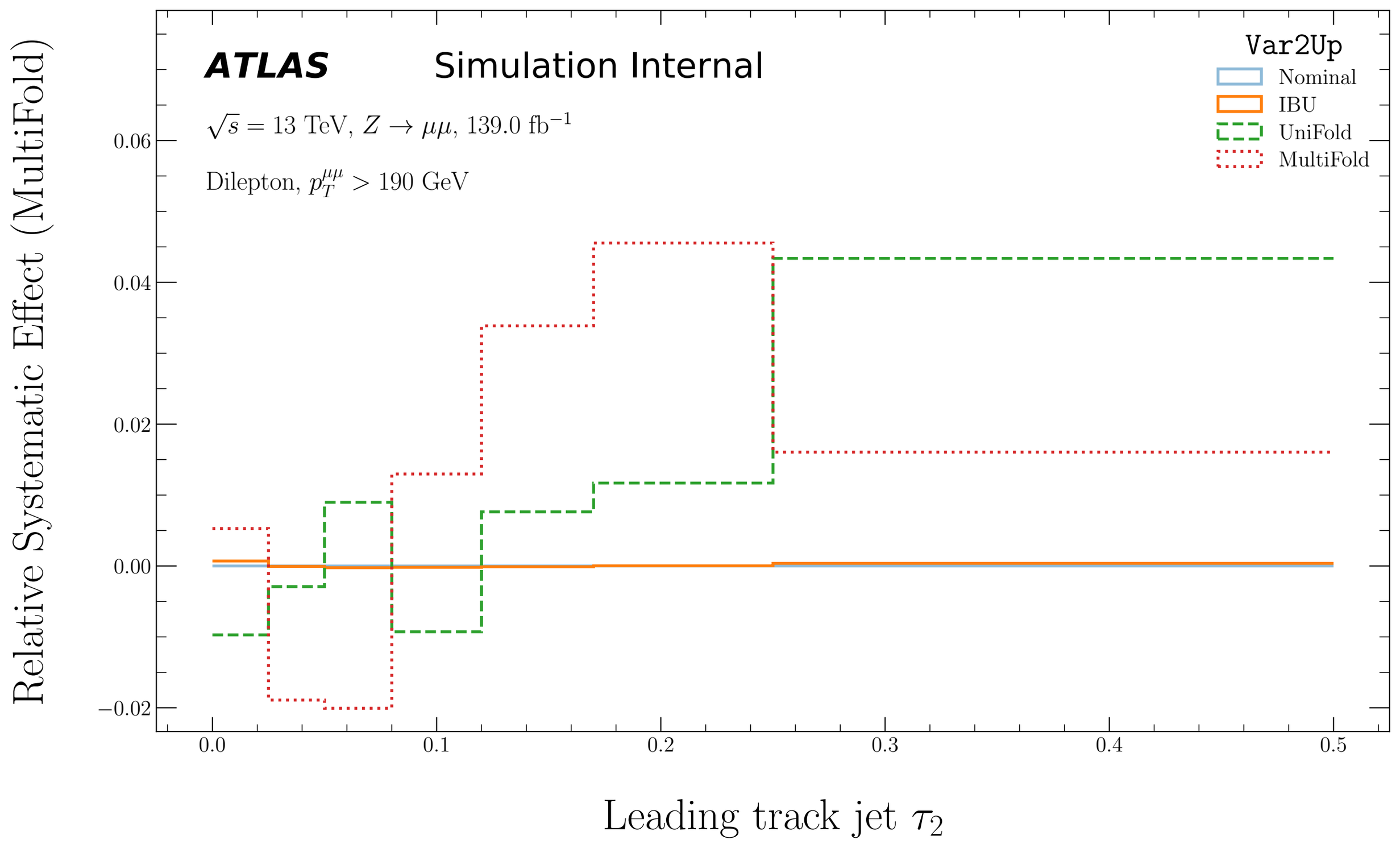

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.06
0.04
0.02
0.00
0.0
0.1
0.2
0.3
0.4
0.5
Leading track jet τ_2

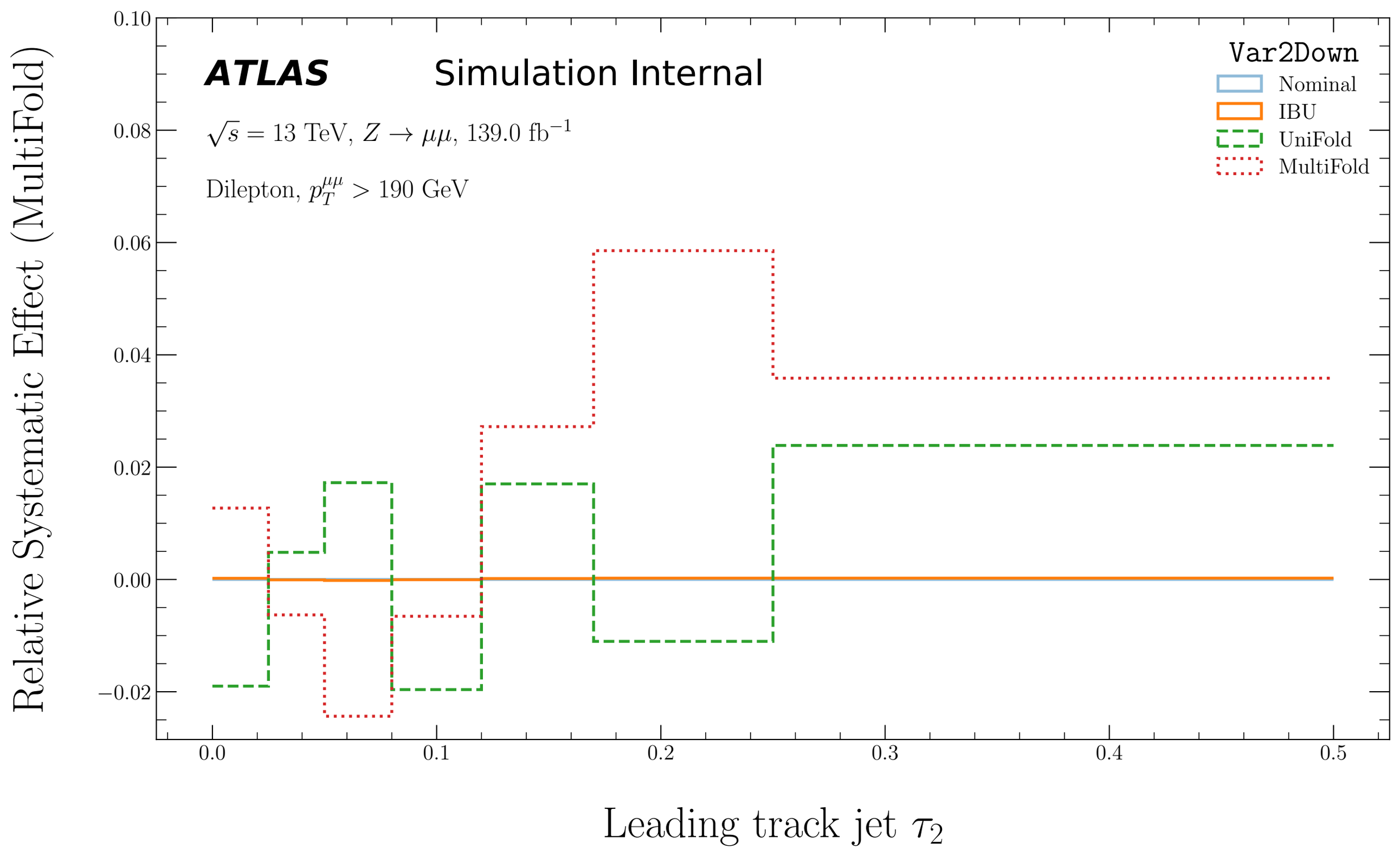

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet τ_2
0.150
0.125
0.100
0.075
0.050
0.025
0.000
−0.025
0.0
0.1
0.2
0.3
0.4
0.5

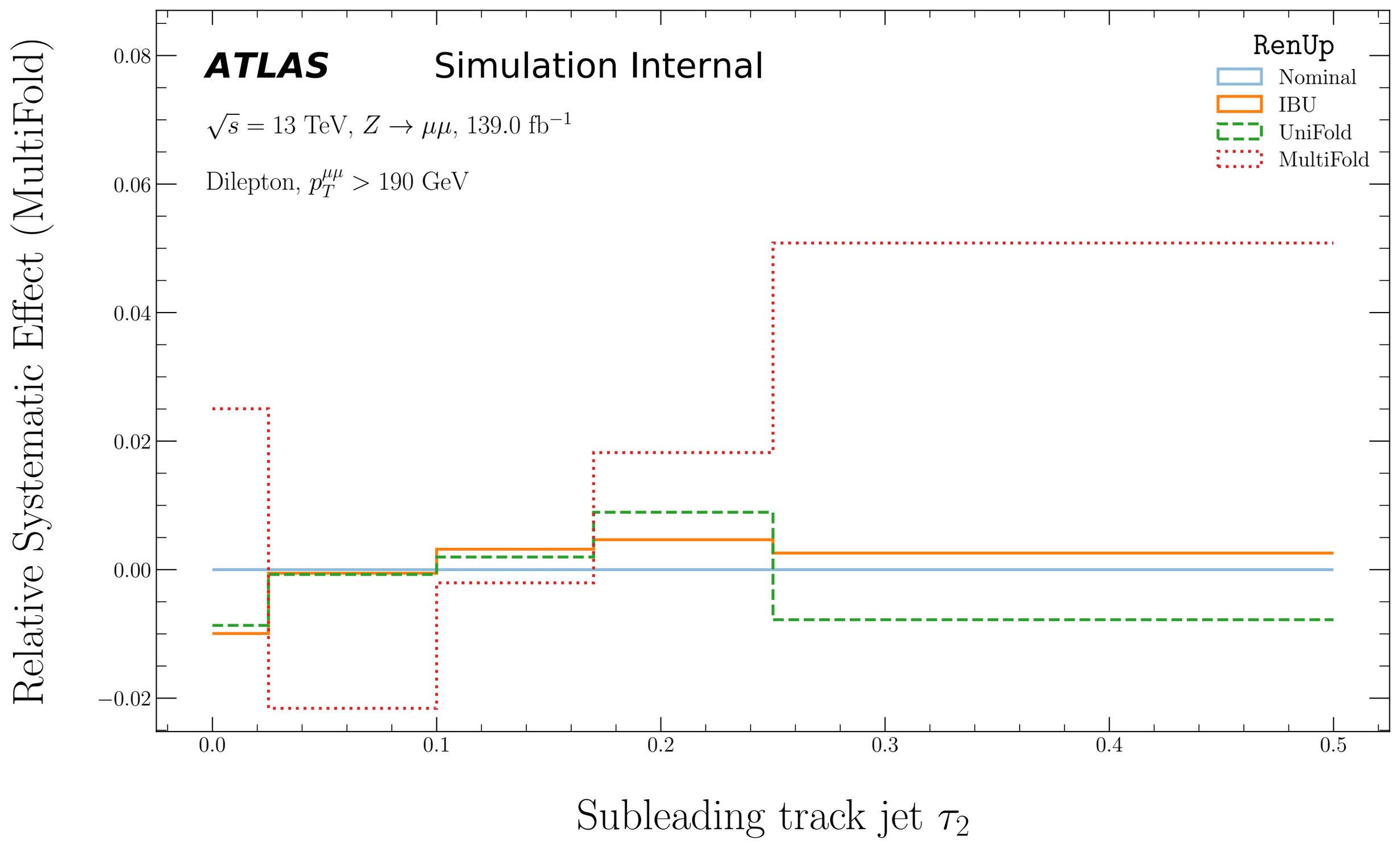

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
0.0
0.1
0.2
0.3
0.4
0.5
Leading track jet τ_2

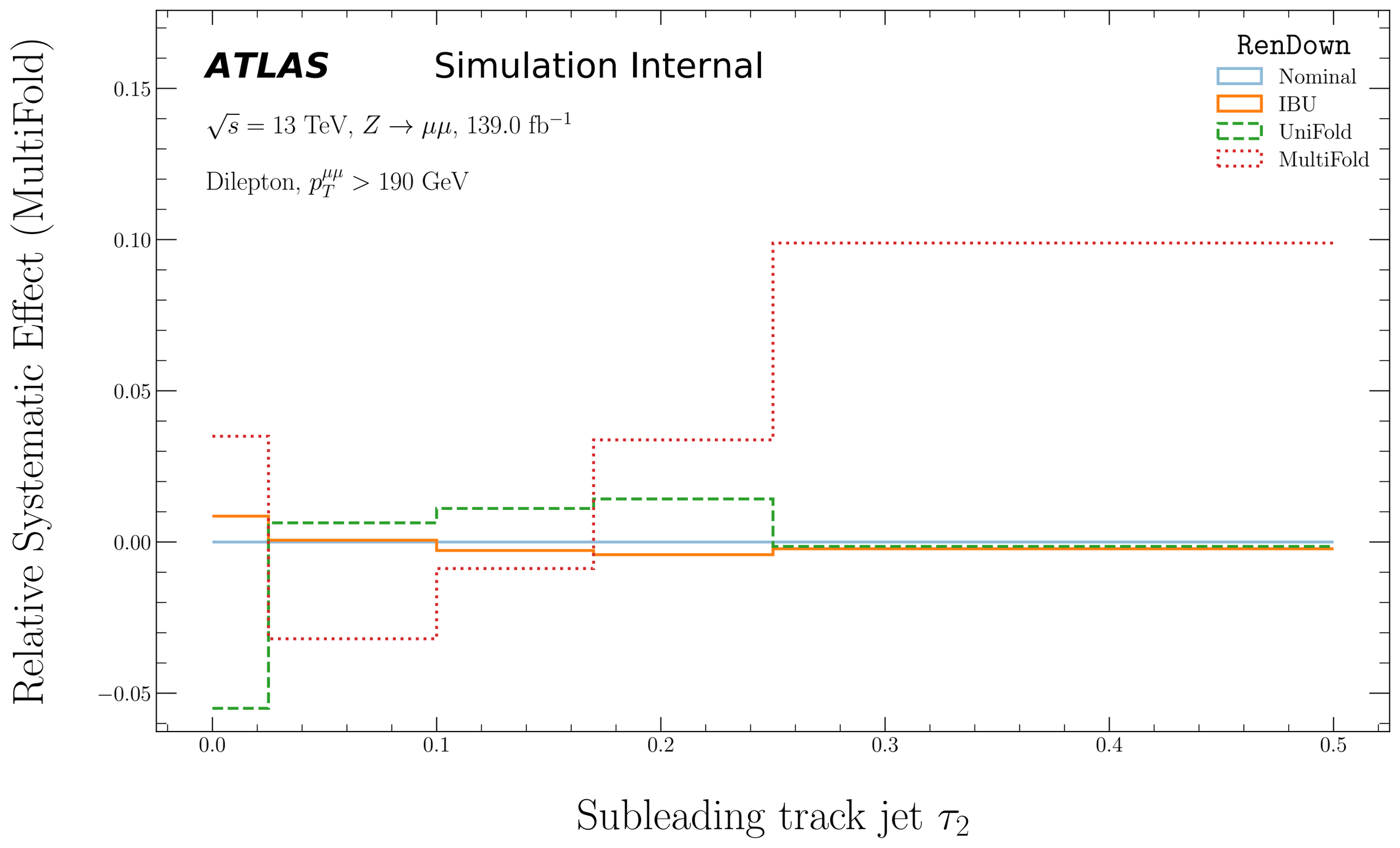

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet τ_2
0.12
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
0.0
0.1
0.2
0.3
0.4
0.5

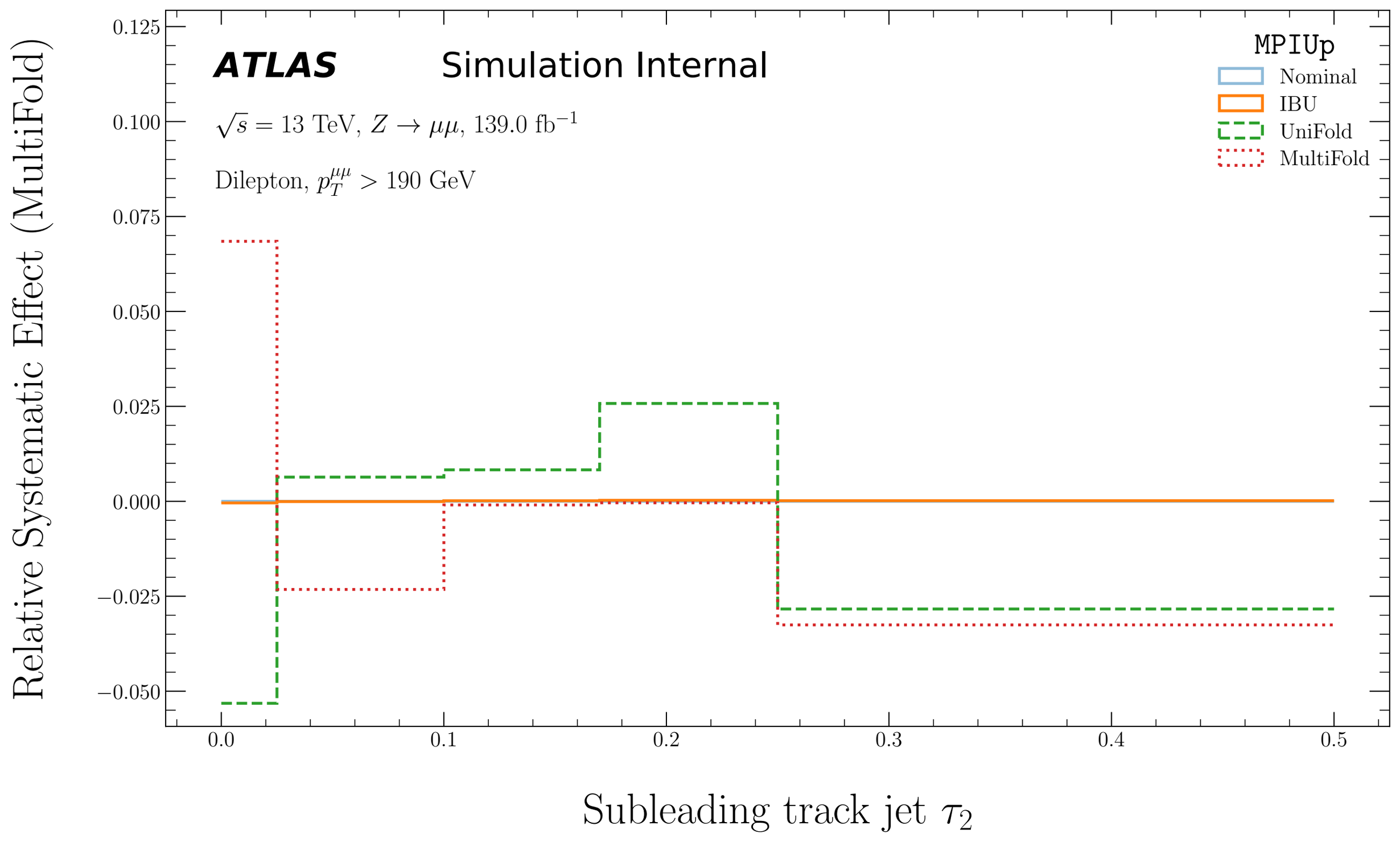

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet τ_2
0.06
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
0.0
0.1
0.2
0.3
0.4
0.5

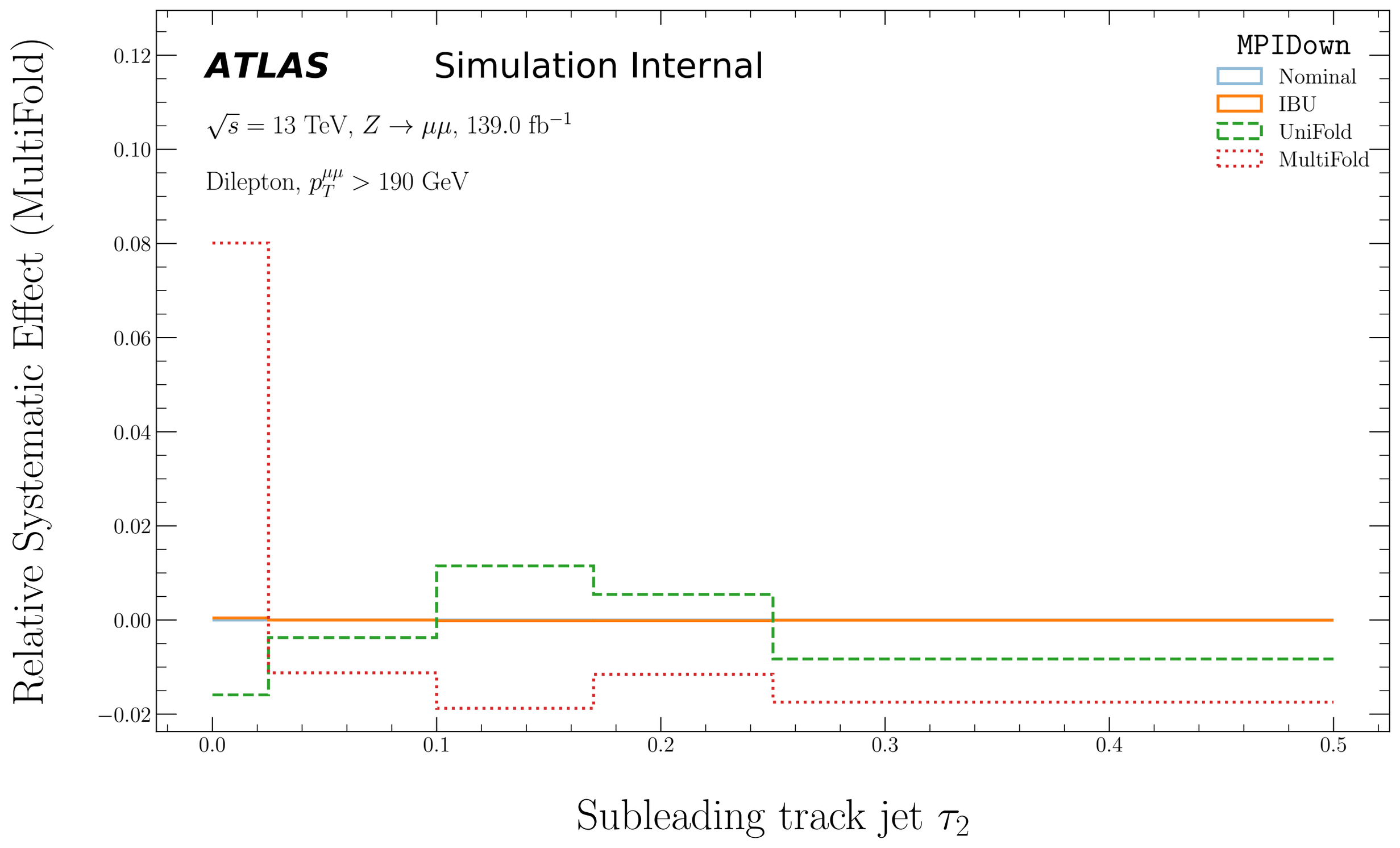

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.06
0.04
0.02
0.00
−0.02
0.0
0.1
0.2
0.3
0.4
0.5
Leading track jet τ_2

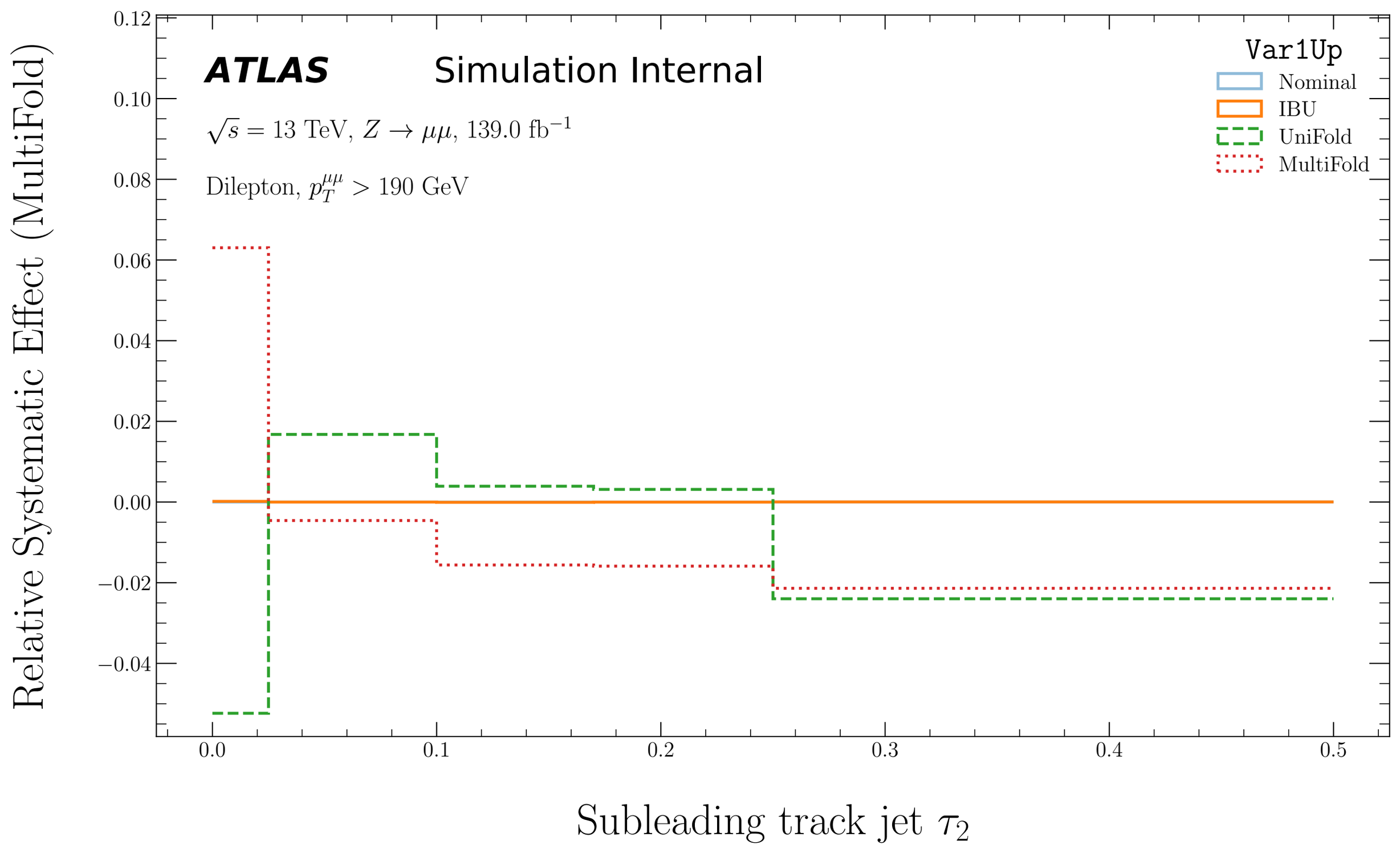

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet τ_2
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
0.0
0.1
0.2
0.3
0.4
0.5

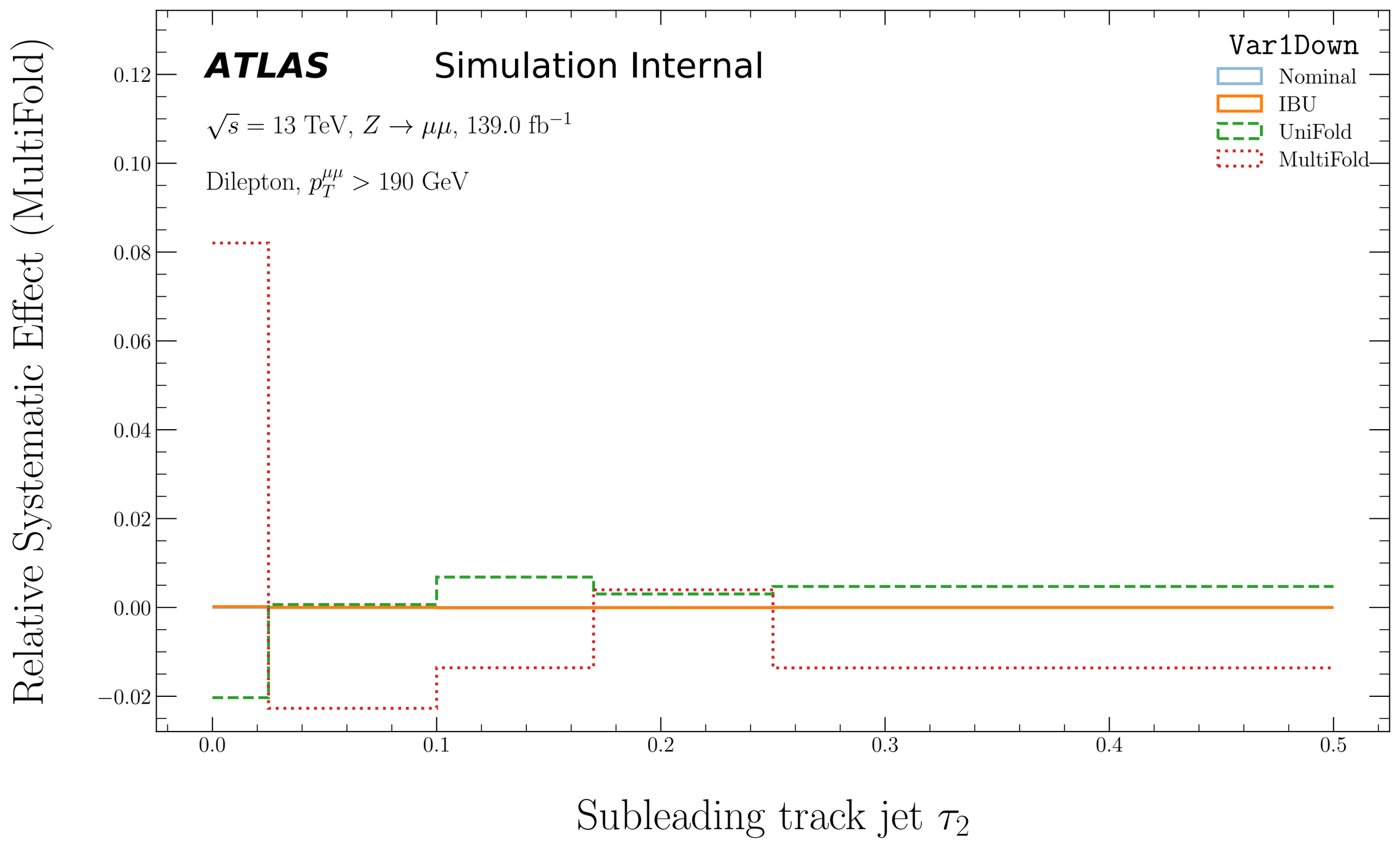

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
0.0
0.1
0.2
0.3
0.4
0.5
Subleading track jet τ_2

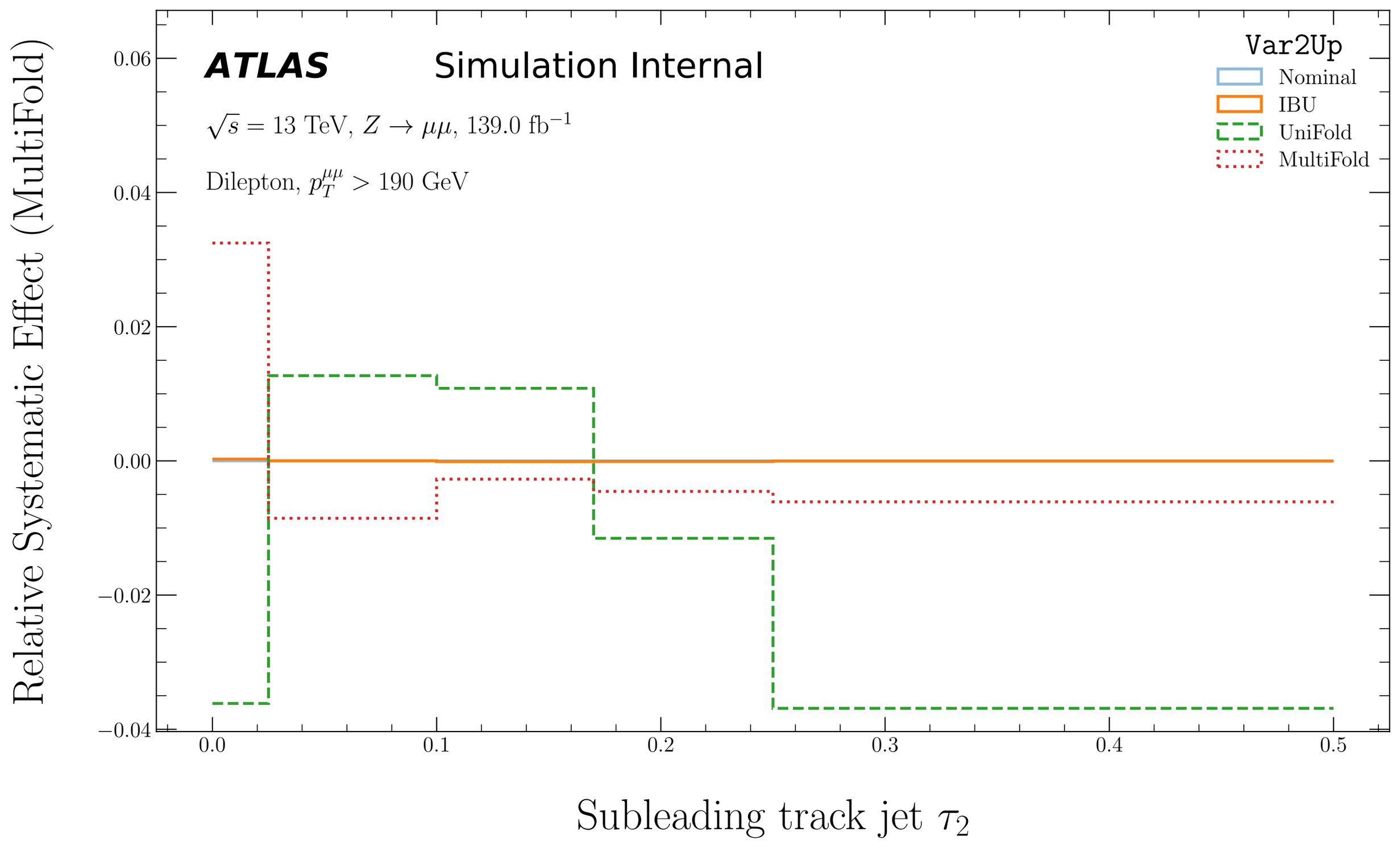

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
0.0
0.1
0.2
0.3
0.4
0.5
Subleading track jet τ_2

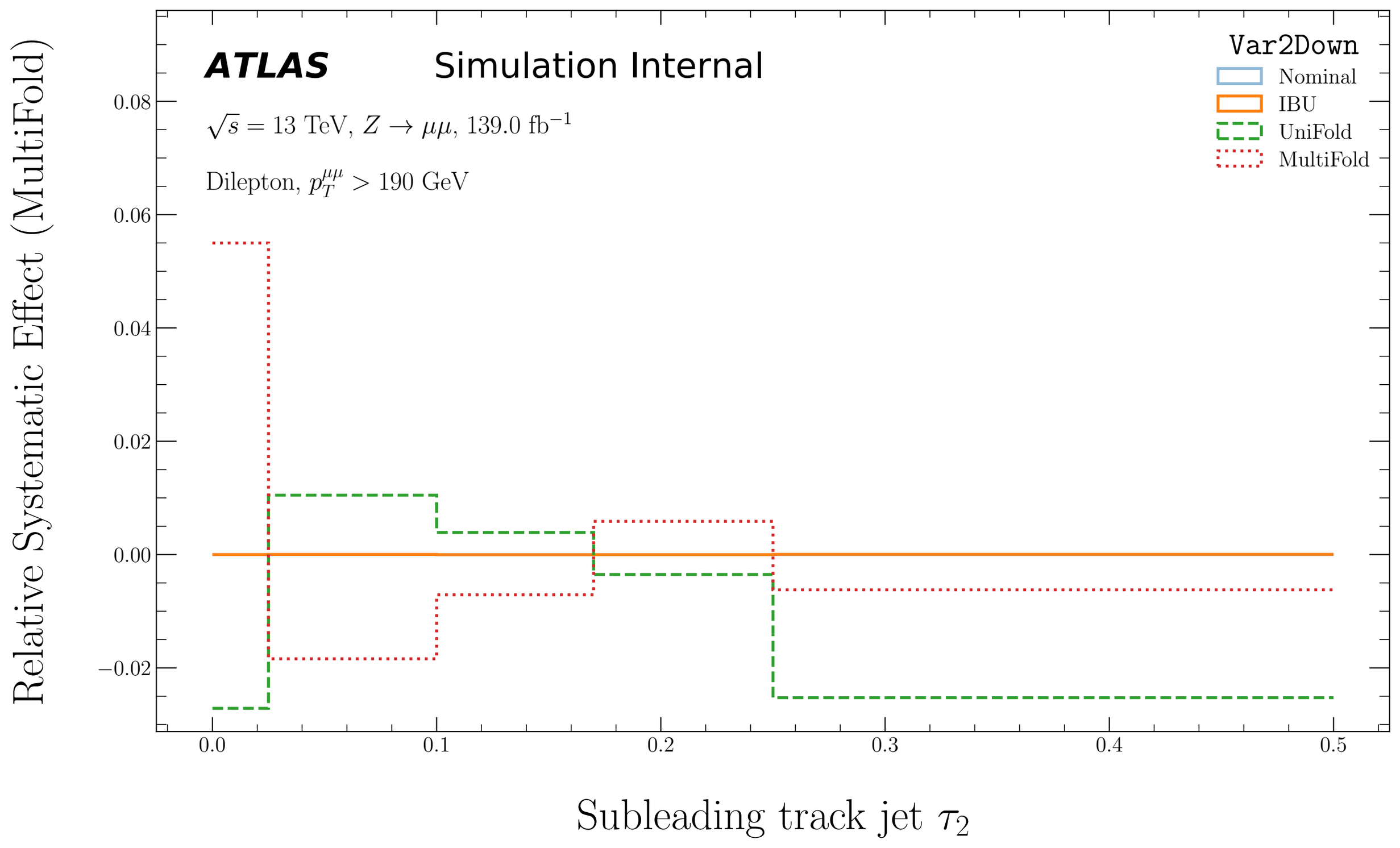

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet τ_2
0.125
0.100
0.075
0.050
0.025
0.000
−0.025
−0.050
0.0
0.1
0.2
0.3
0.4
0.5

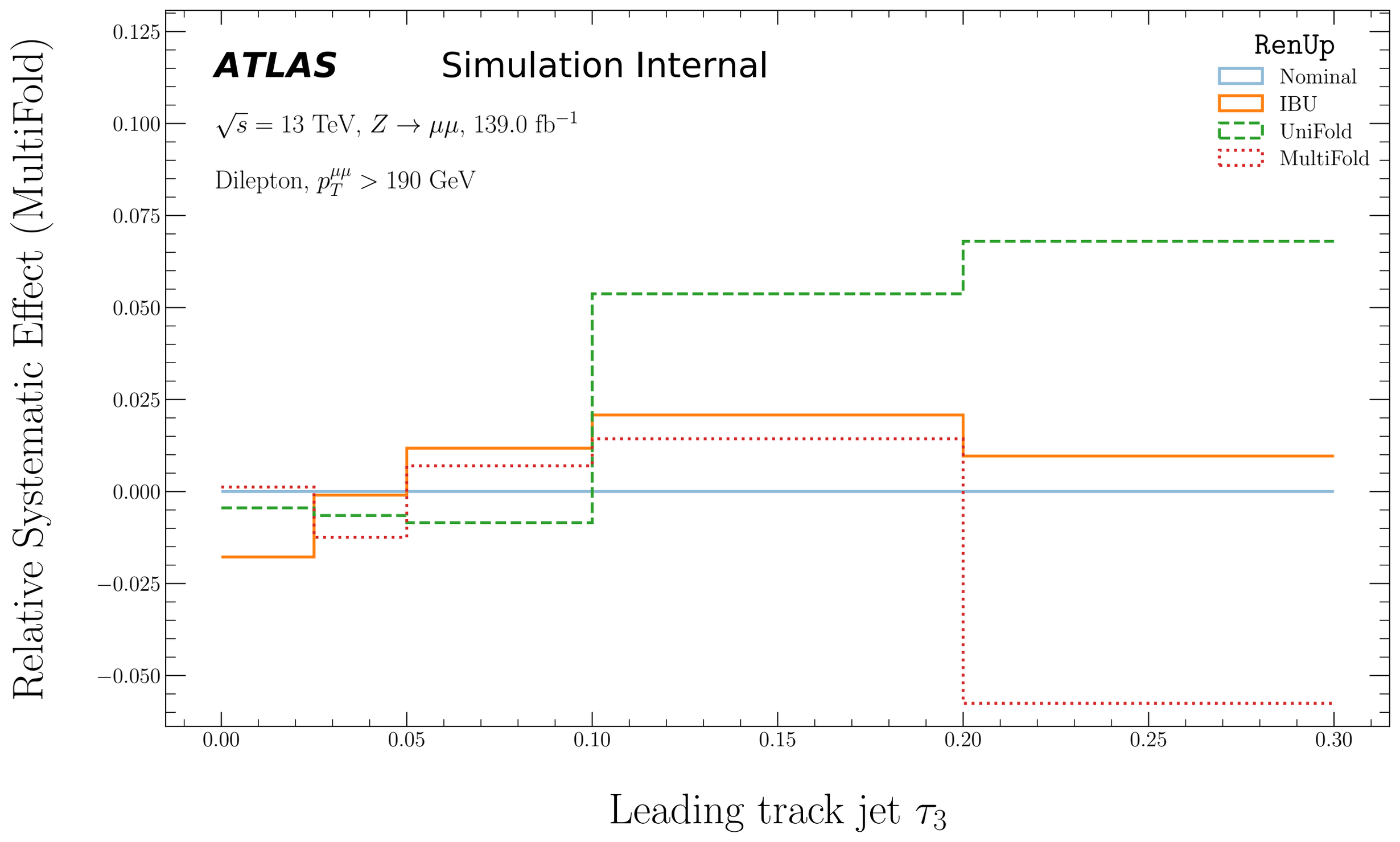

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet τ_2
0.12
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
0.0
0.1
0.2
0.3
0.4
0.5

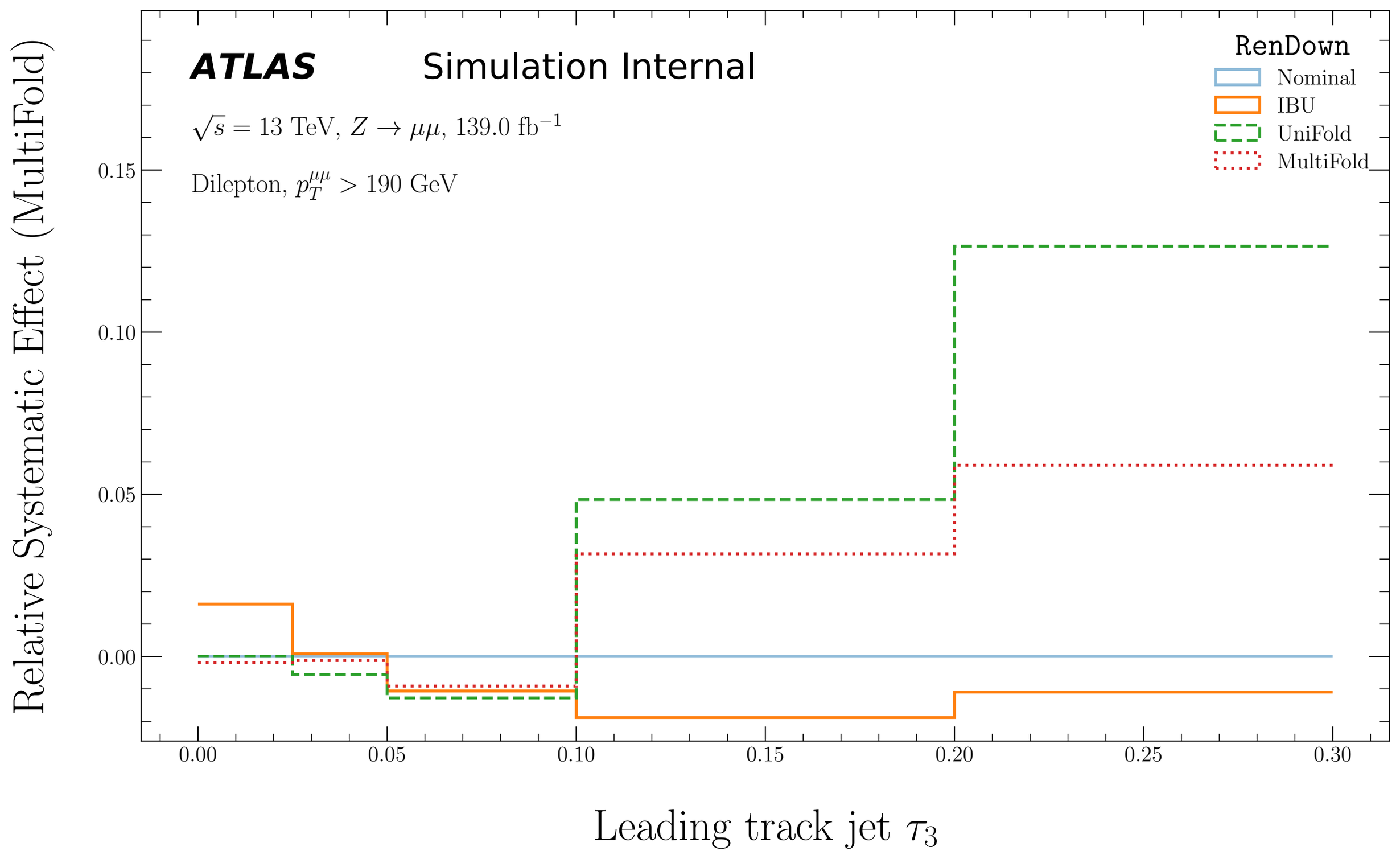

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet τ_2
0.12
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
−0.04
0.0
0.1
0.2
0.3
0.4
0.5

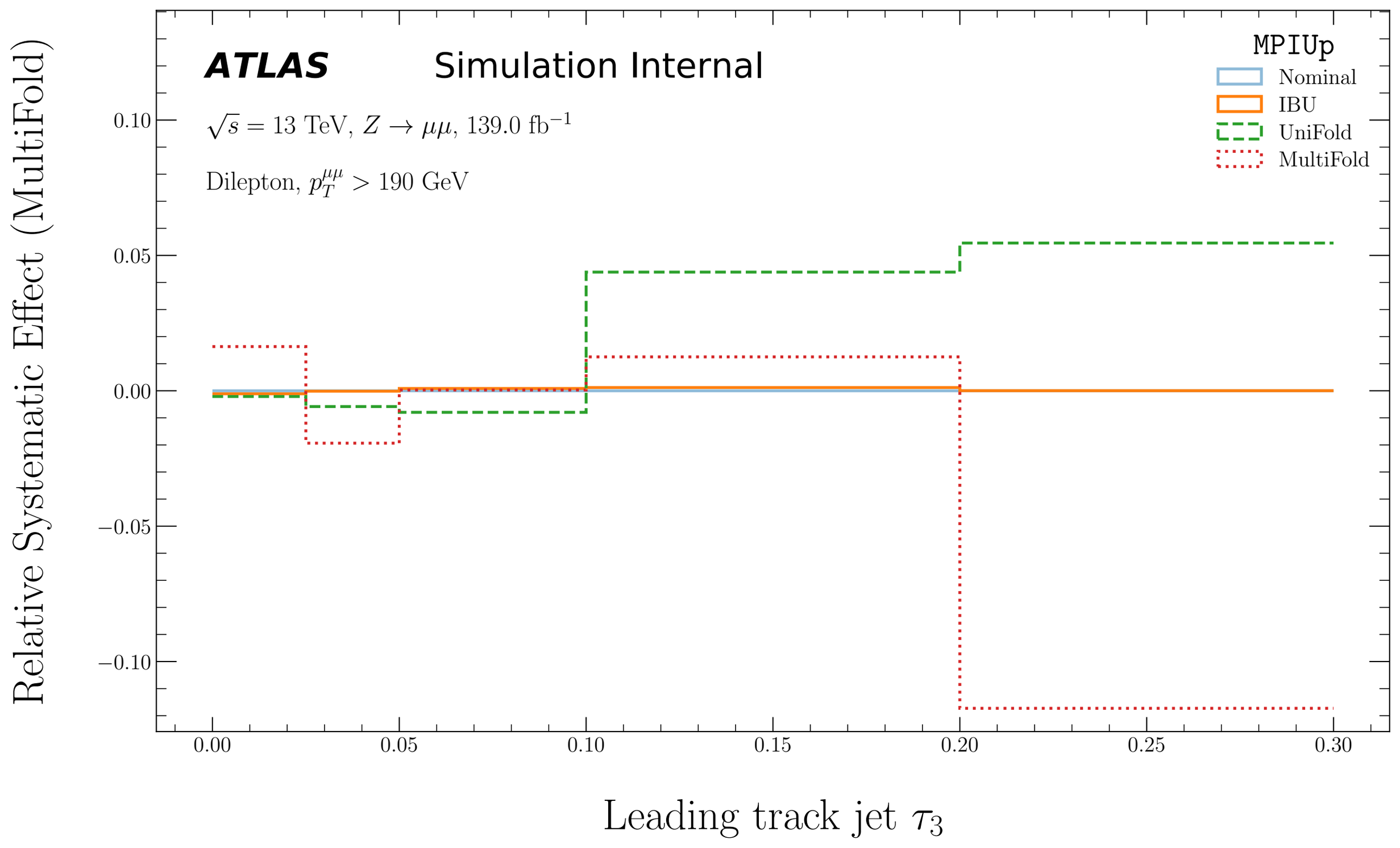

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.12
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
0.0
0.1
0.2
0.3
0.4
0.5
Subleading track jet τ_2

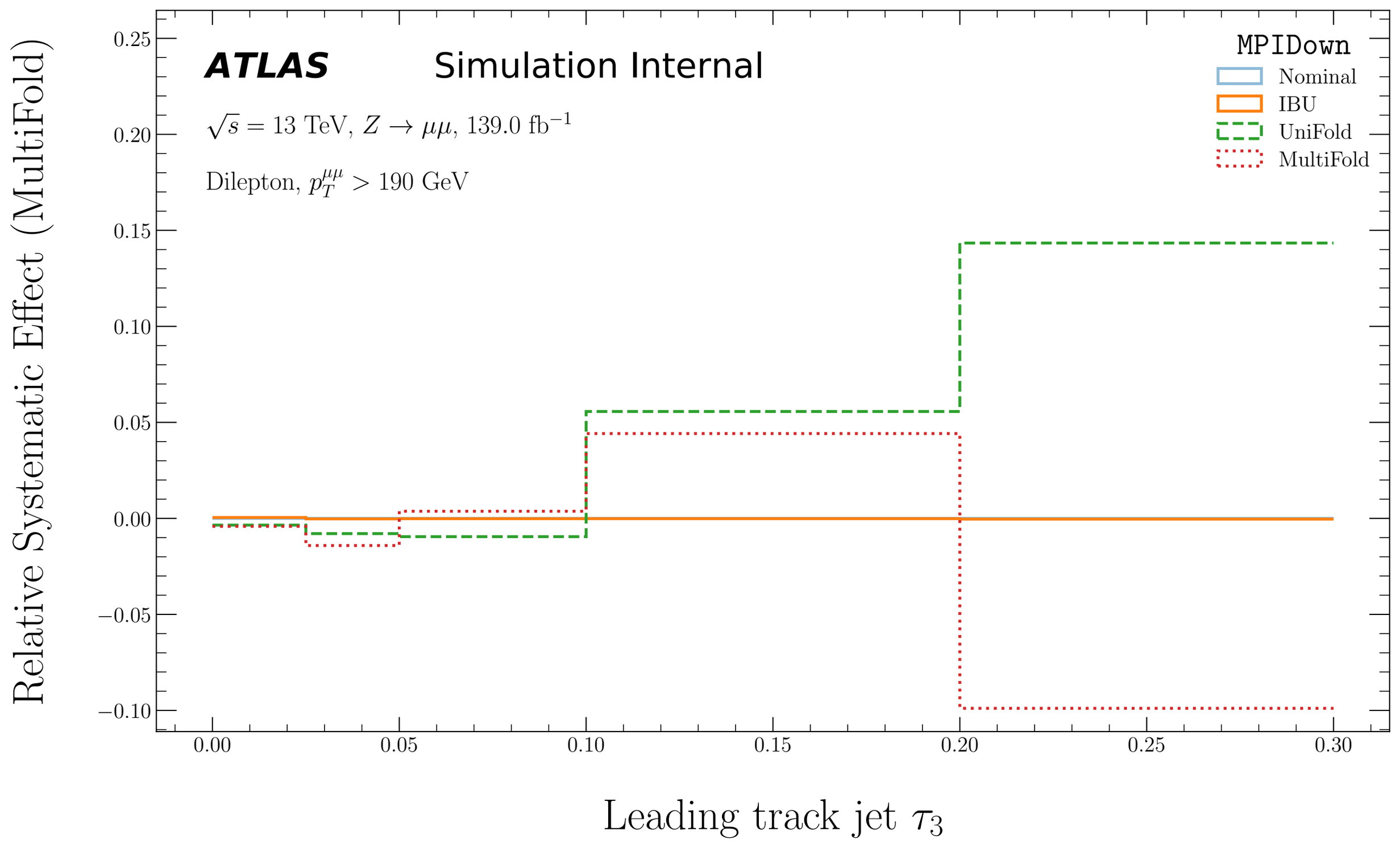

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.06
0.04
0.02
0.00
−0.02
−0.04
0.0
0.1
0.2
0.3
0.4
0.5
Subleading track jet τ_2

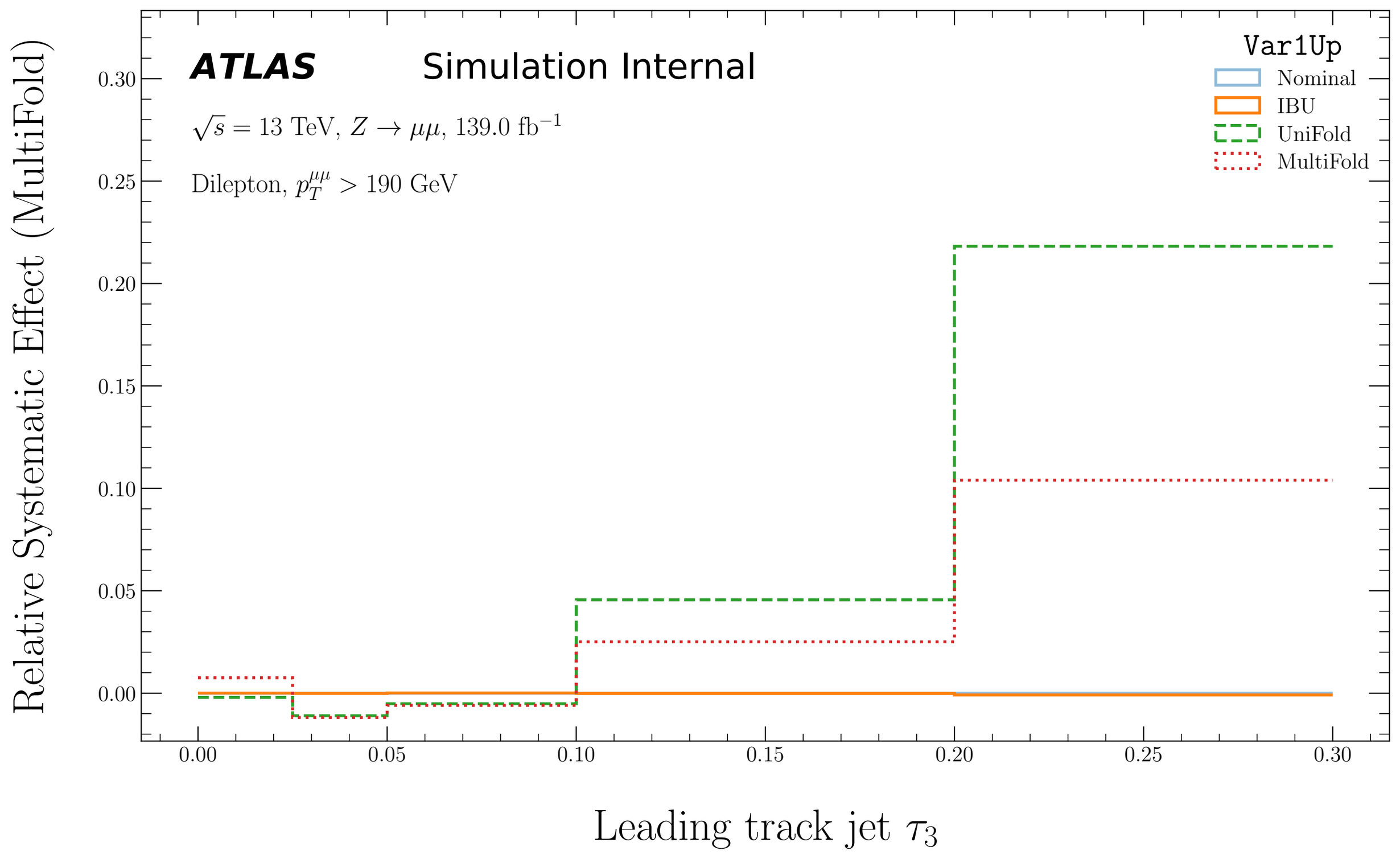

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
0.0
0.1
0.2
0.3
0.4
0.5
Subleading track jet τ_2

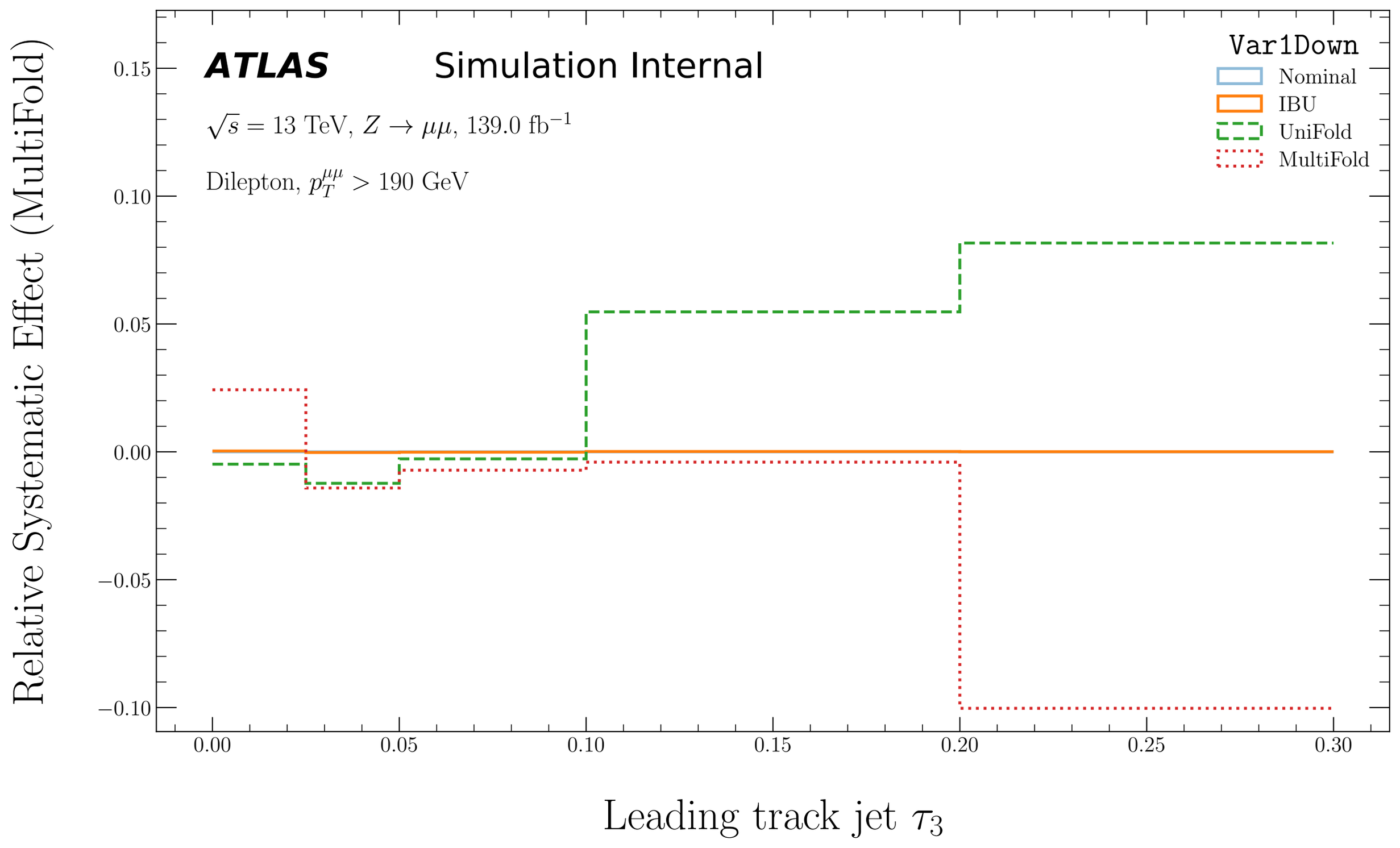

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet τ_3
0.125
0.100
0.075
0.050
0.025
0.000
−0.025
−0.050
0.00
0.05
0.10
0.15
0.20
0.25
0.30

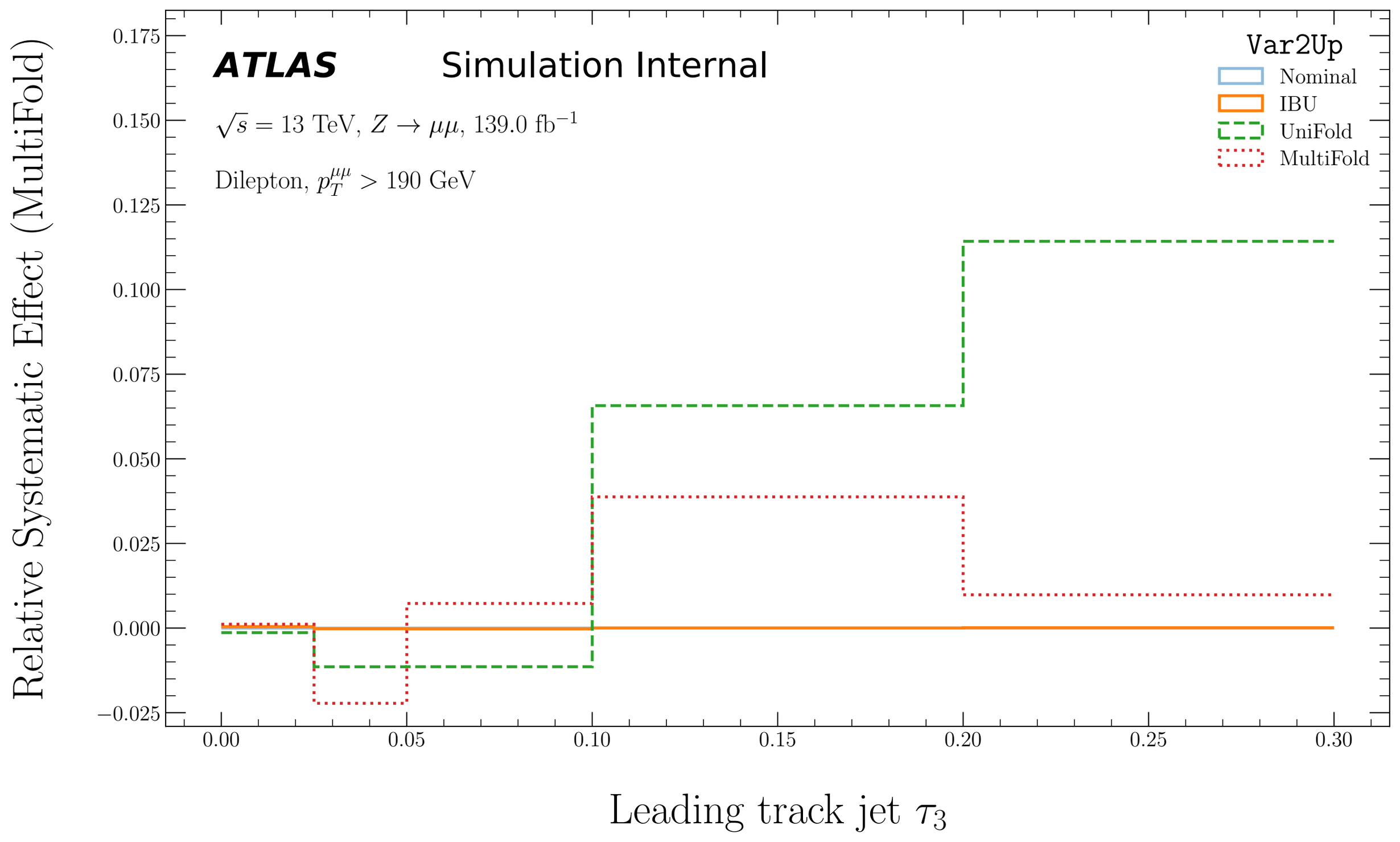

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Leading track jet τ_3

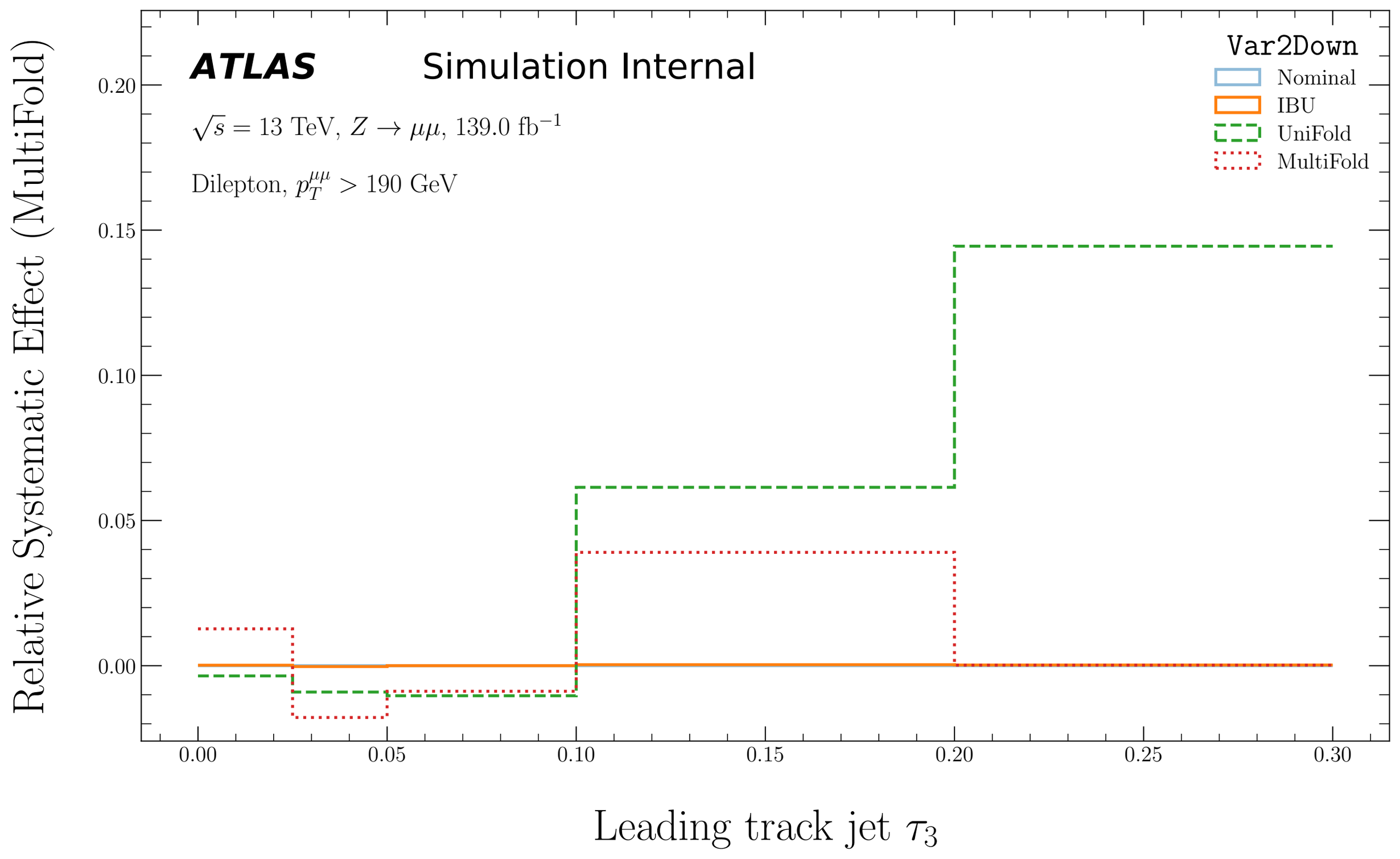

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.10
0.05
0.00
−0.05
−0.10
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Leading track jet τ_3

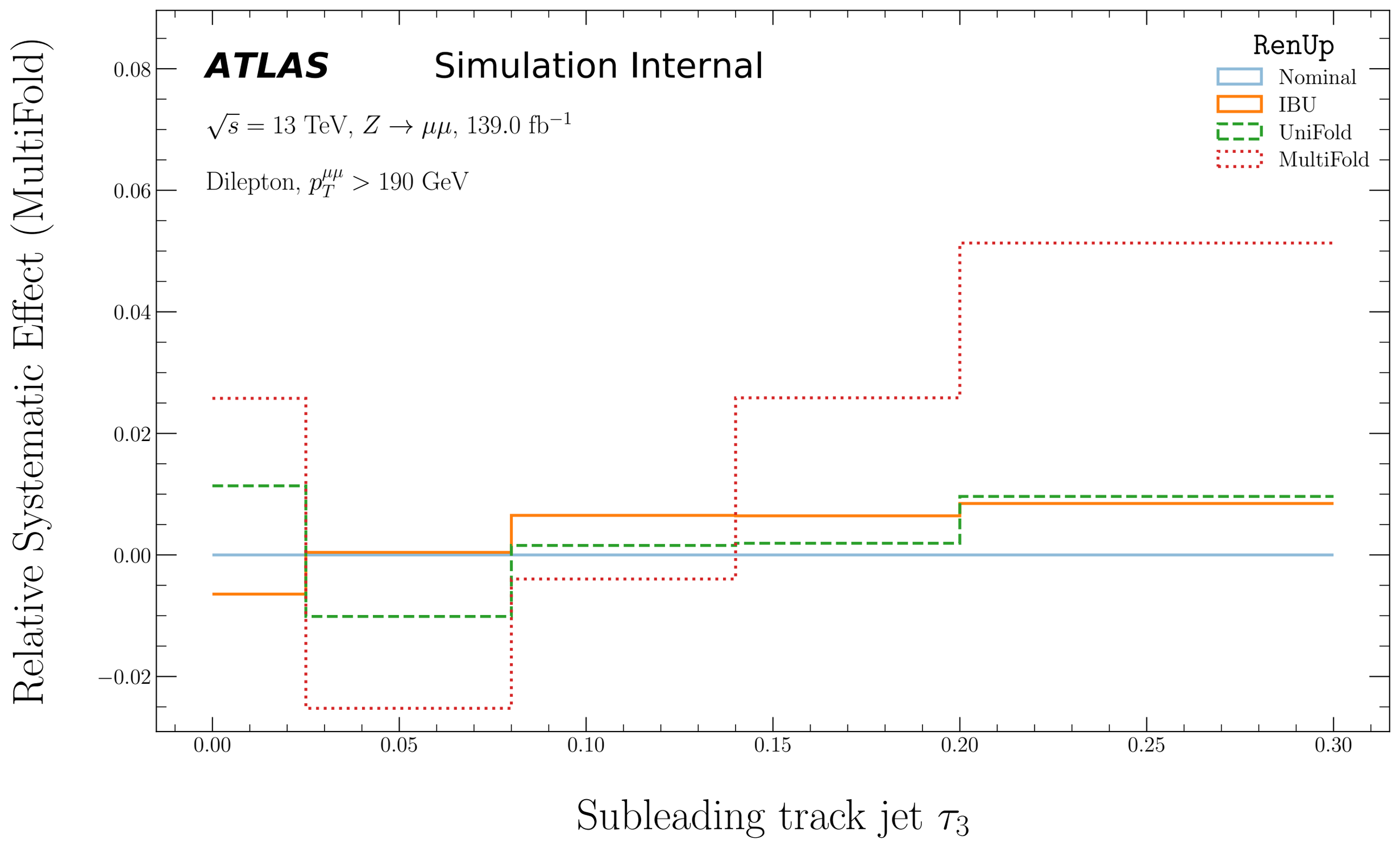

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet τ_3
0.25
0.20
0.15
0.10
0.05
0.00
−0.05
−0.10
0.00
0.05
0.10
0.15
0.20
0.25
0.30

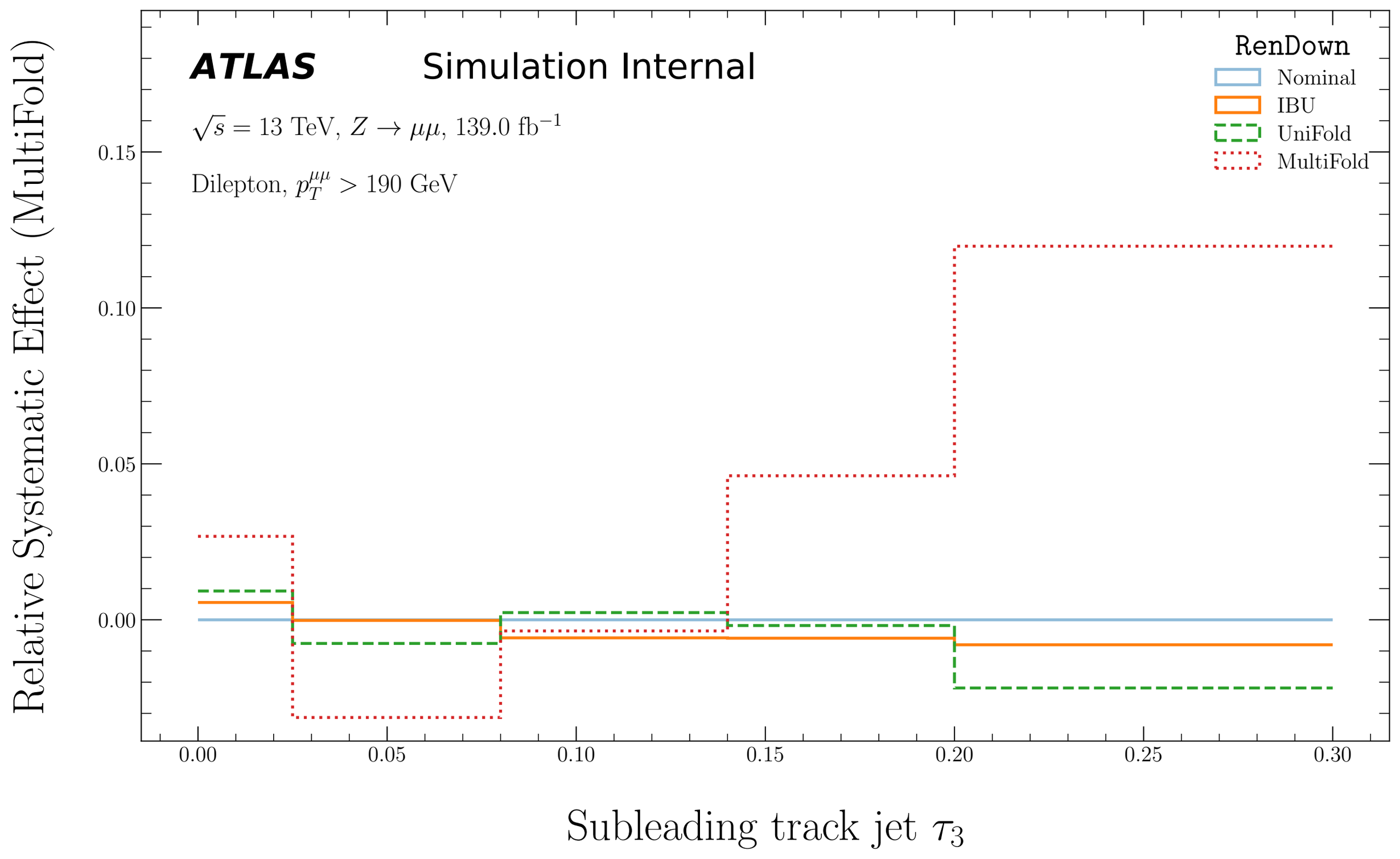

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet τ_3
0.00
0.05
0.10
0.15
0.20
0.25
0.30

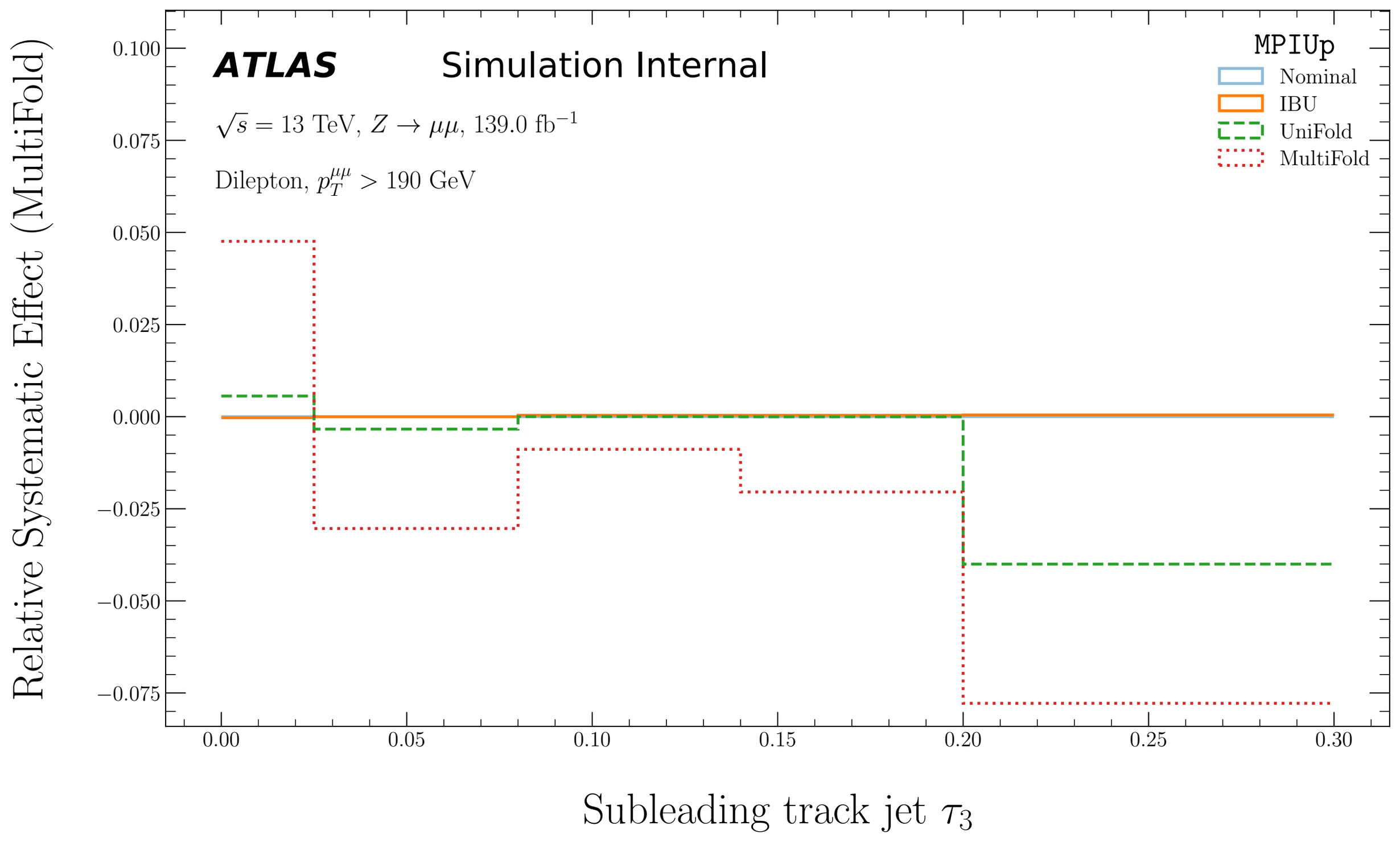

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet τ_3
0.15
0.10
0.05
0.00
−0.05
−0.10
0.00
0.05
0.10
0.15
0.20
0.25
0.30

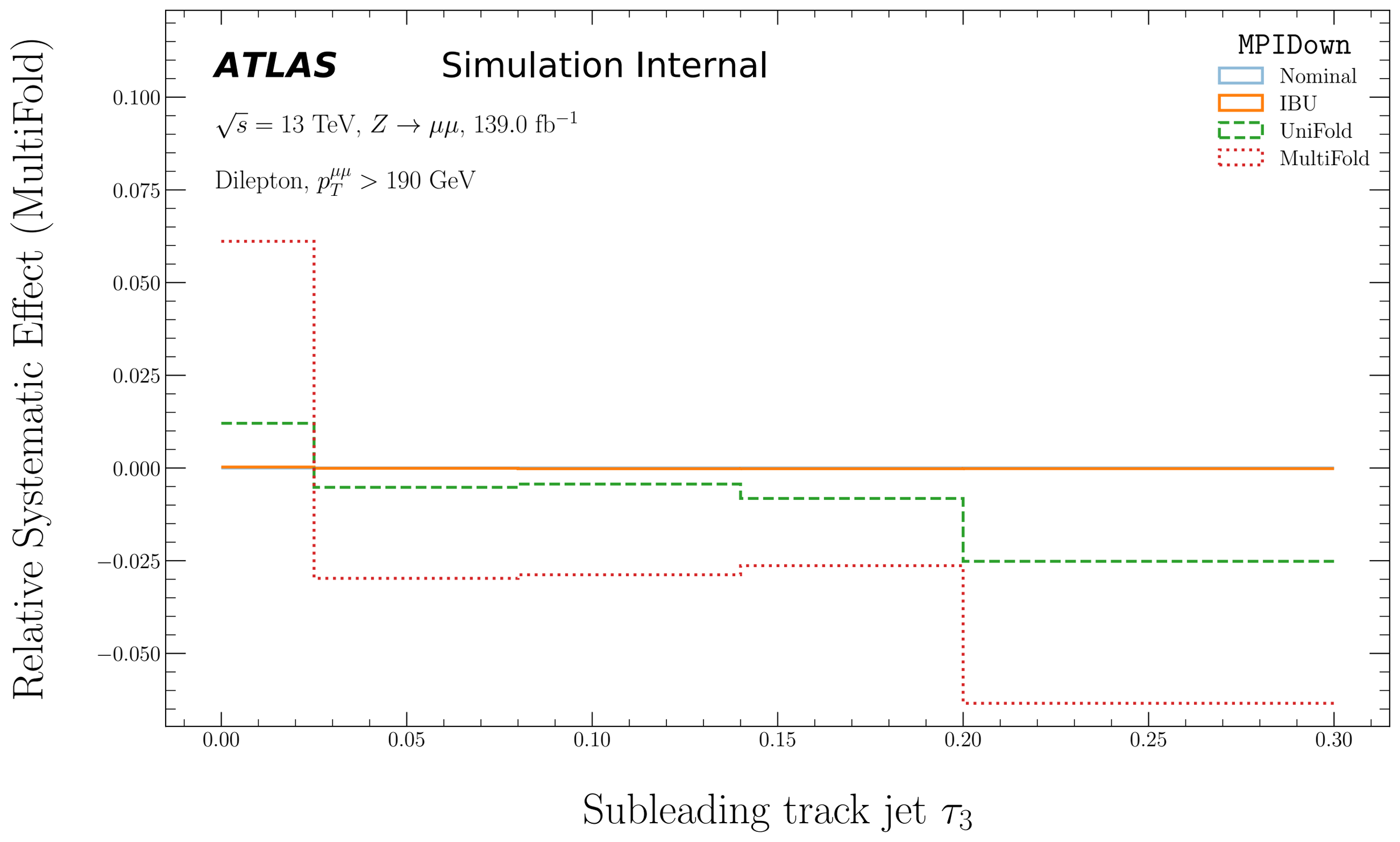

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Leading track jet τ_3
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
−0.025
0.00
0.05
0.10
0.15
0.20
0.25
0.30

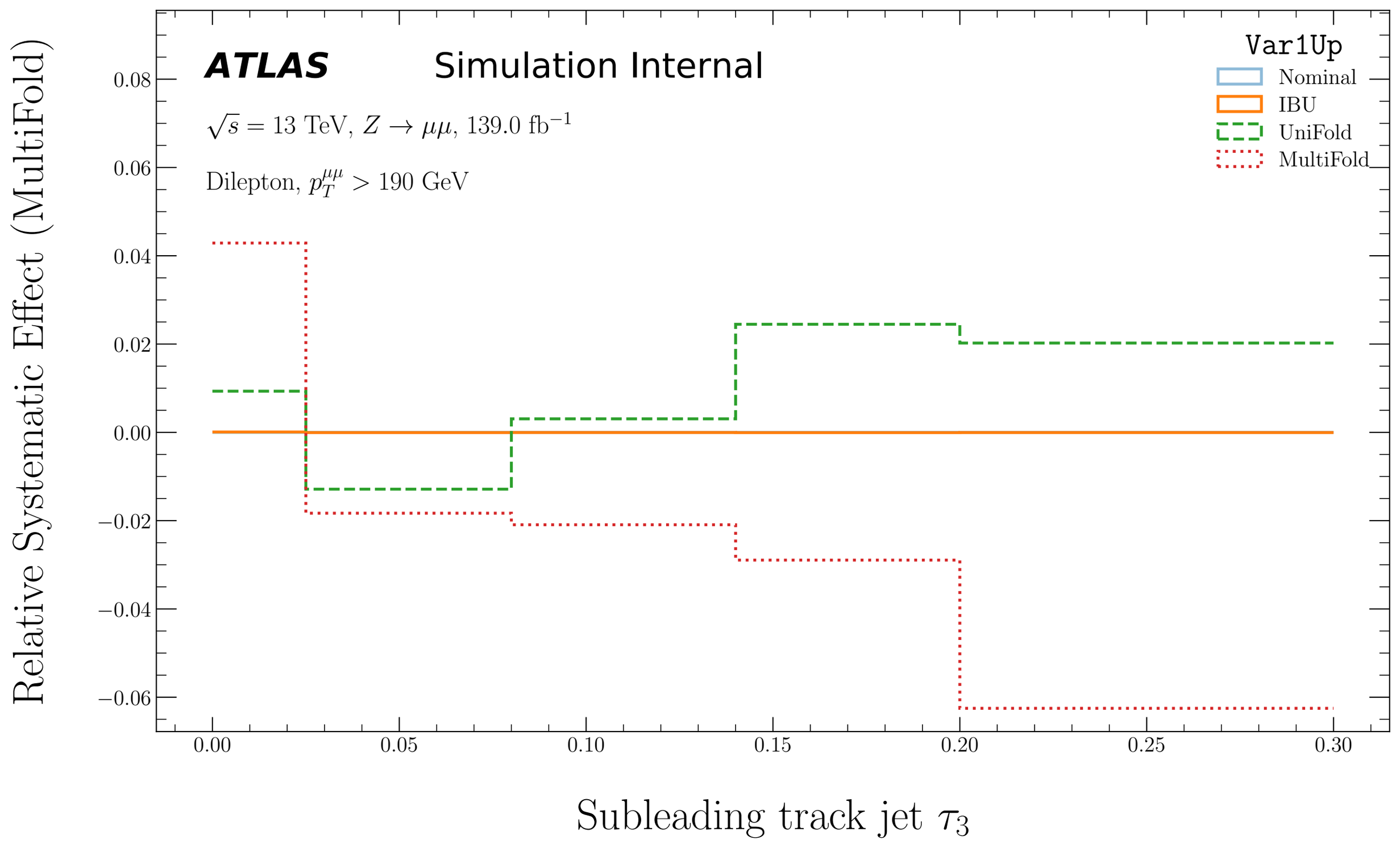

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.20
0.15
0.10
0.05
0.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Leading track jet τ_3

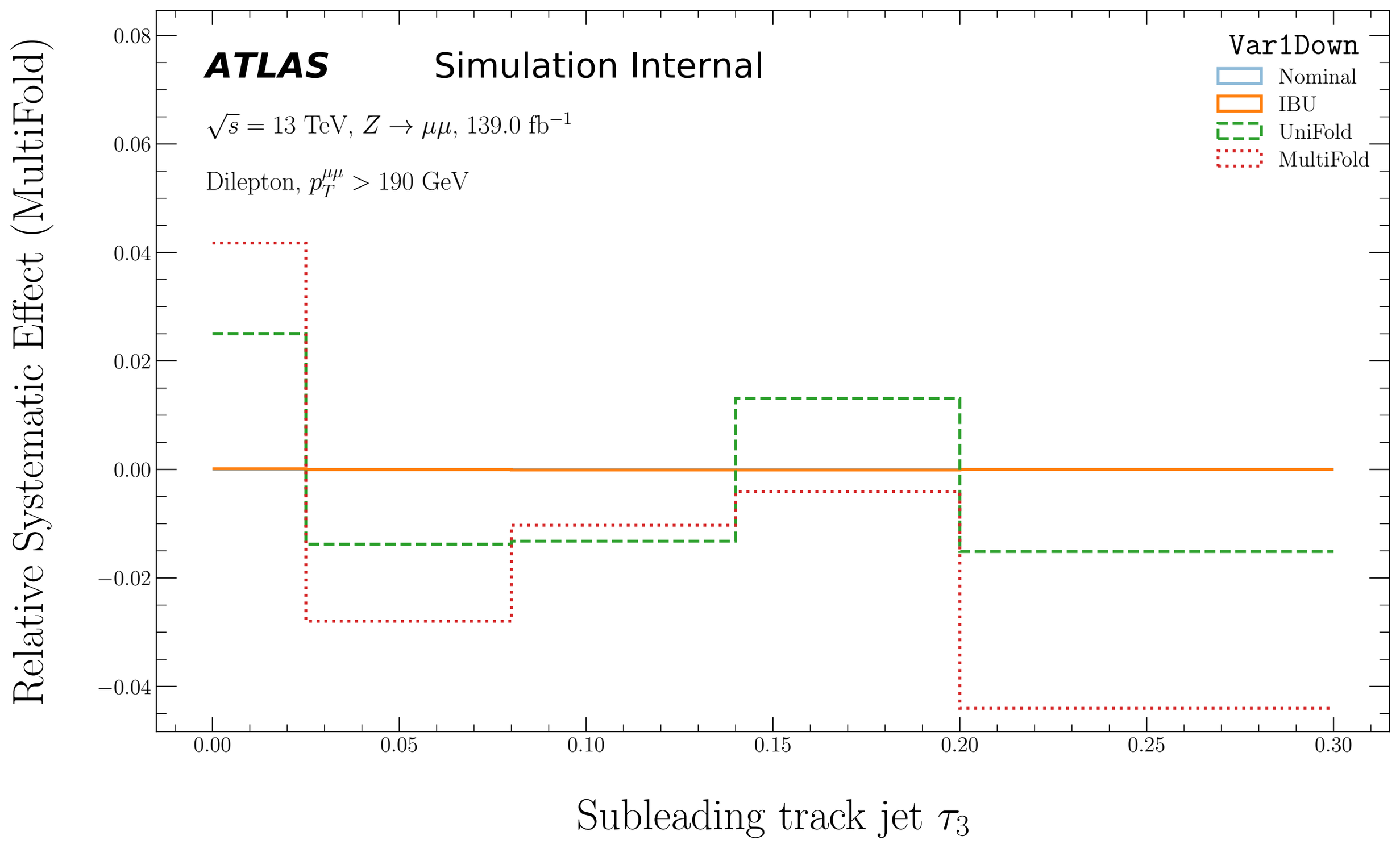

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Subleading track jet τ_3

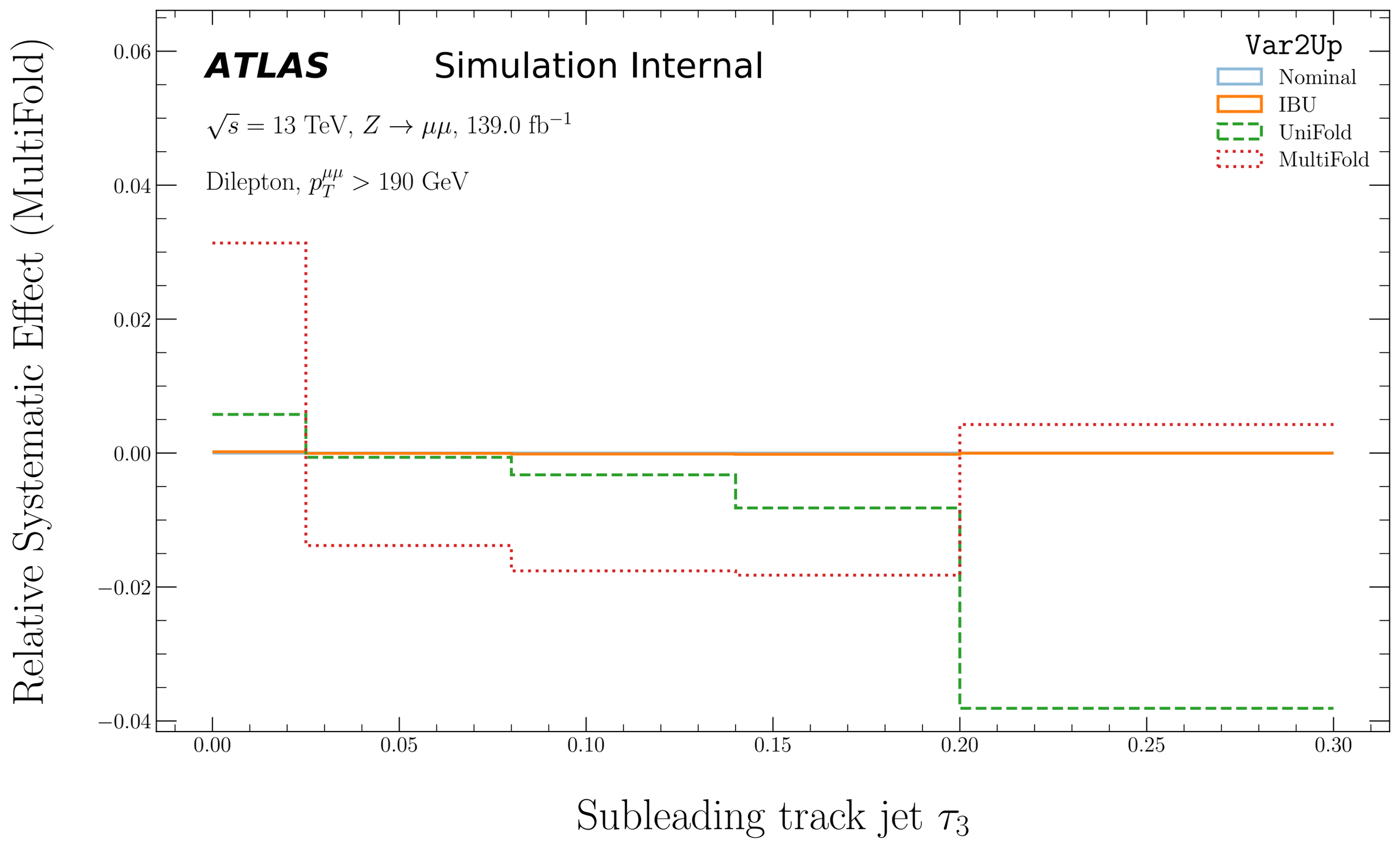

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Subleading track jet τ_3

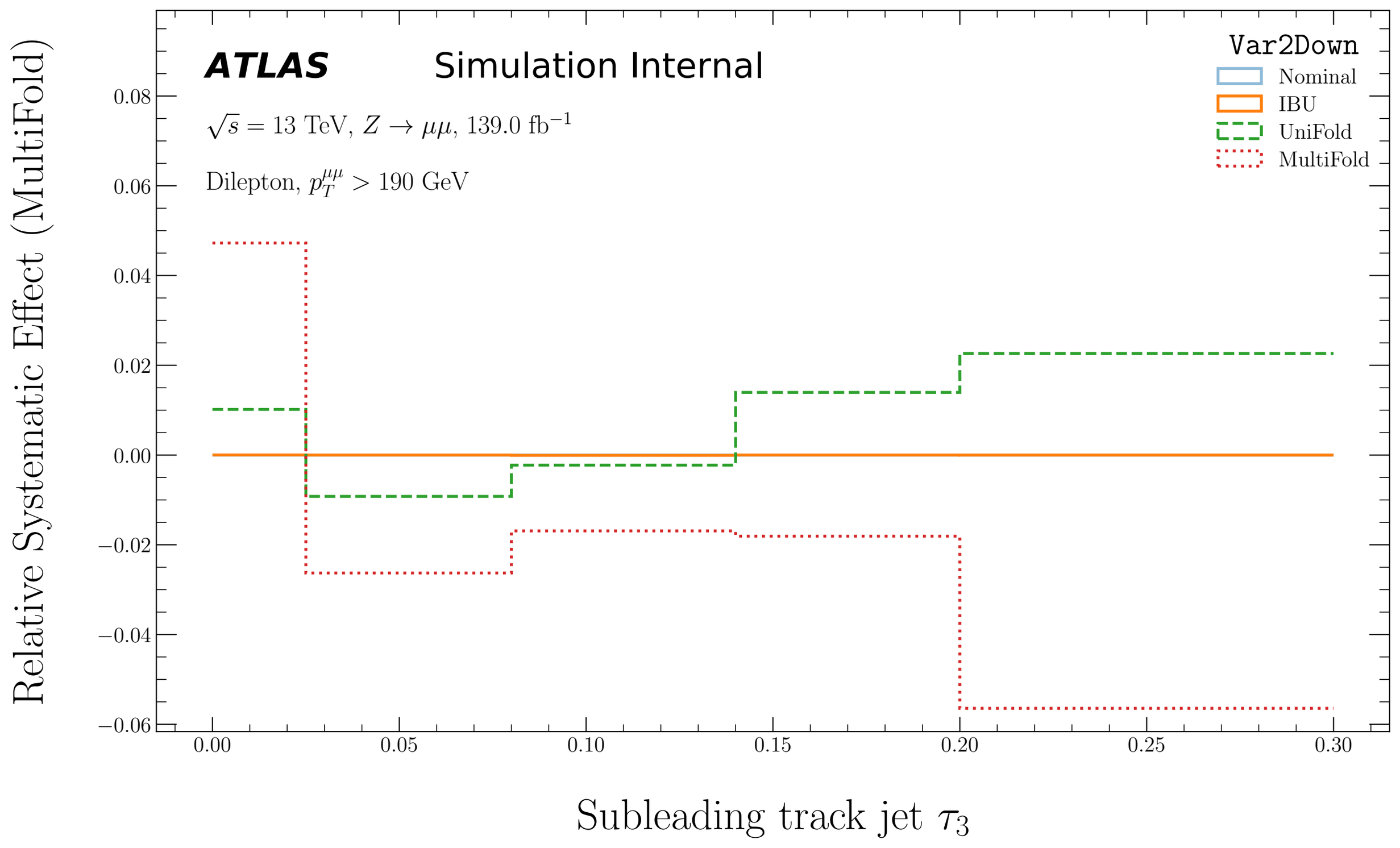

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
Subleading track jet τ_3
0.100
0.075
0.050
0.025
0.000
−0.025
−0.050
−0.075
0.00
0.05
0.10
0.15
0.20
0.25
0.30

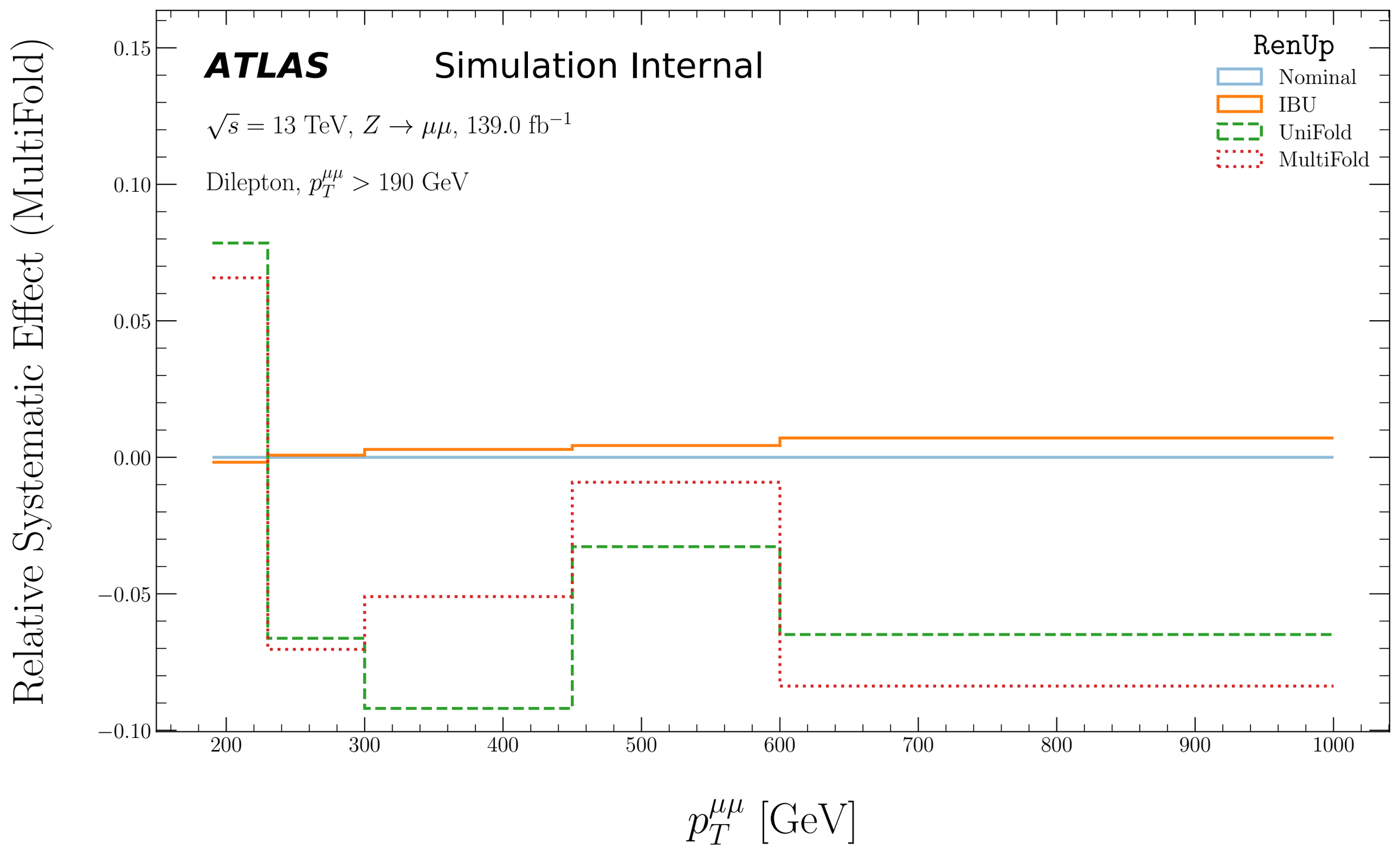

ATLAS
Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.100
0.075
0.050
0.025
0.000
−0.025
−0.050
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Subleading track jet τ_3

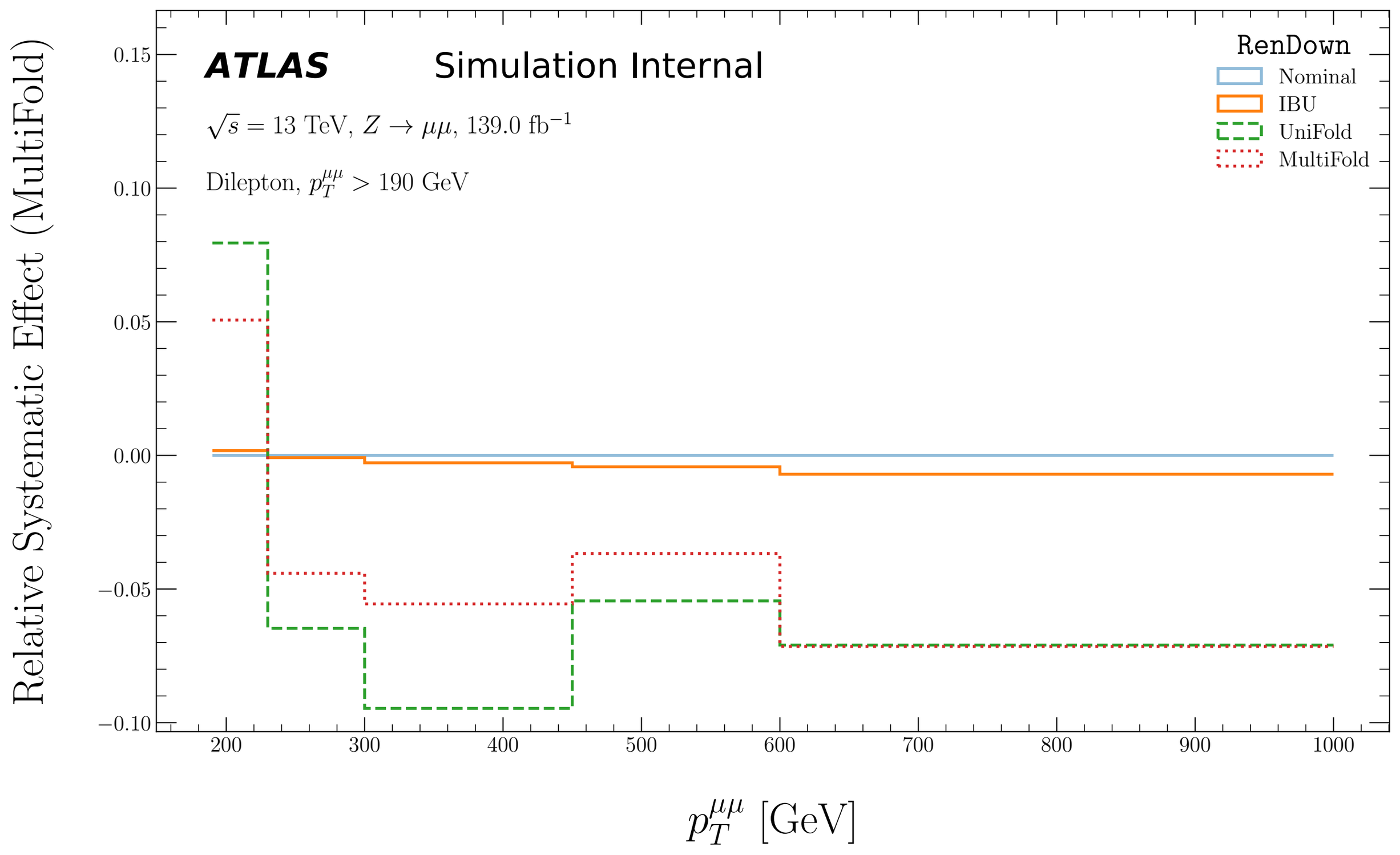

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
−0.04
−0.06
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Subleading track jet τ_3

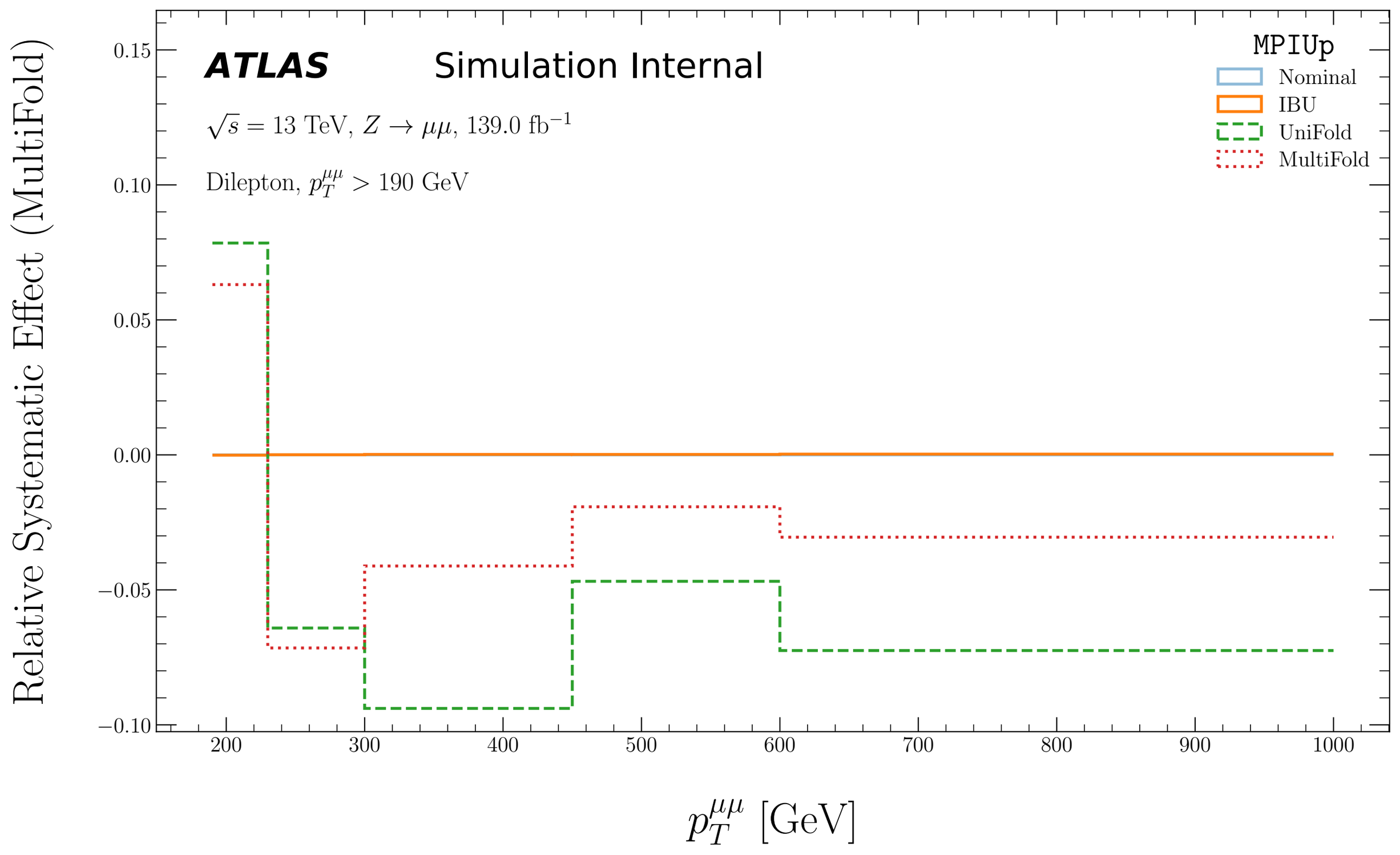

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
−0.04
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Subleading track jet τ_3

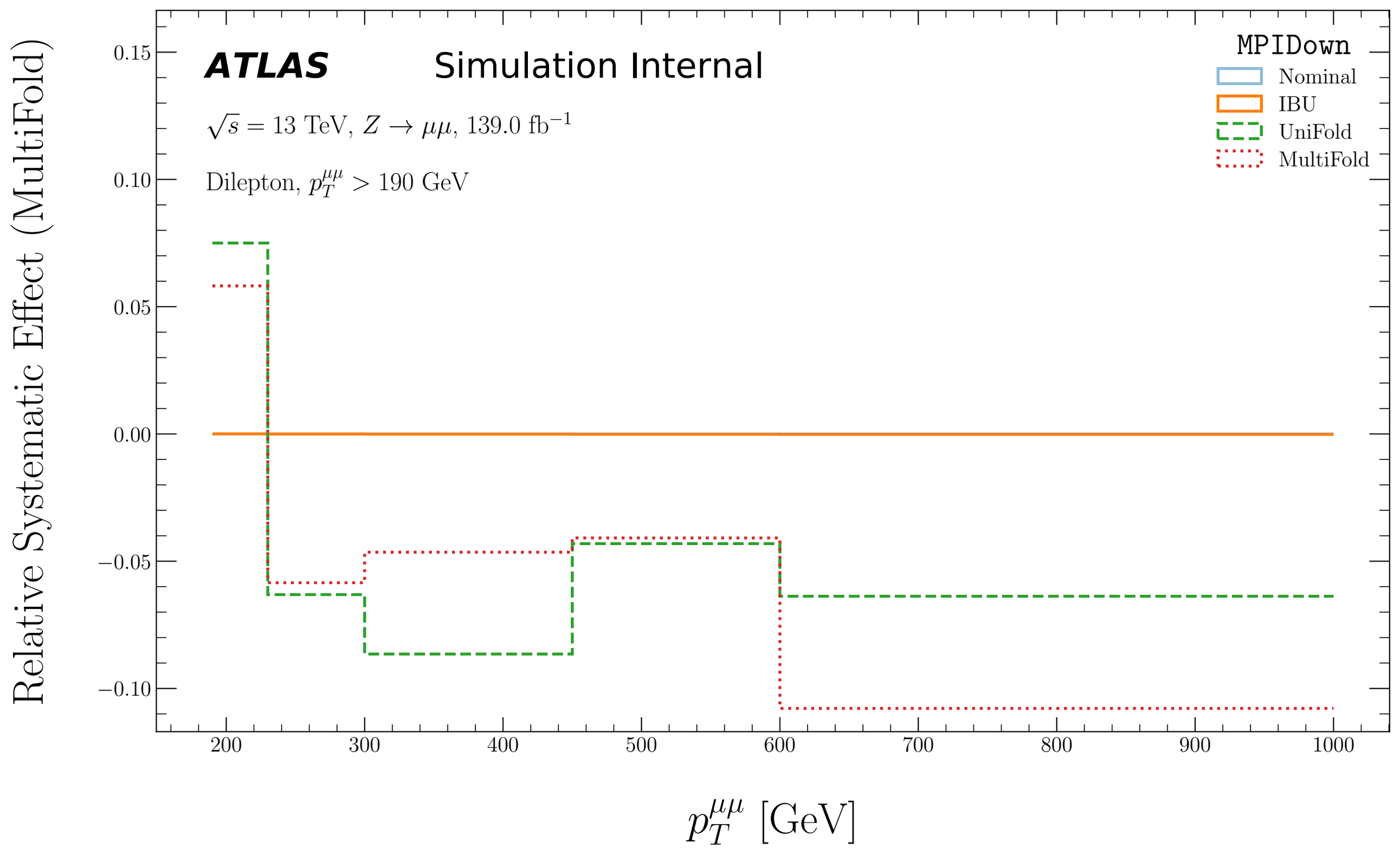

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.06
0.04
0.02
0.00
−0.02
−0.04
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Subleading track jet τ_3

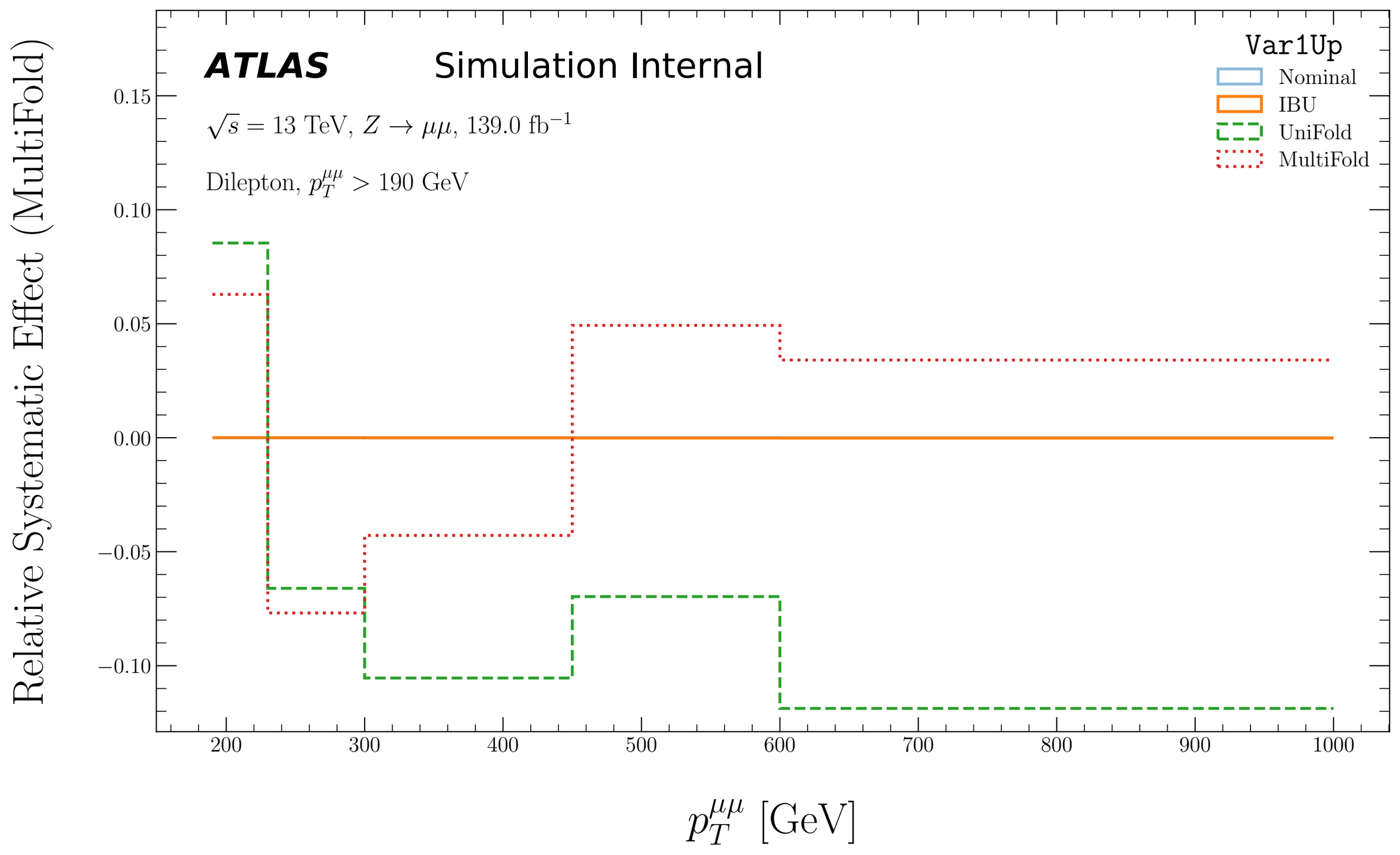

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
−0.04
−0.06
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Subleading track jet τ_3

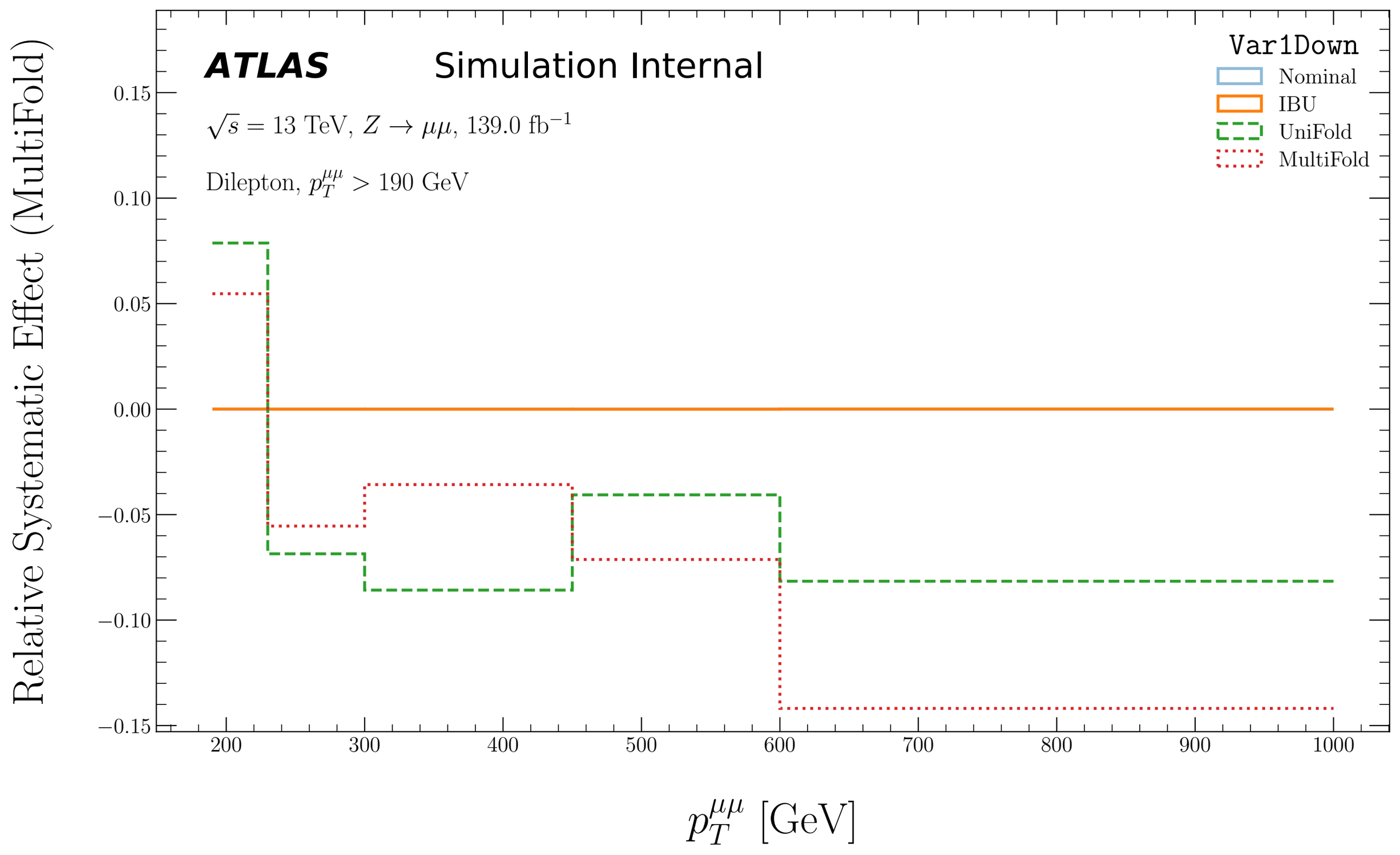

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
200
300
400
500
600
700
800
900
1000
$p_T^{\mu\mu}$ [GeV]

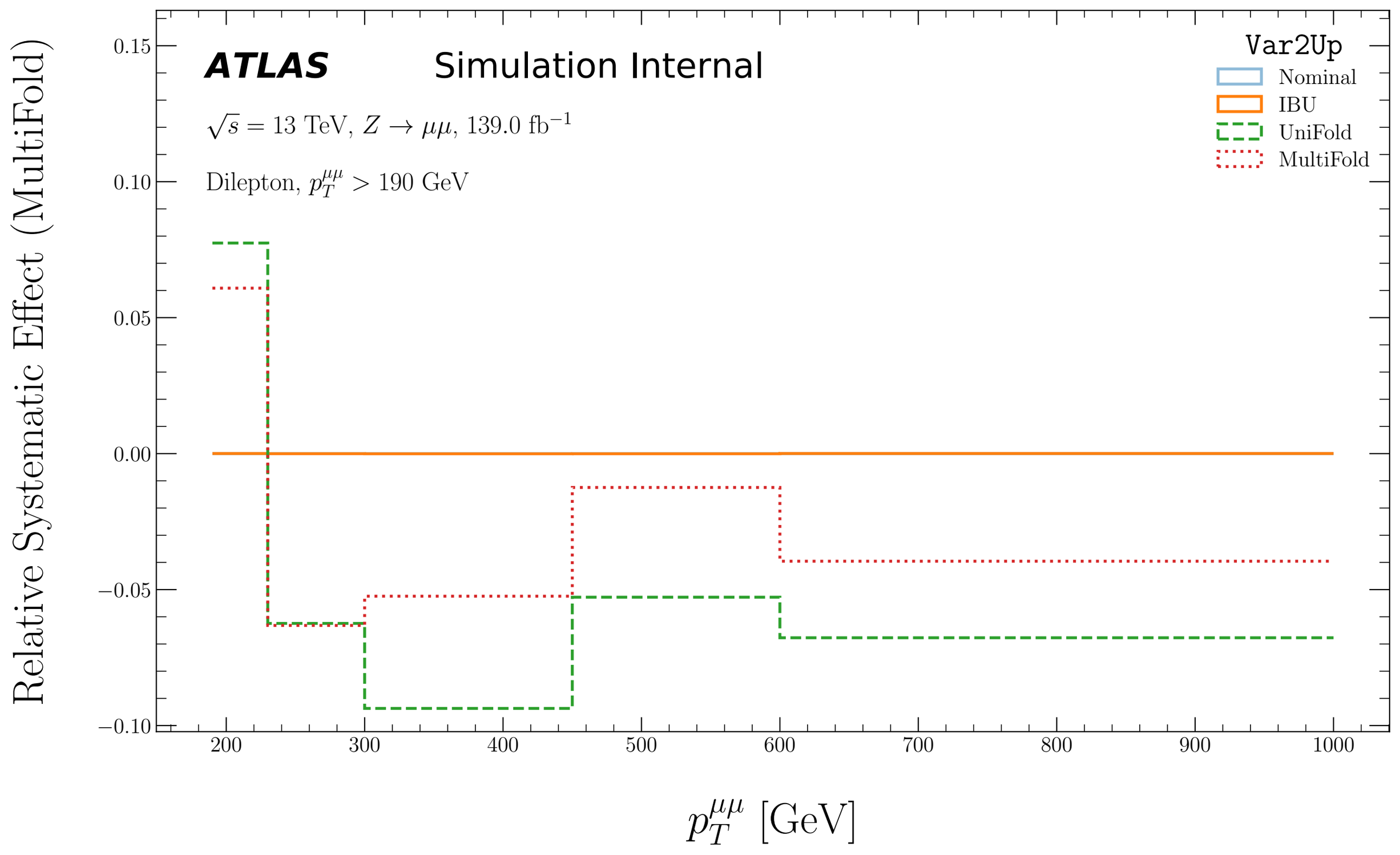

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
200
300
400
500
600
700
800
900
1000
$p_T^{\mu\mu}$ [GeV]

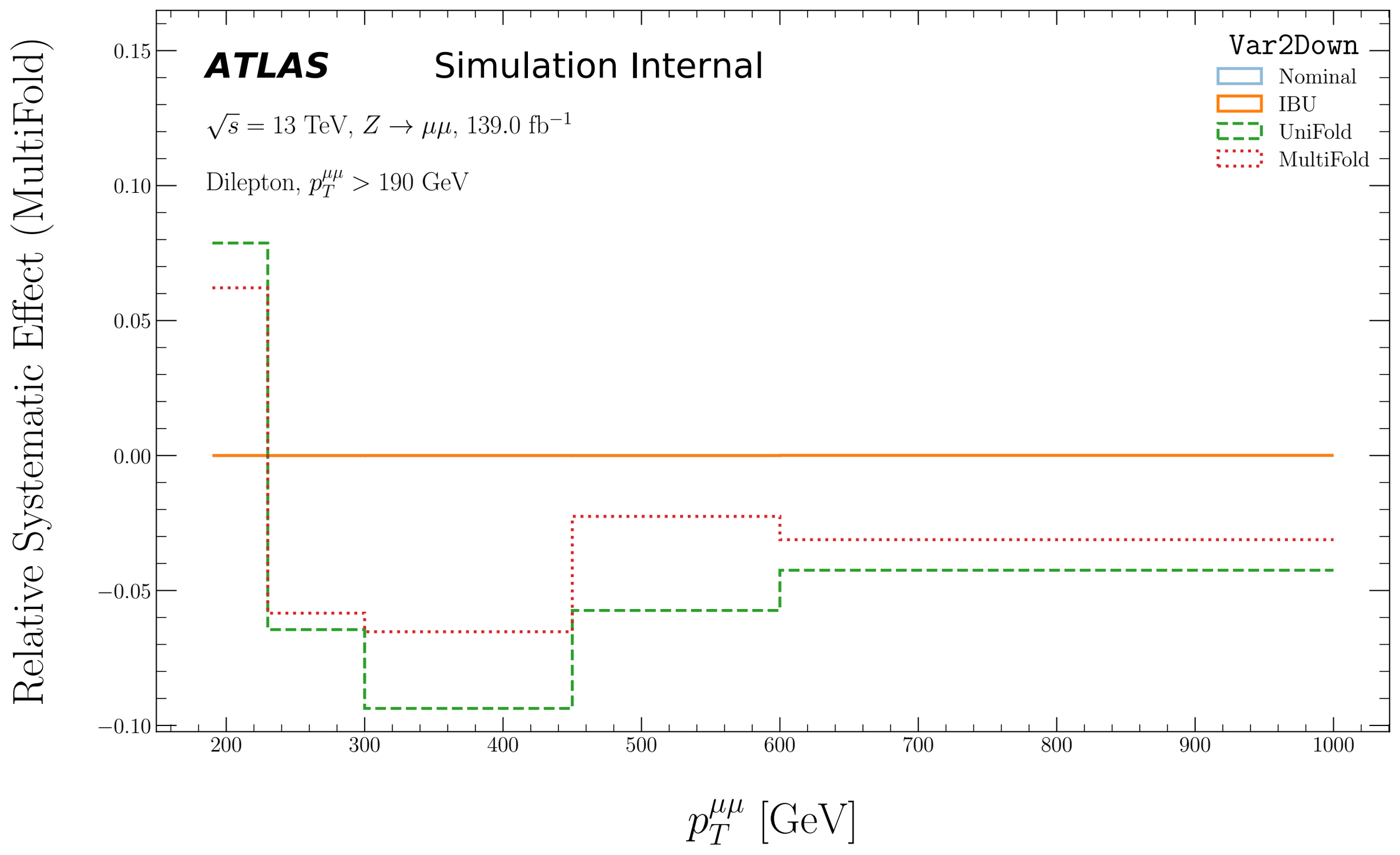

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
200
300
400
500
600
700
800
900
1000
$p_T^{\mu\mu}$ [GeV]

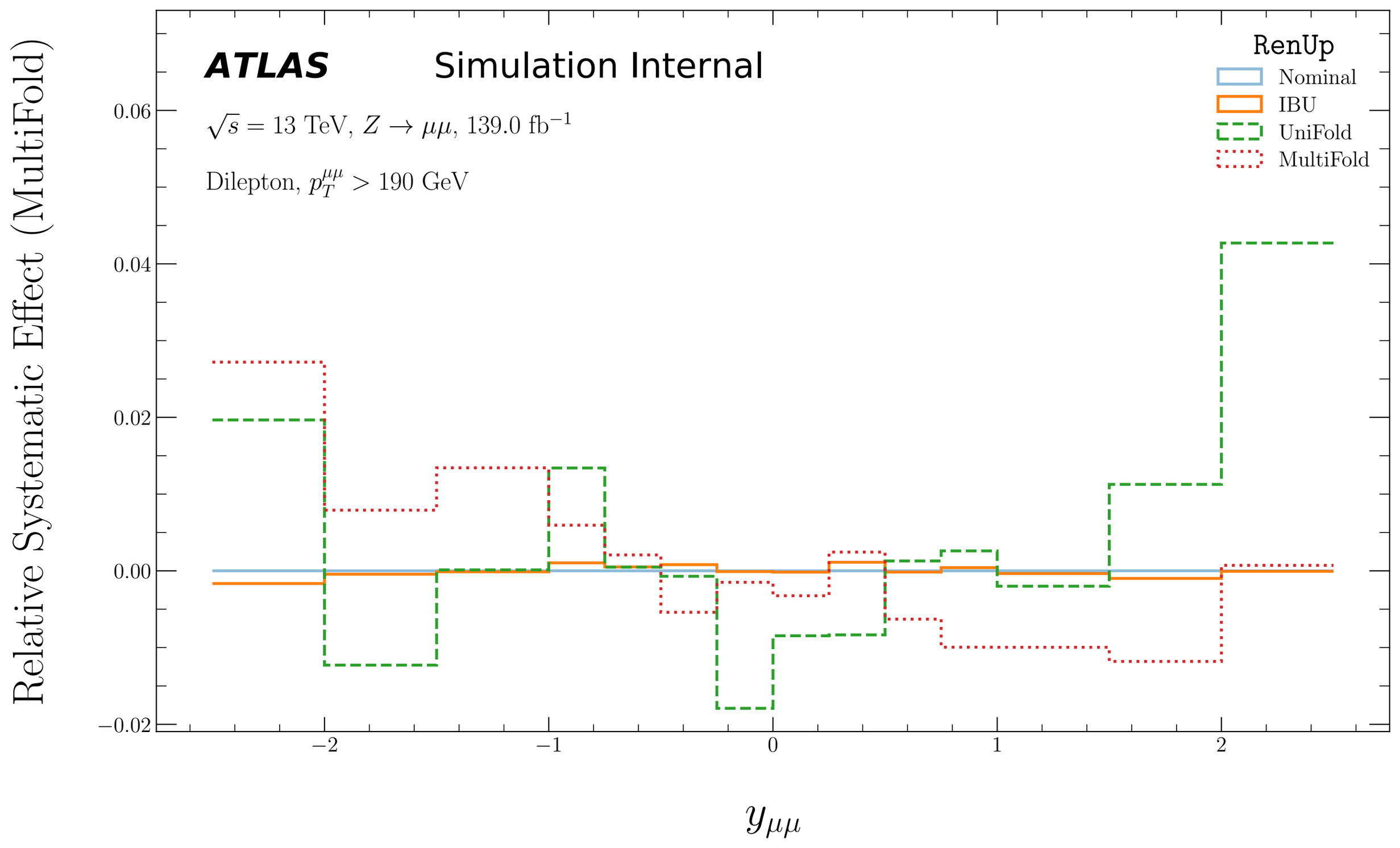

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
200
300
400
500
600
700
800
900
1000
$p_T^{\mu\mu}$ [GeV]

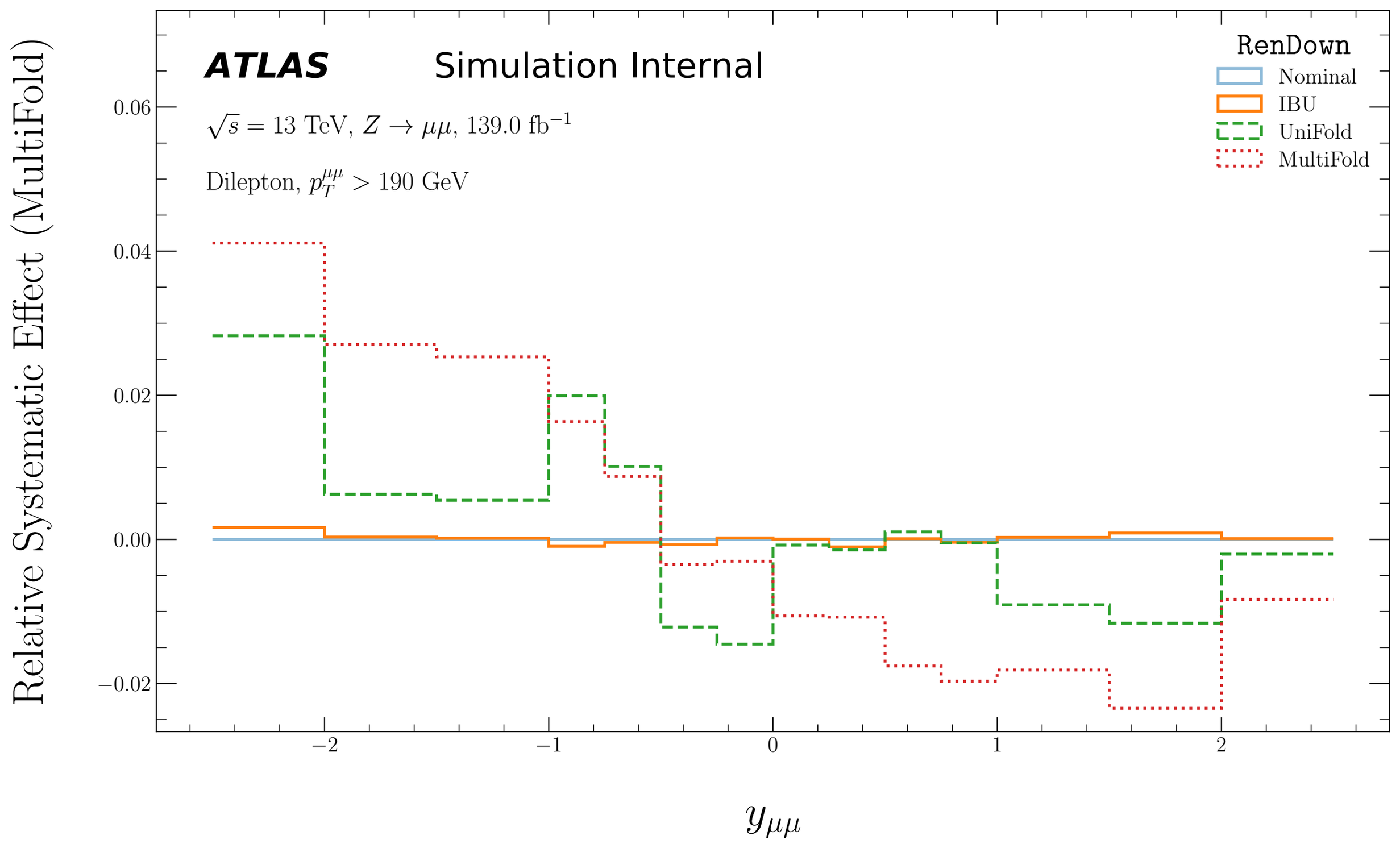

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
200
300
400
500
600
700
800
900
1000
$p_T^{\mu\mu}$ [GeV]

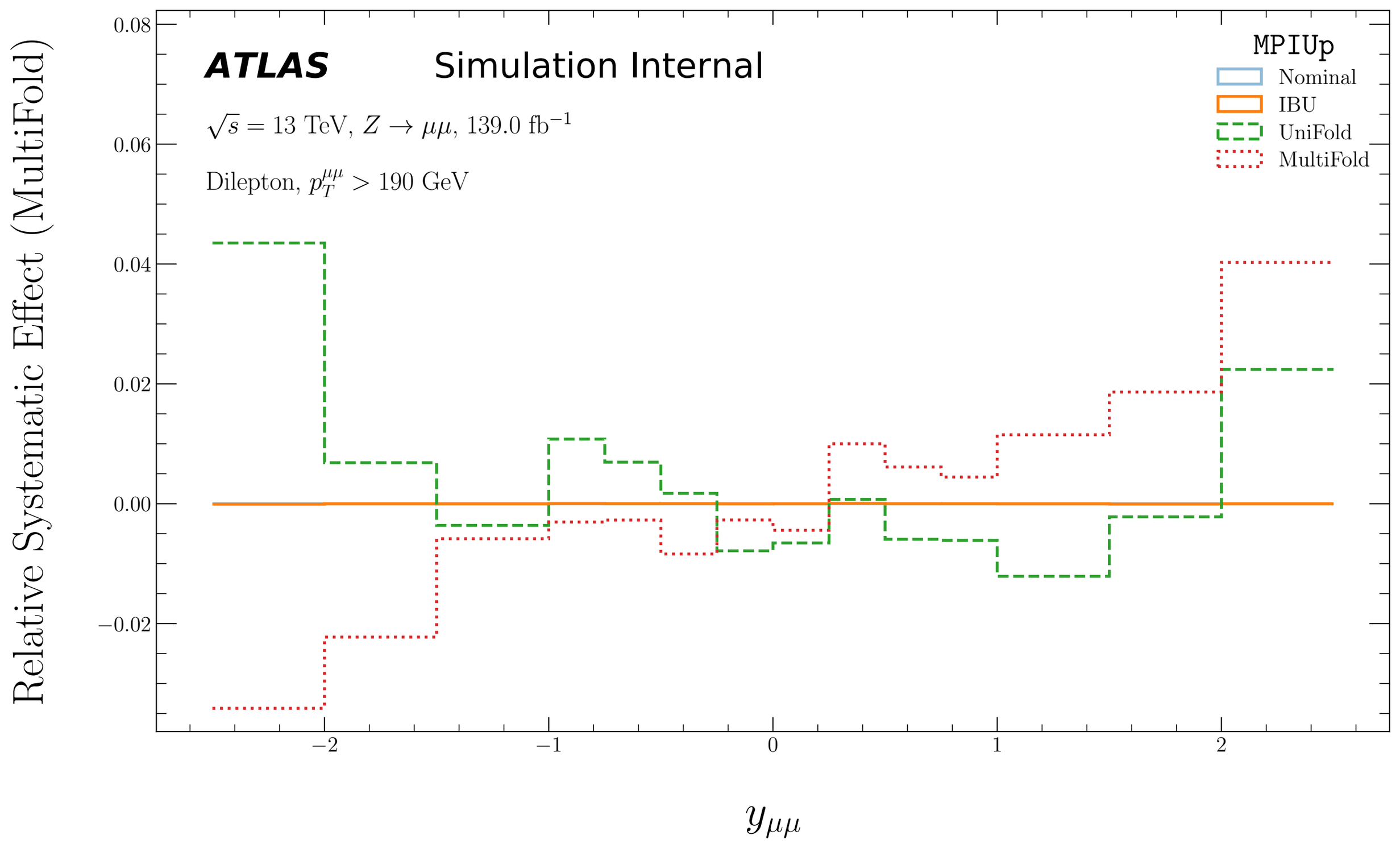

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
200
300
400
500
600
700
800
900
1000
$p_T^{\mu\mu}$ [GeV]

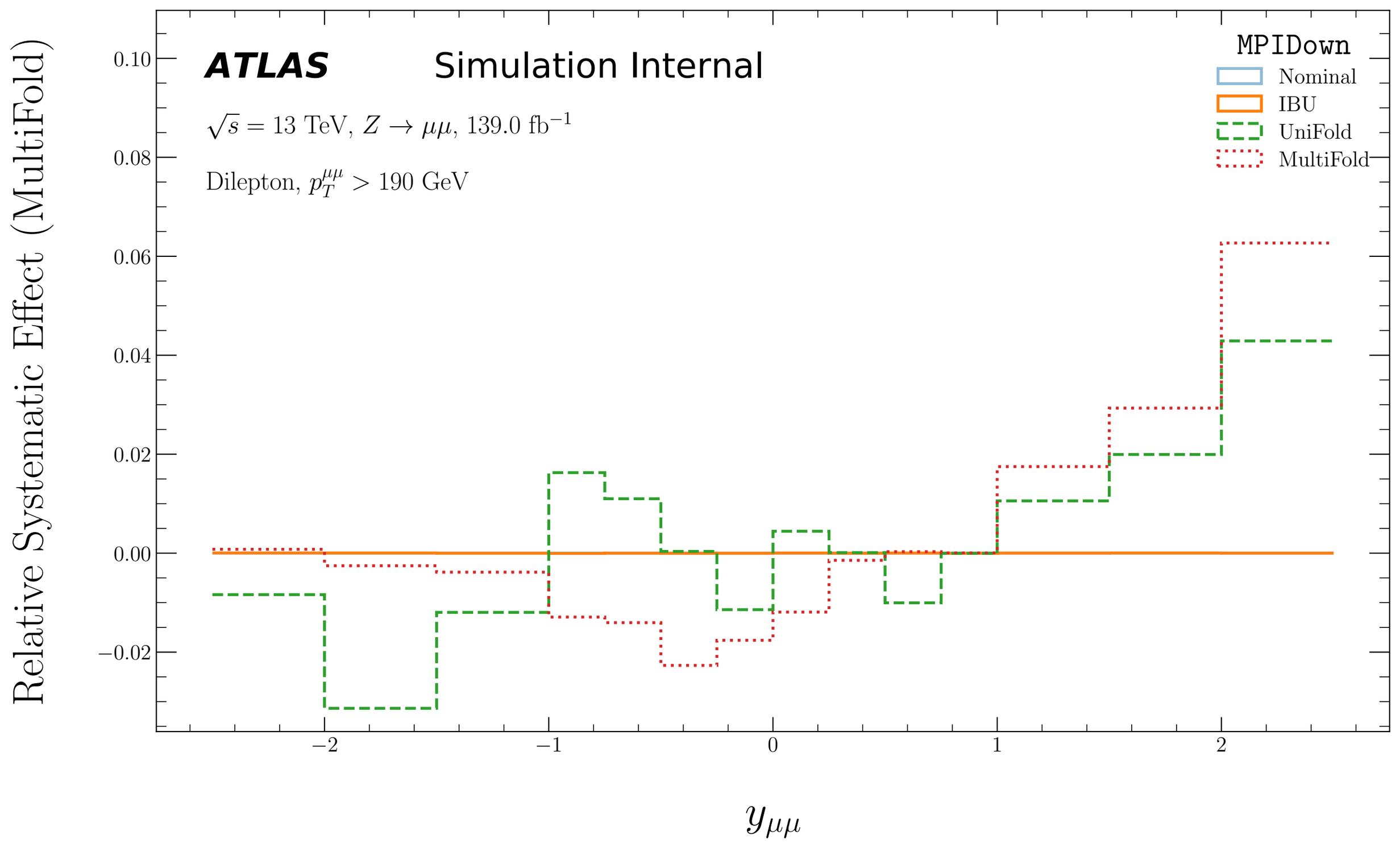

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
200
300
400
500
600
700
800
900
1000
$p_T^{\mu\mu}$ [GeV]

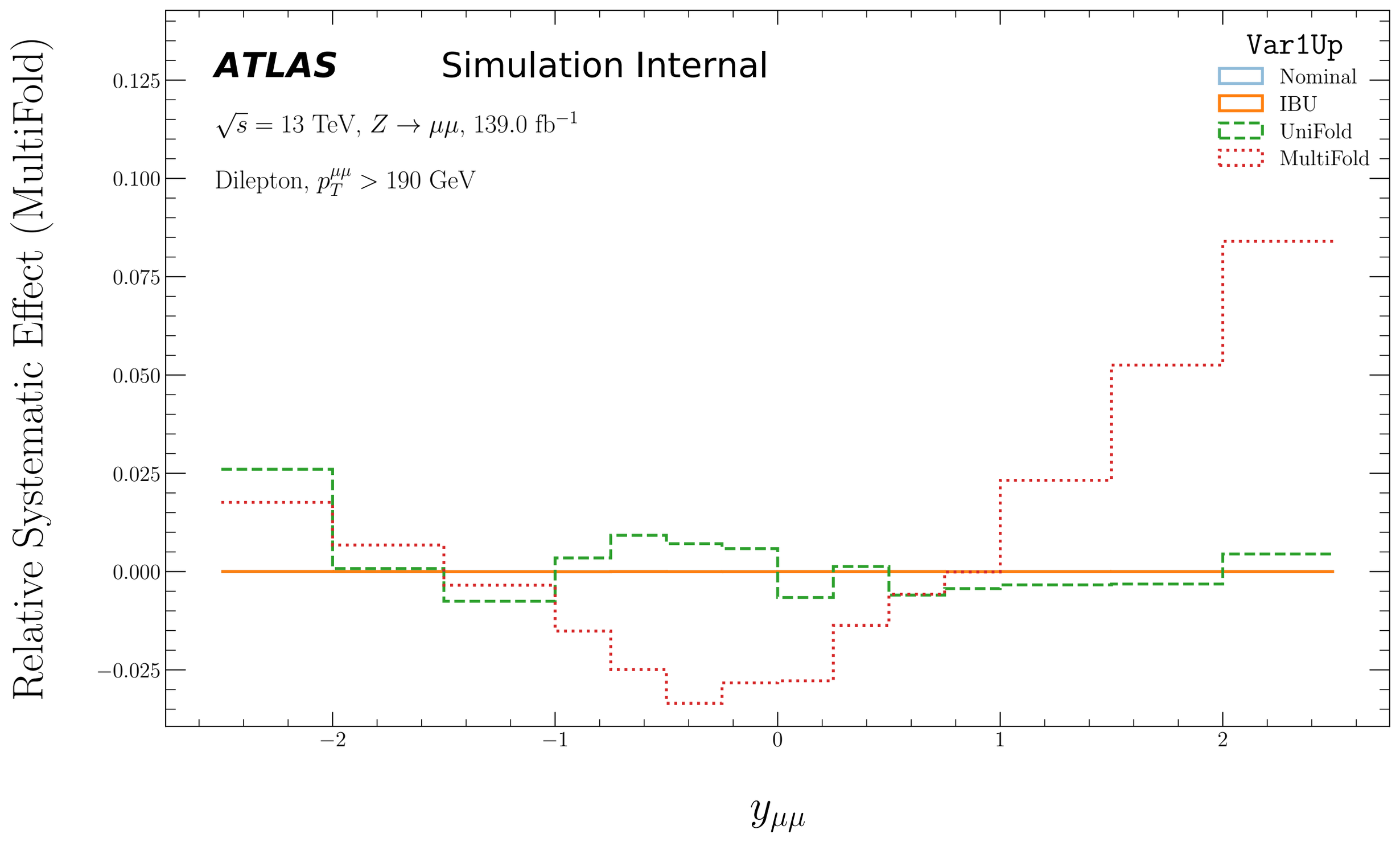

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
200
300
400
500
600
700
800
900
1000
$p_T^{\mu\mu}$ [GeV]

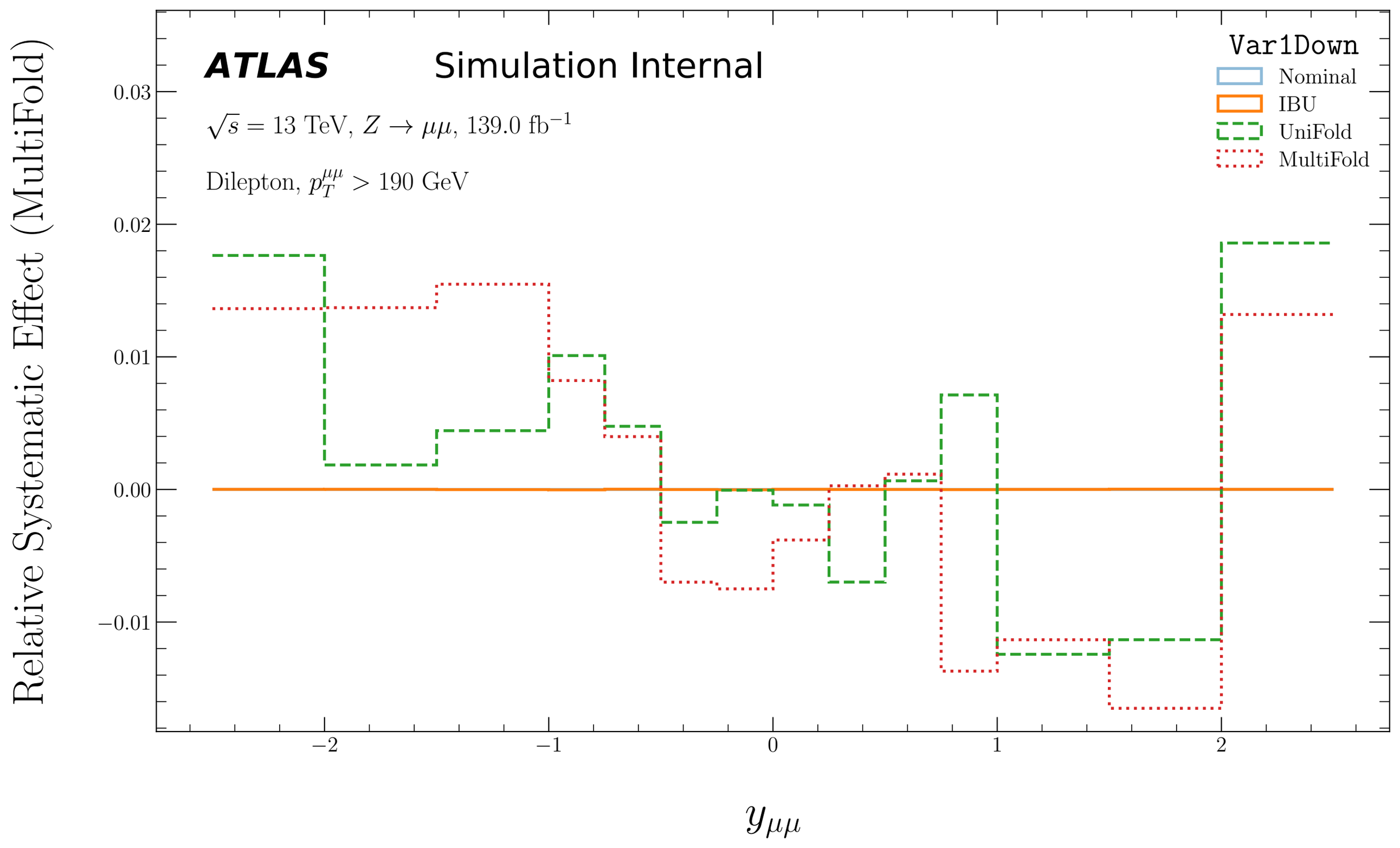

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
$y_{\mu\mu}$

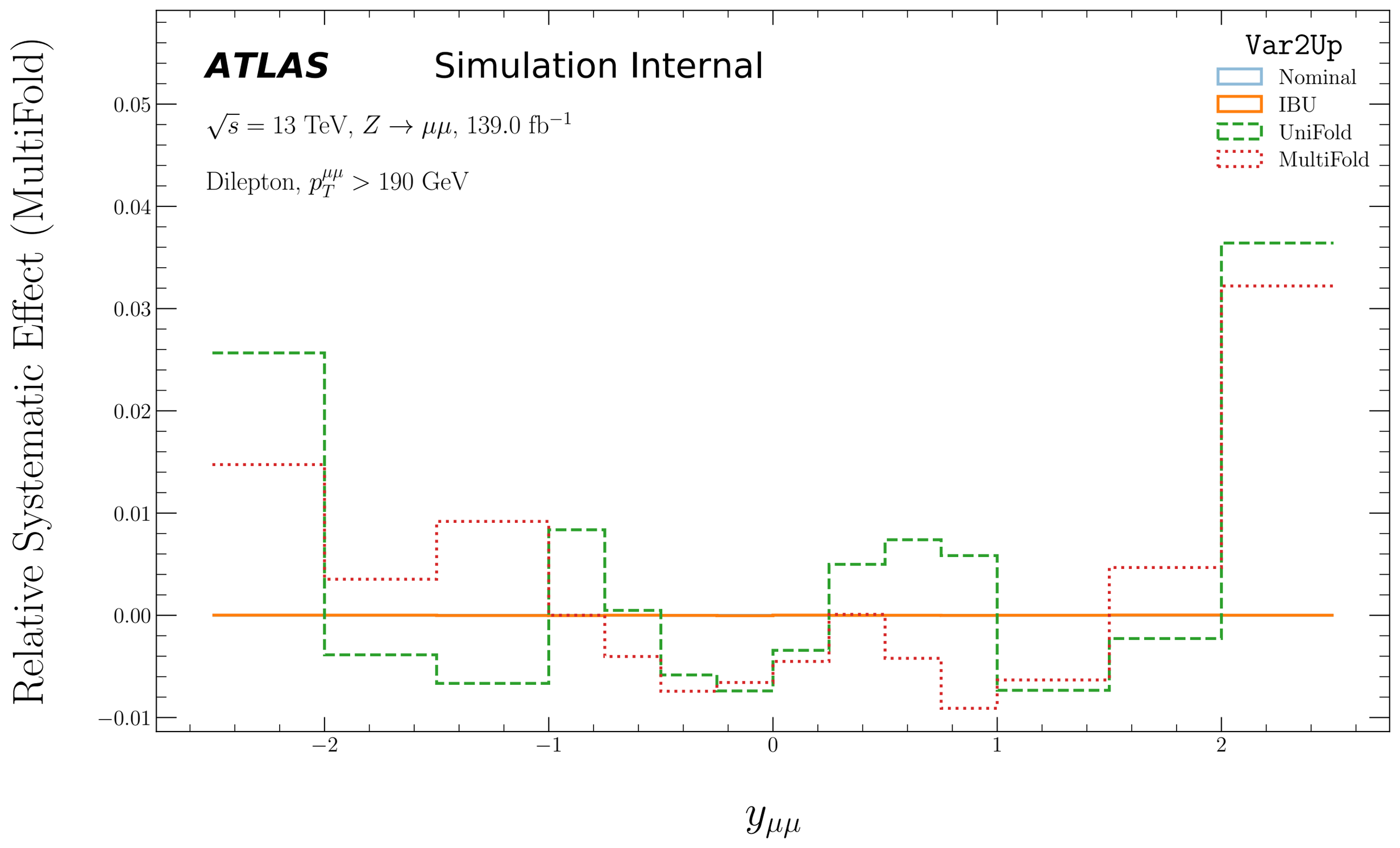

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
$y_{\mu\mu}$

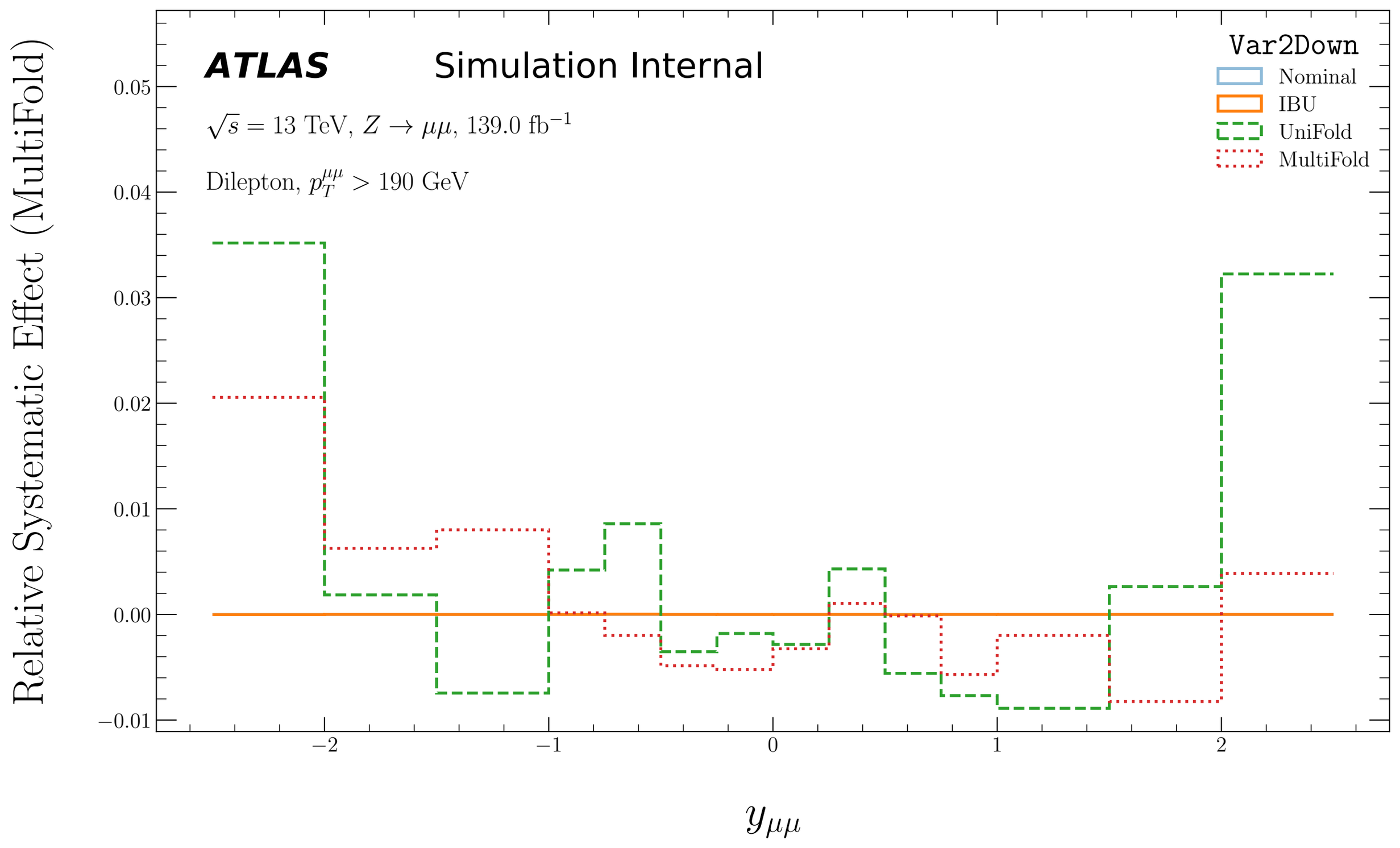

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
$y_{\mu\mu}$

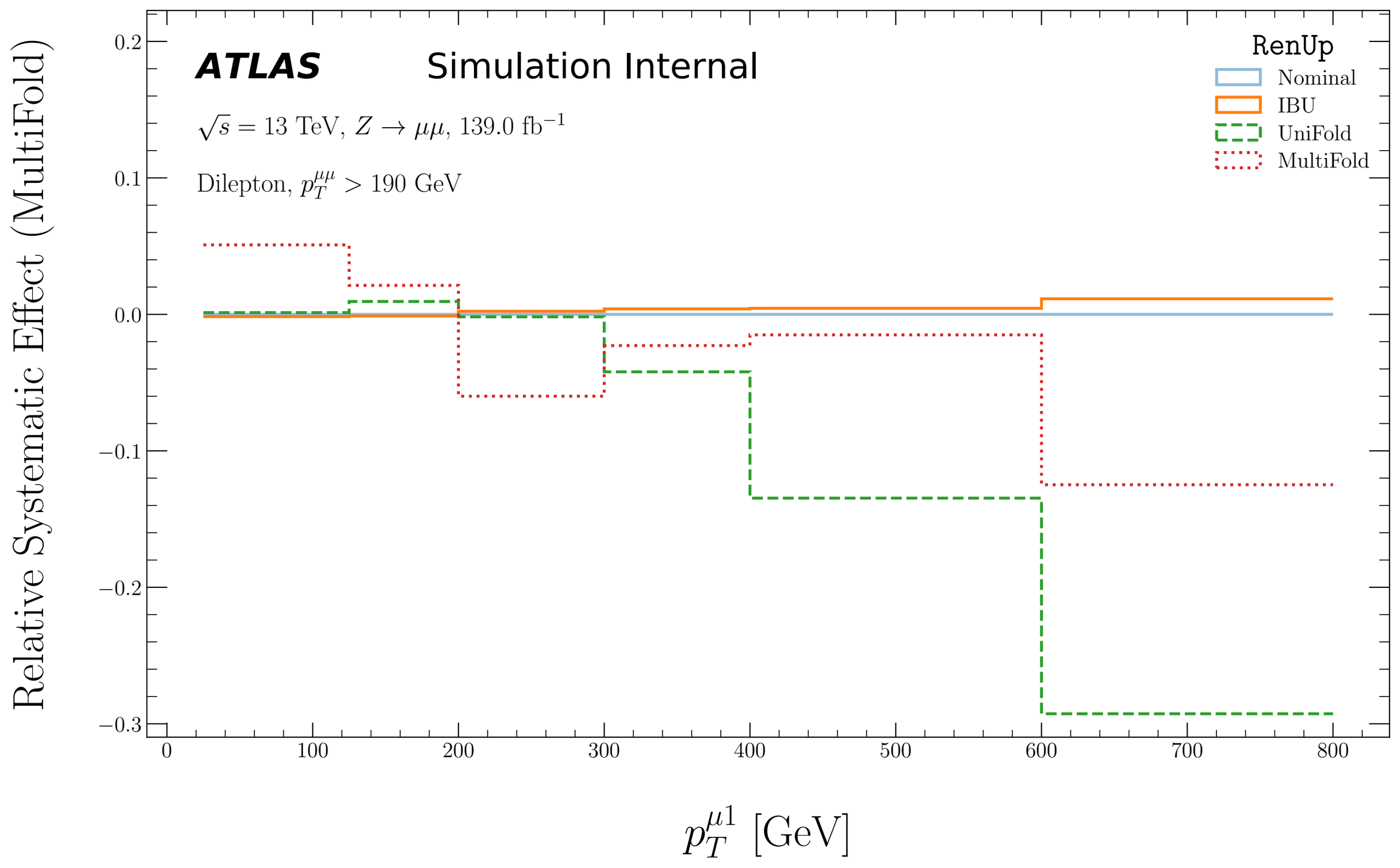

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
$y_{\mu\mu}$

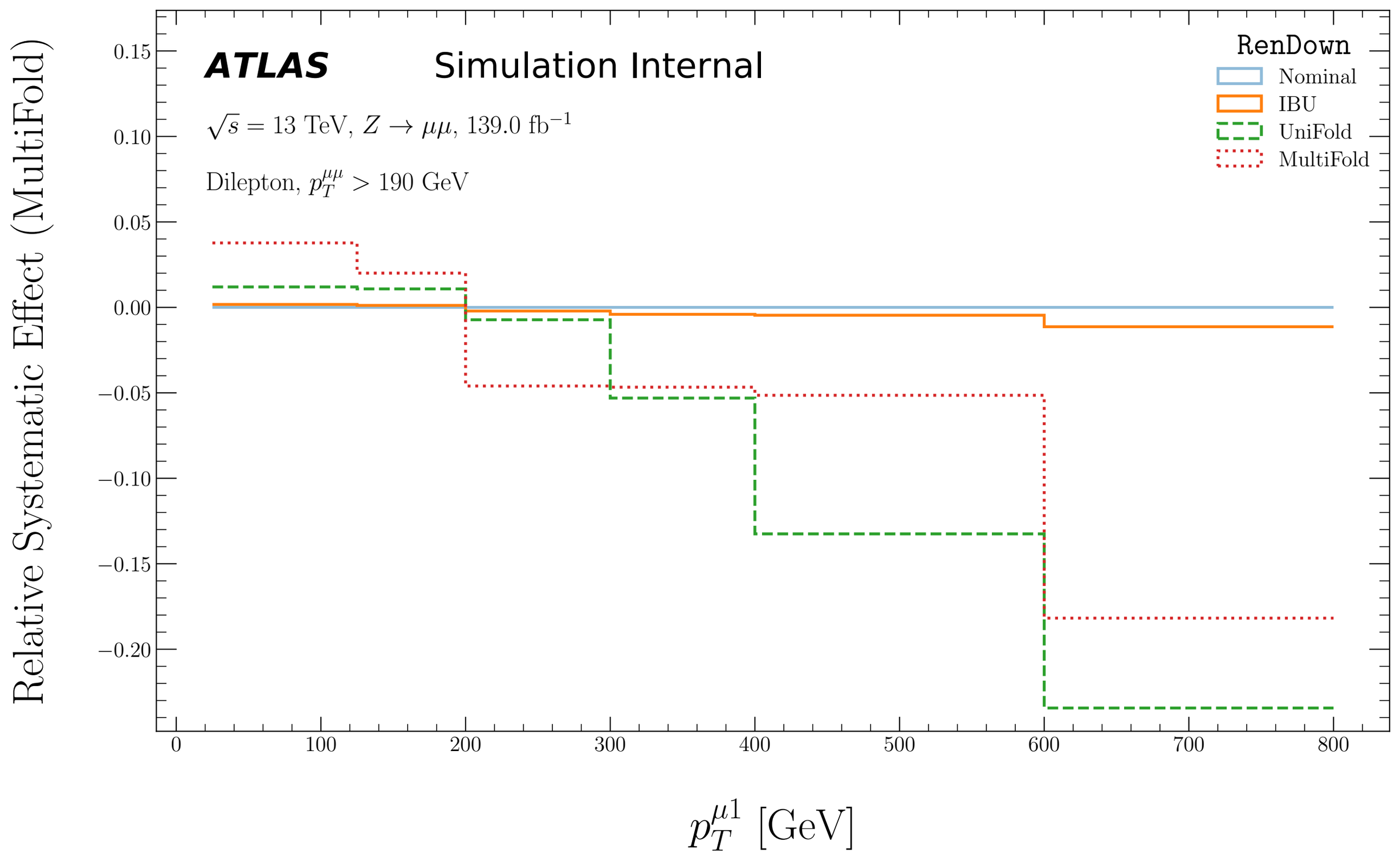

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.125
0.100
0.075
0.050
0.025
0.000
−0.025
−2
−1
0
1
2
$y_{\mu\mu}$

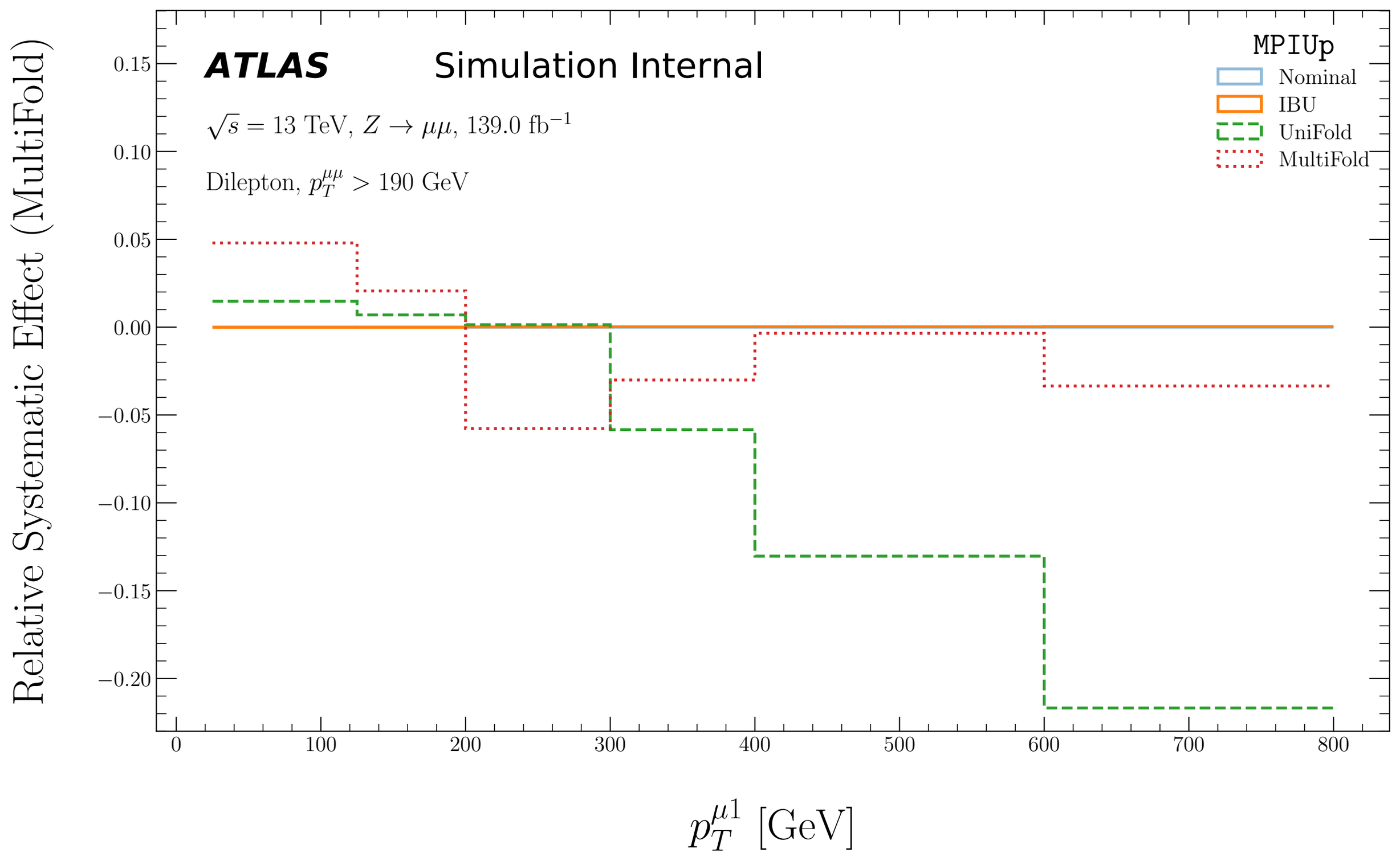

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.03
0.02
0.01
0.00
−0.01
−2
−1
0
1
2
$y_{\mu\mu}$

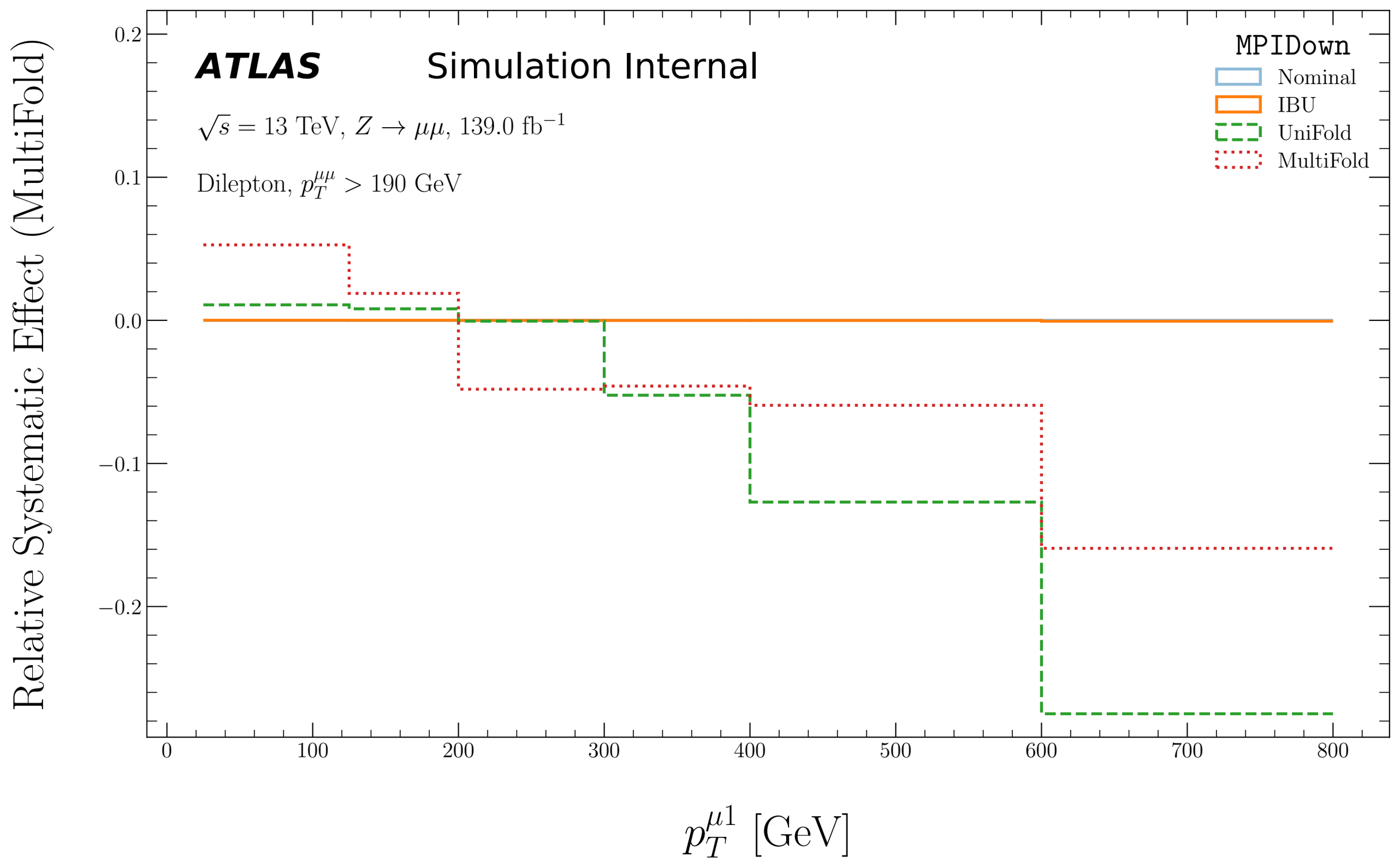

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−2
−1
0
1
2
$y_{\mu\mu}$

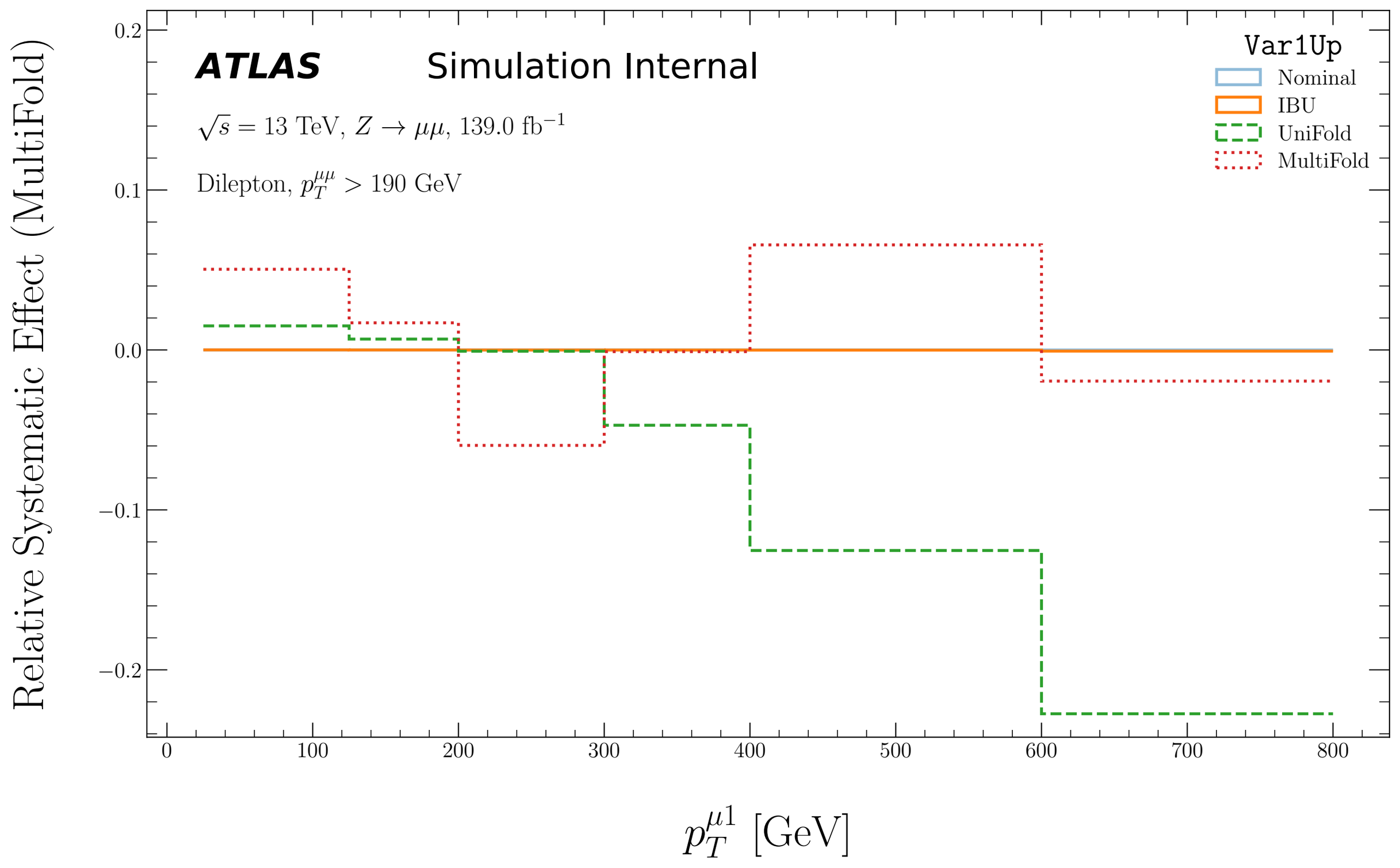

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−2
−1
0
1
2
$y_{\mu\mu}$

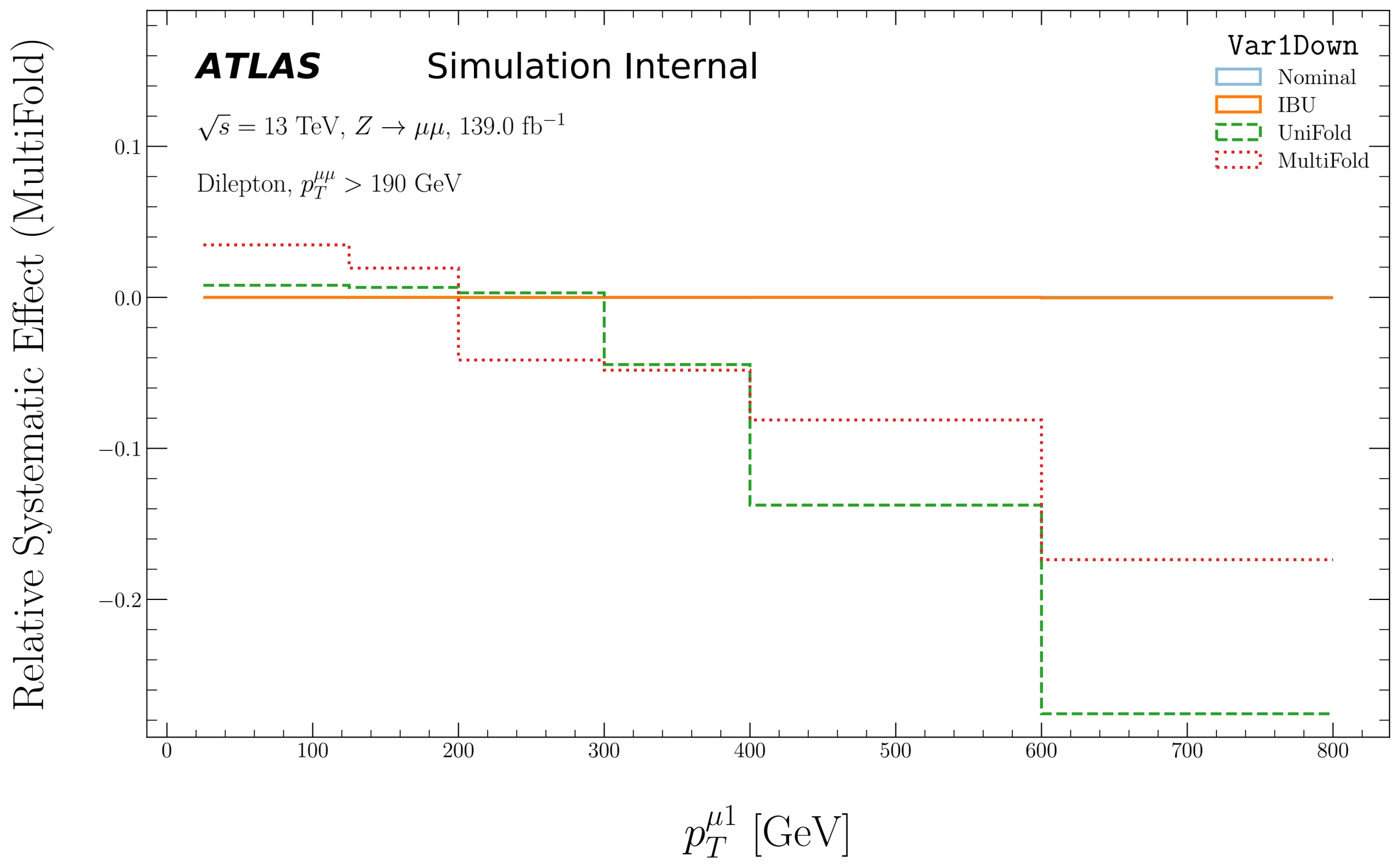

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
$p_T^{\mu 1}$ [GeV]
0.2
0.1
0.0
−0.1
−0.2
−0.3
0
100
200
300
400
500
600
700
800

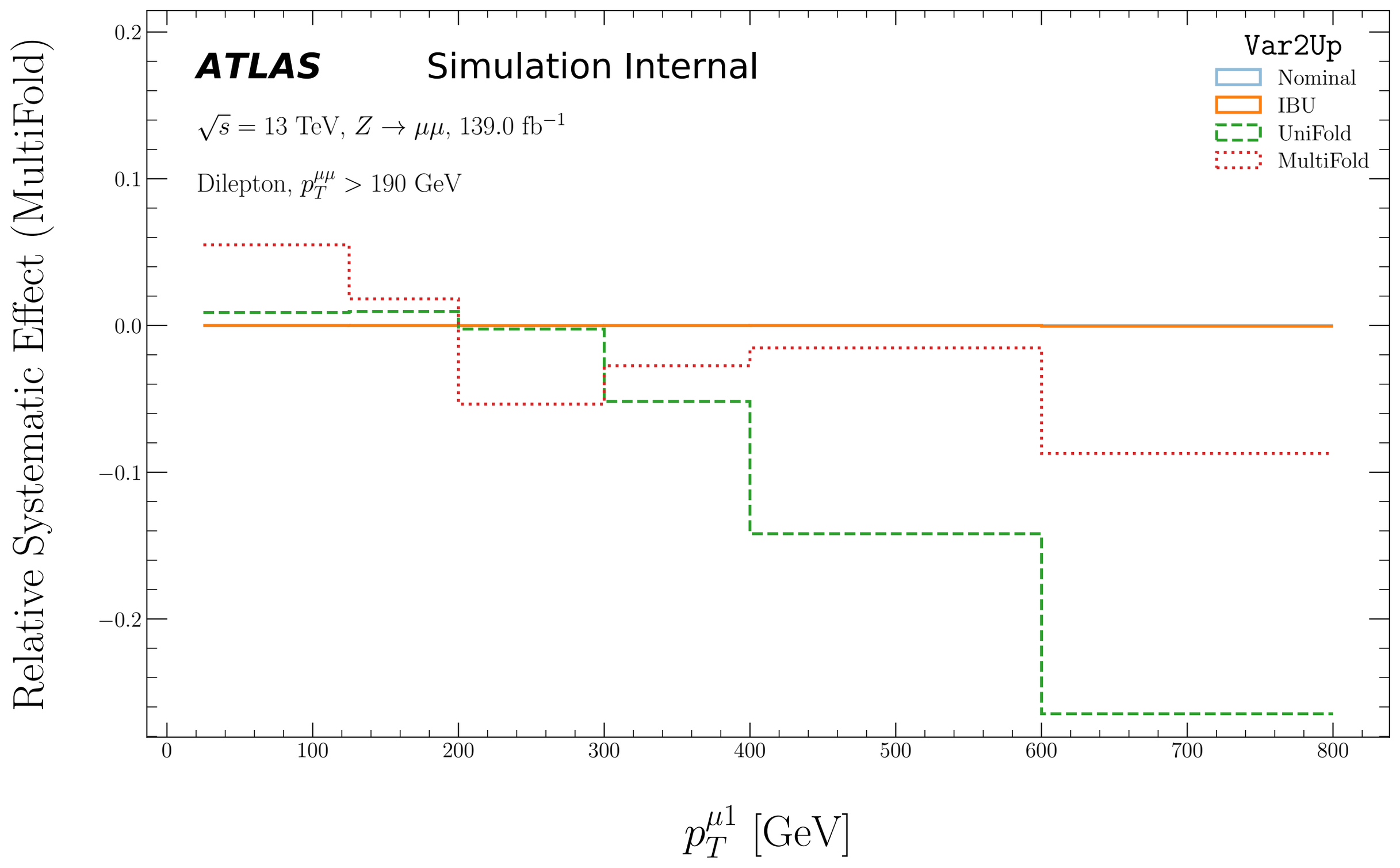

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
$p_T^{\mu 1}$ [GeV]
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
−0.20
0
100
200
300
400
500
600
700
800

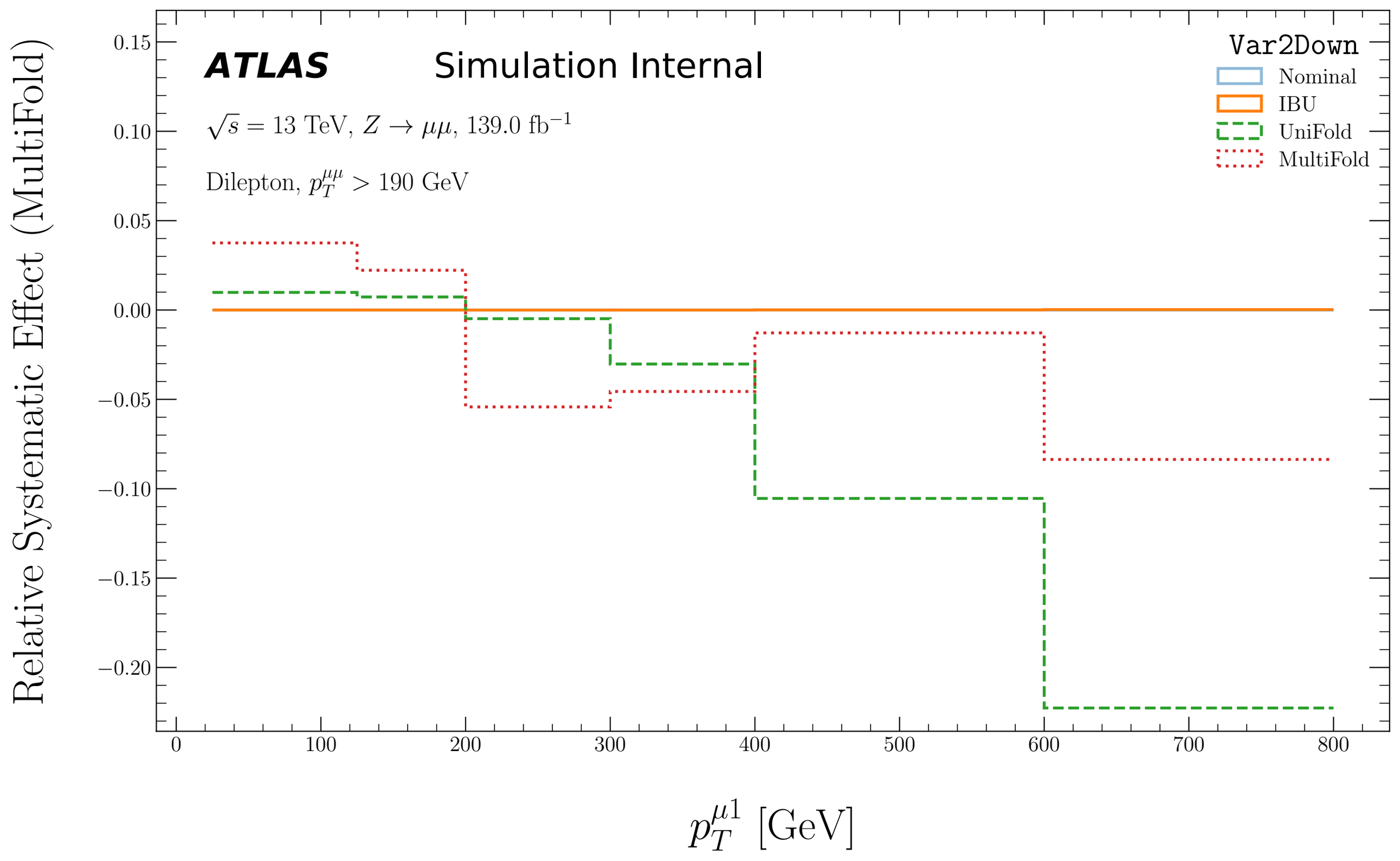

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
−0.20
0
100
200
300
400
500
600
700
800
$p_T^{\mu 1}$ [GeV]

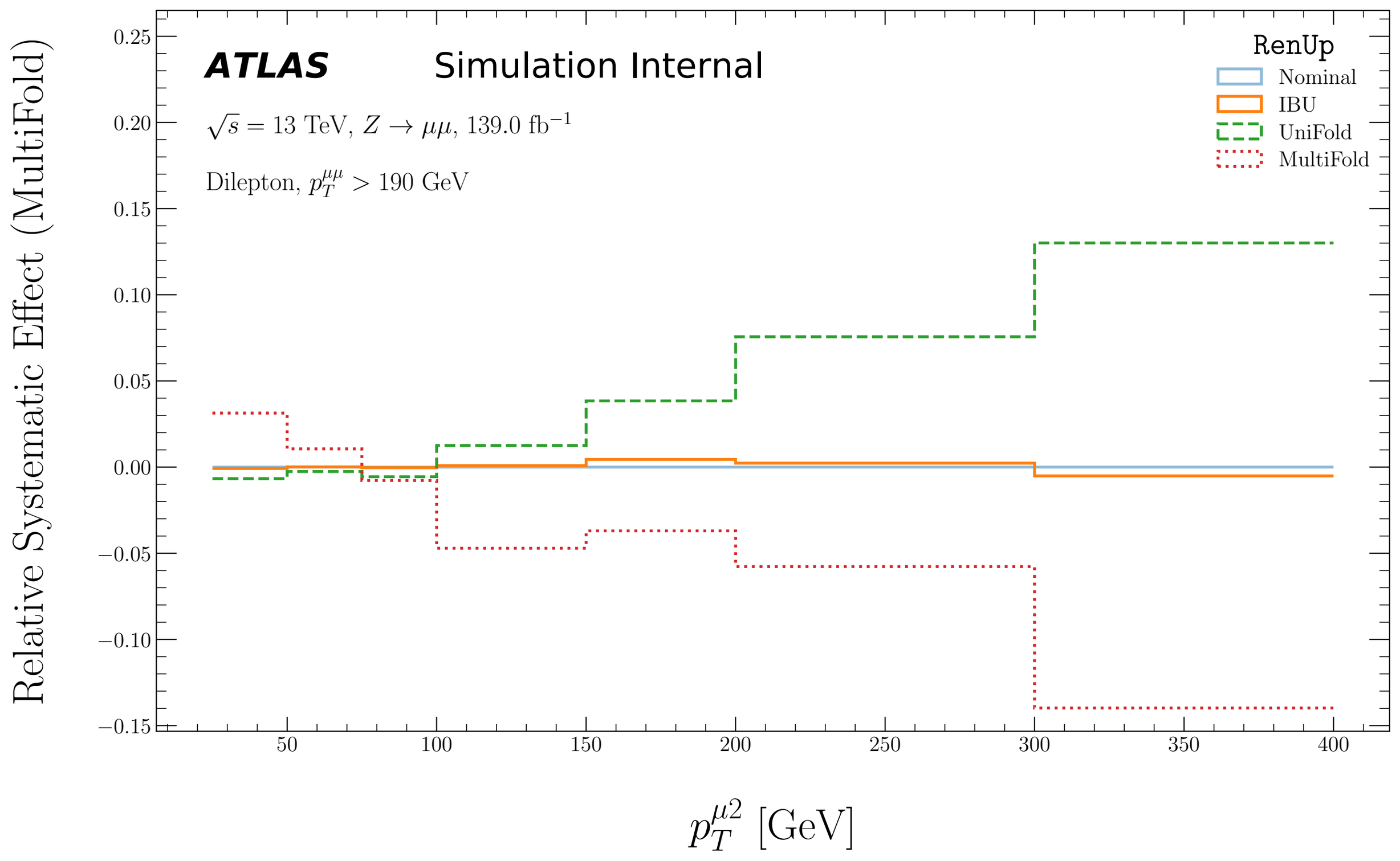

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
$p_T^{\mu 1}$ [GeV]
0.2
0.1
0.0
−0.1
−0.2
0
100
200
300
400
500
600
700
800

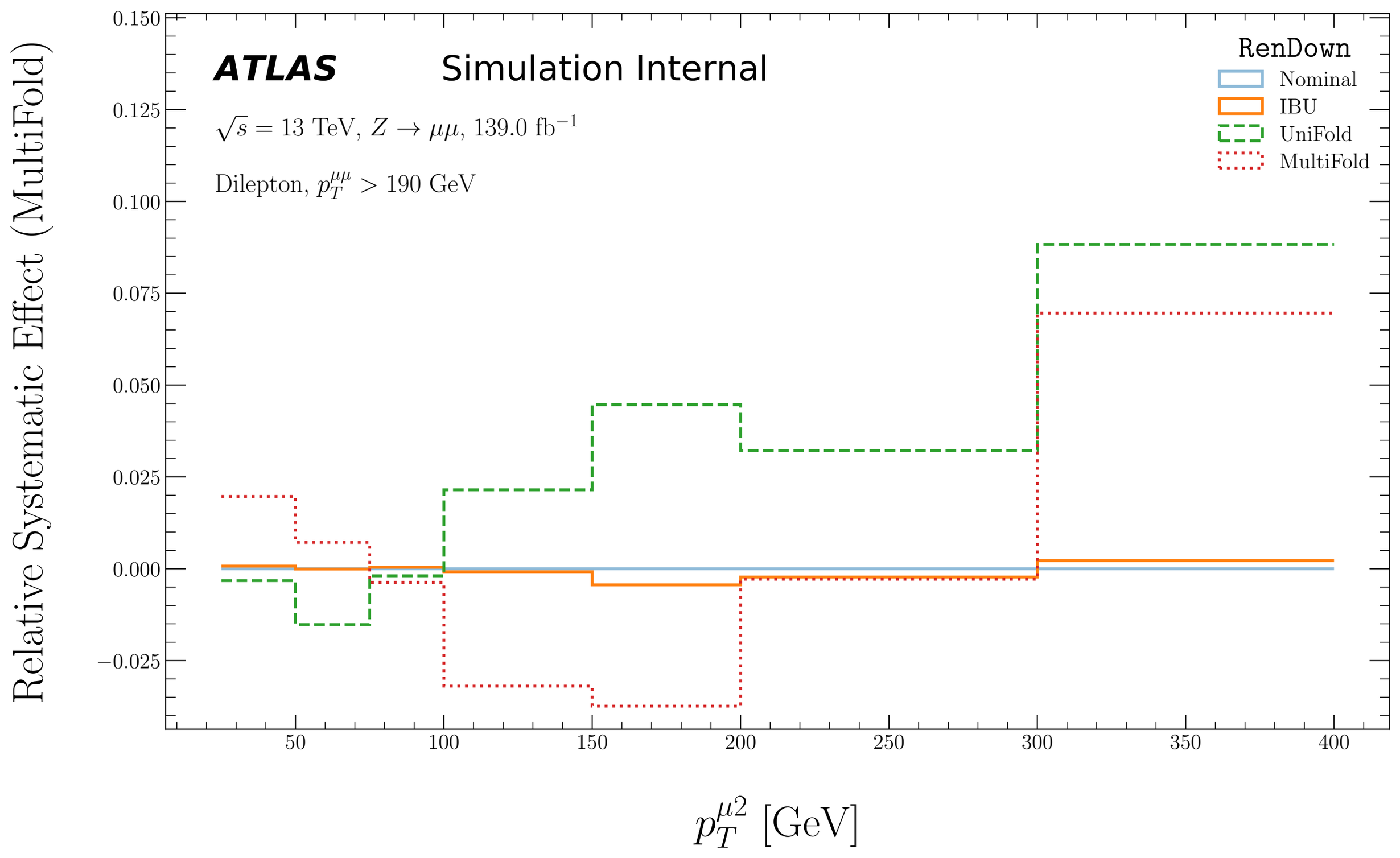

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
$p_T^{\mu 1}$ [GeV]
0.2
0.1
0.0
−0.1
−0.2
0
100
200
300
400
500
600
700
800

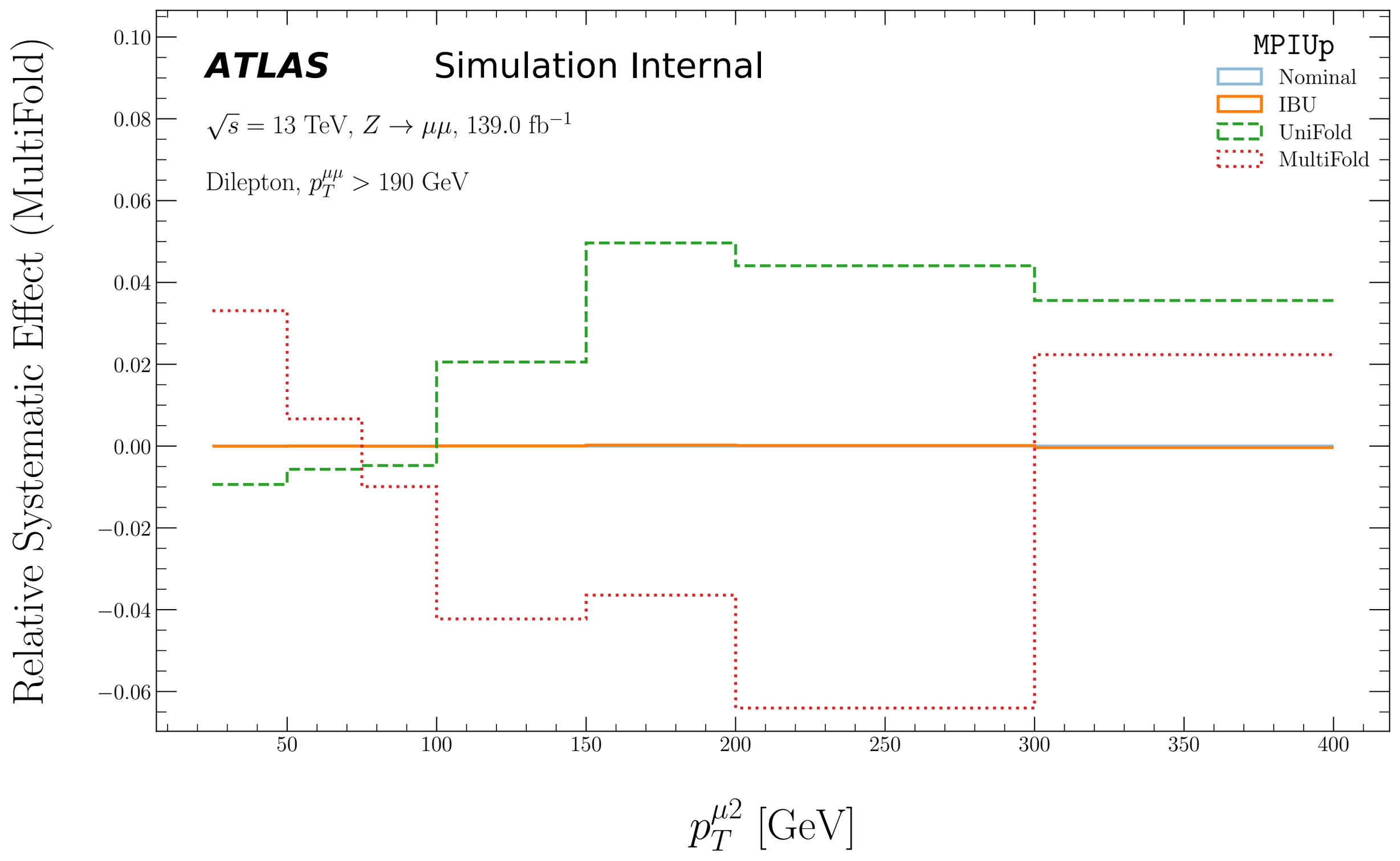

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.1
0.0
−0.1
−0.2
0
100
200
300
400
500
600
700
800
$p_T^{\mu 1}$ [GeV]

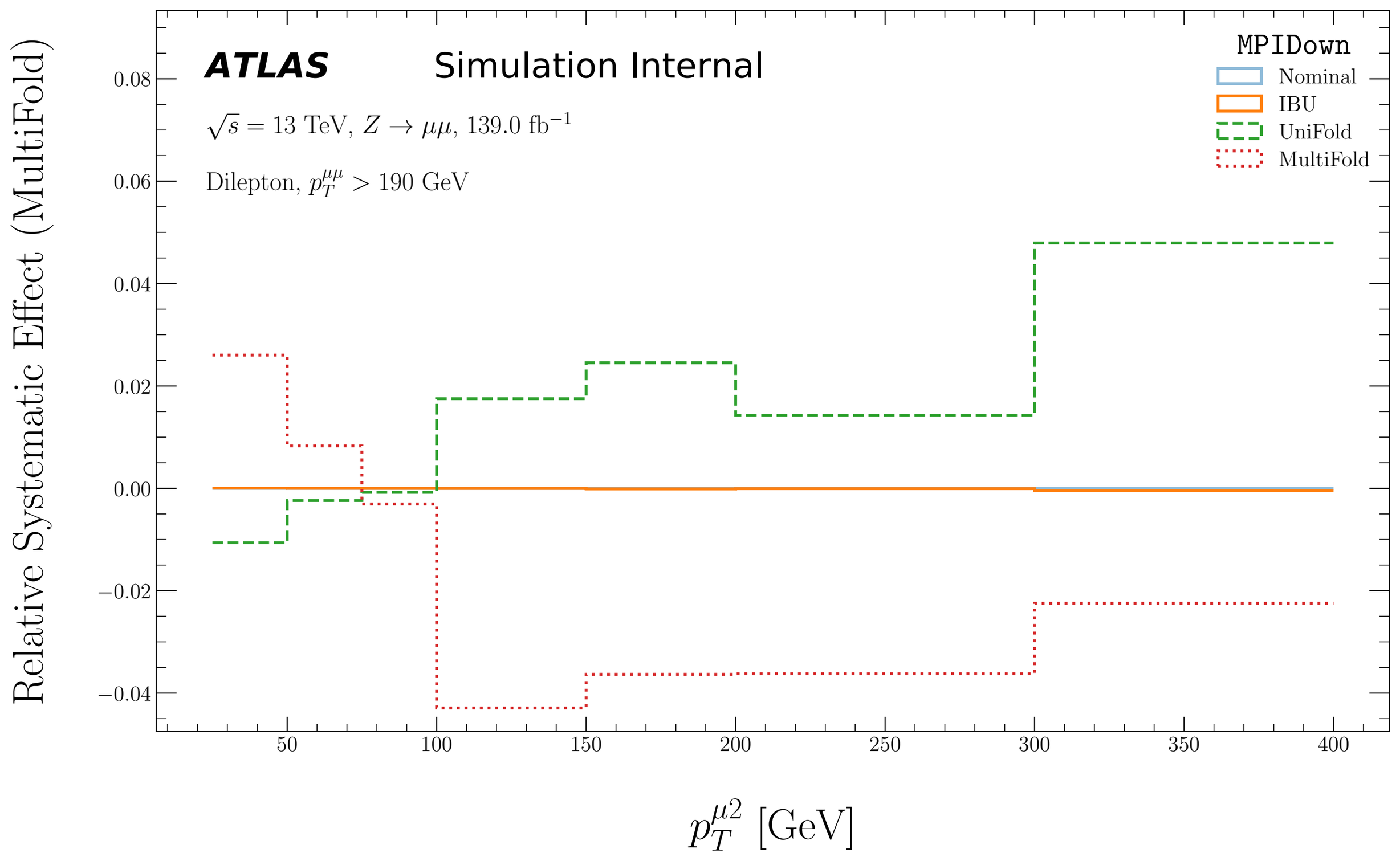

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.2
0.1
0.0
−0.1
−0.2
0
100
200
300
400
500
600
700
800
$p_T^{\mu 1}$ [GeV]

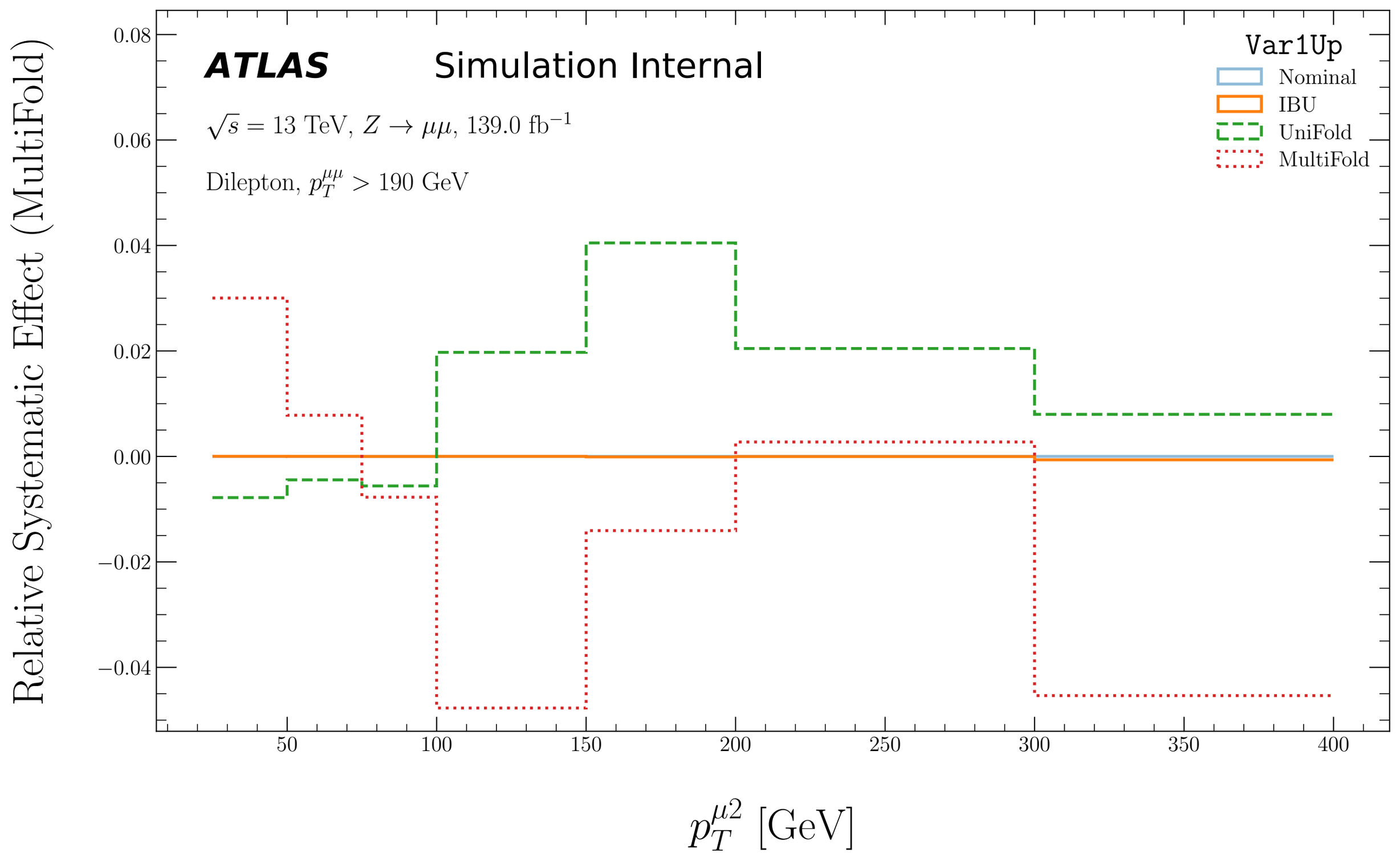

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
−0.20
0
100
200
300
400
500
600
700
800
$p_T^{\mu 1}$ [GeV]

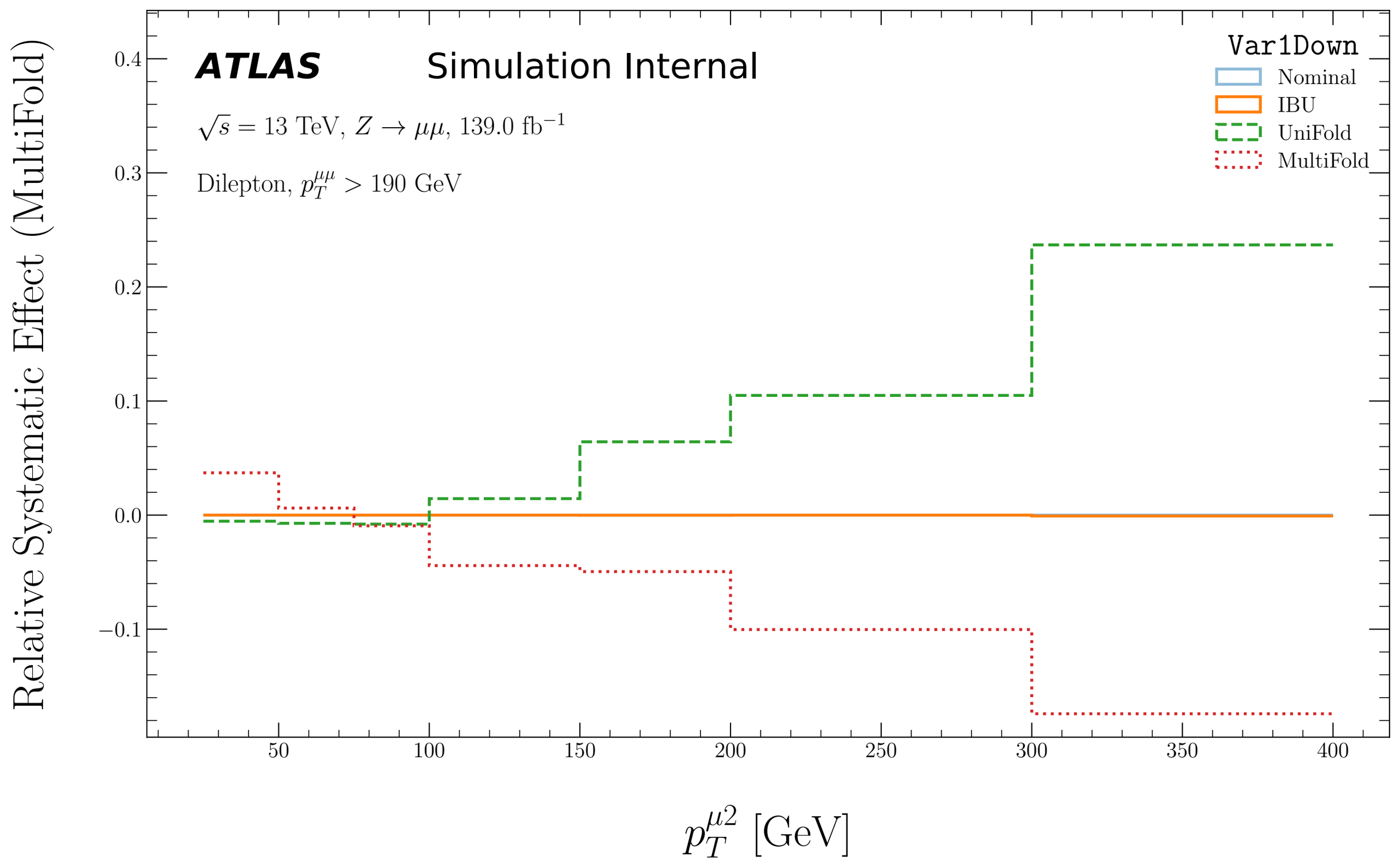

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.25
0.20
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
50
100
150
200
250
300
350
400
$p_T^{\mu 2}$ [GeV]

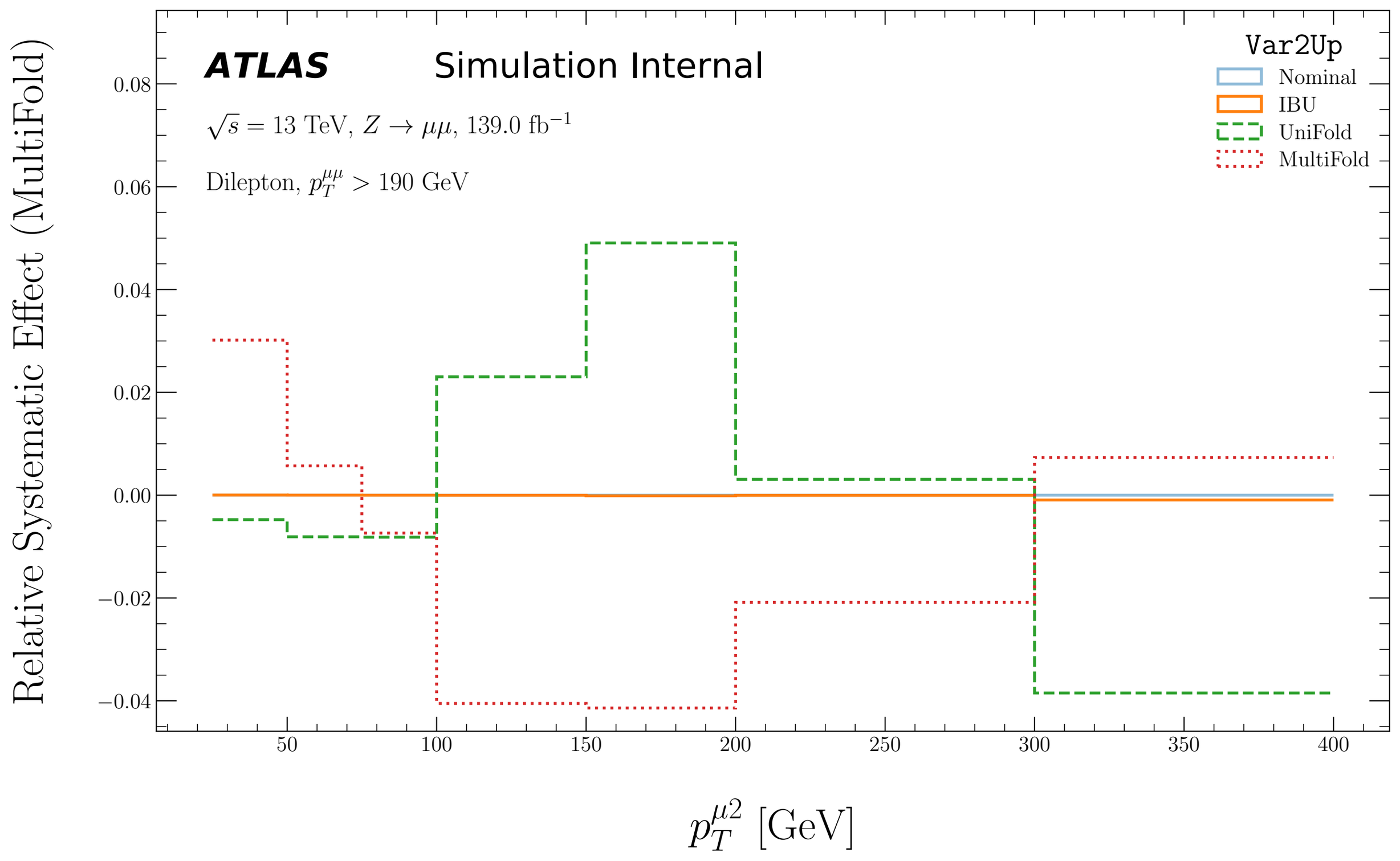

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.150
0.125
0.100
0.075
0.050
0.025
0.000
−0.025
50
100
150
200
250
300
350
400
$p_T^{\mu 2}$ [GeV]

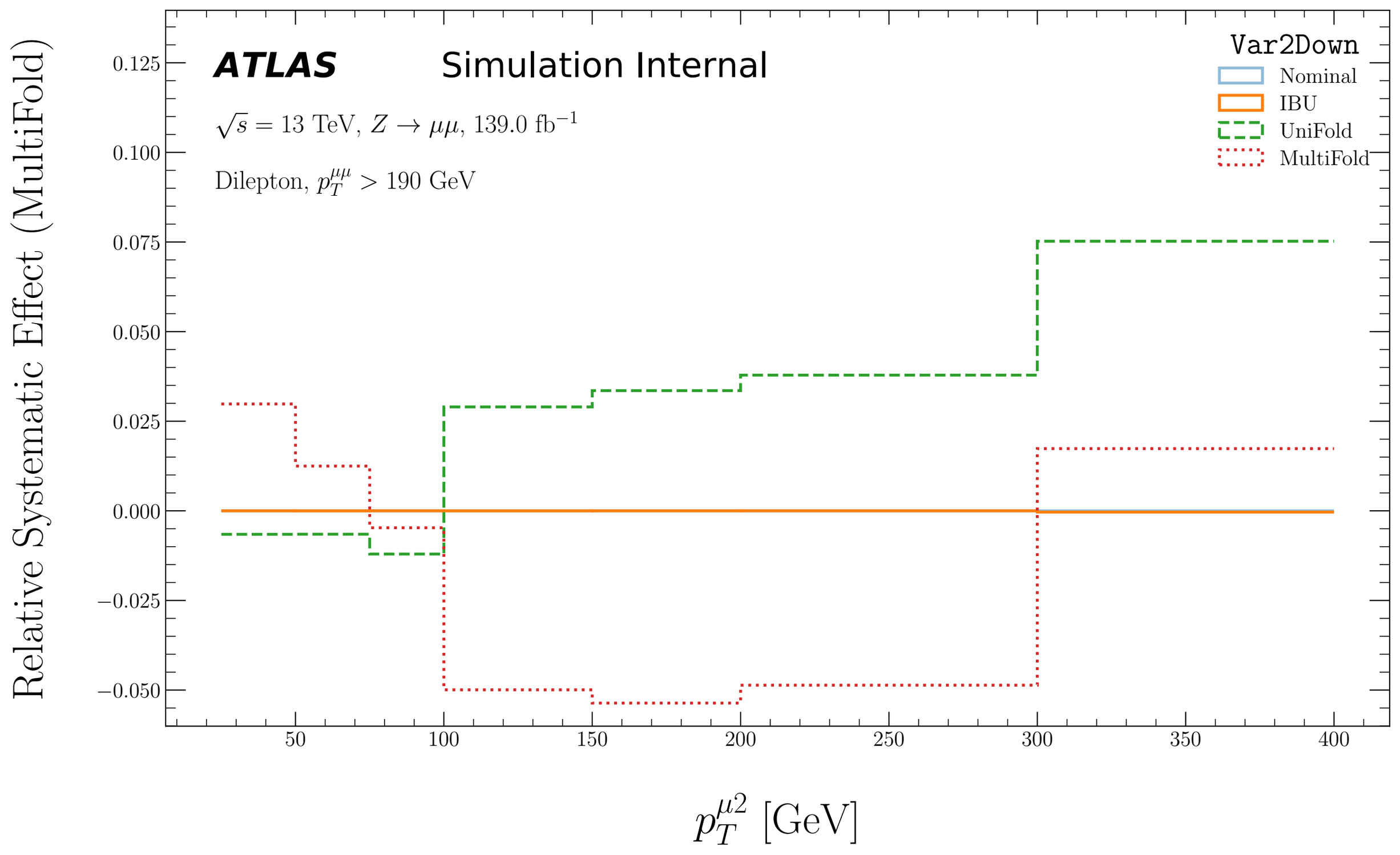

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
−0.04
−0.06
50
100
150
200
250
300
350
400
$p_T^{\mu 2}$ [GeV]

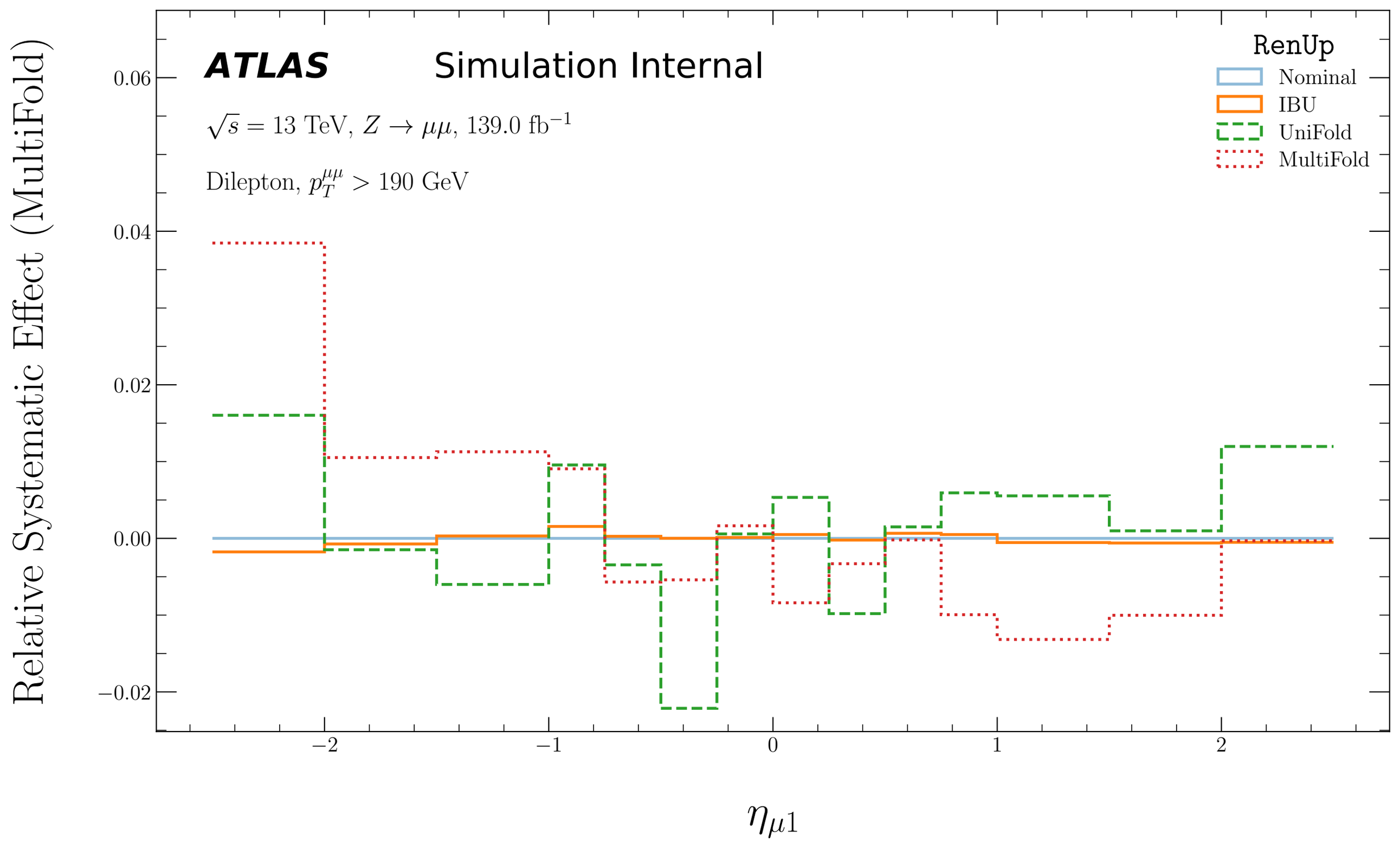

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
−0.04
50
100
150
200
250
300
350
400
$p_T^{\mu 2}$ [GeV]

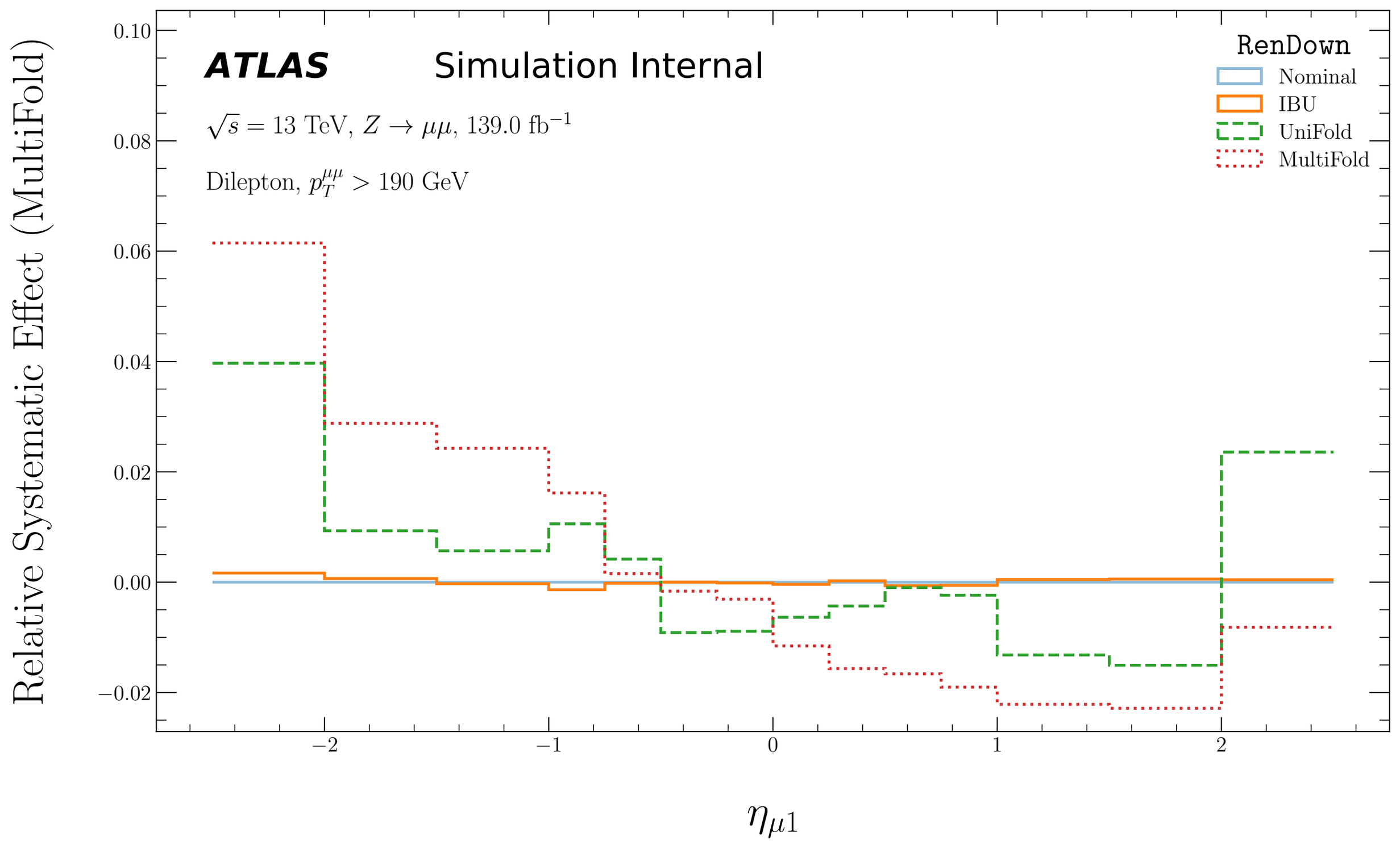

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
−0.04
50
100
150
200
250
300
350
400
$p_T^{\mu 2}$ [GeV]

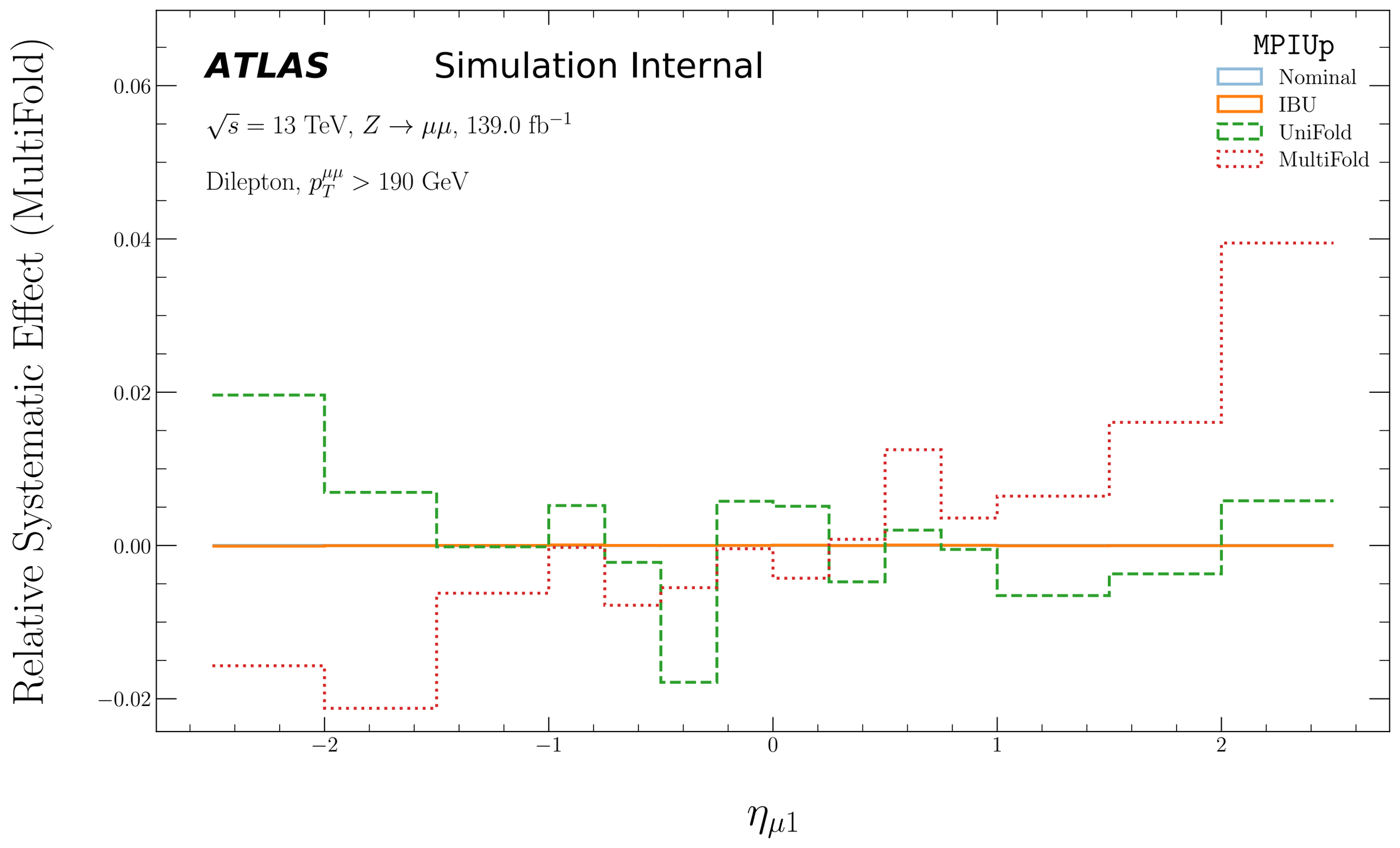

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.4
0.3
0.2
0.1
0.0
−0.1
50
100
150
200
250
300
350
400
$p_T^{\mu 2}$ [GeV]

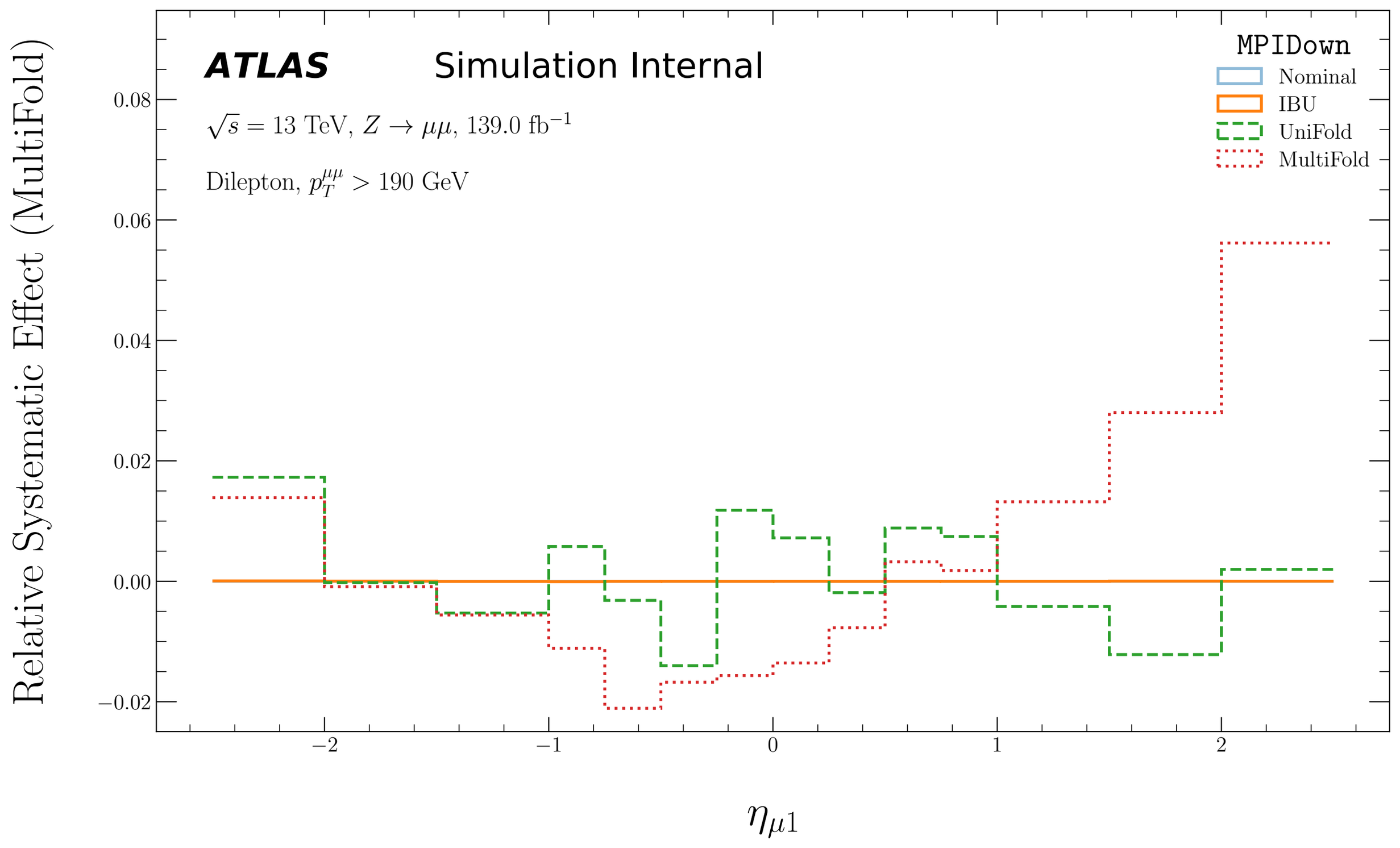

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
−0.04
50
100
150
200
250
300
350
400
$p_T^{\mu 2}$ [GeV]

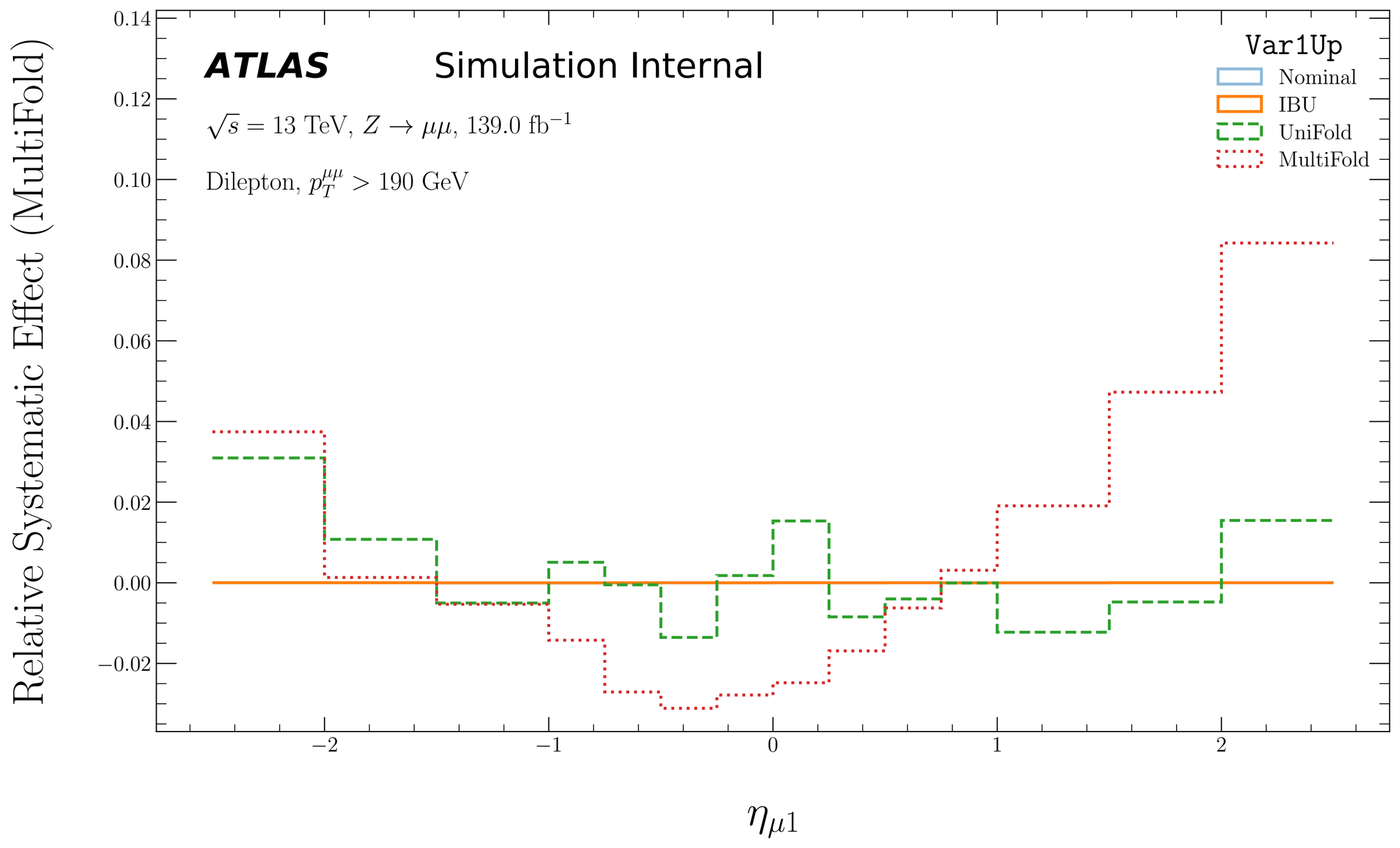

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.125
0.100
0.075
0.050
0.025
0.000
−0.025
−0.050
50
100
150
200
250
300
350
400
$p_T^{\mu 2}$ [GeV]

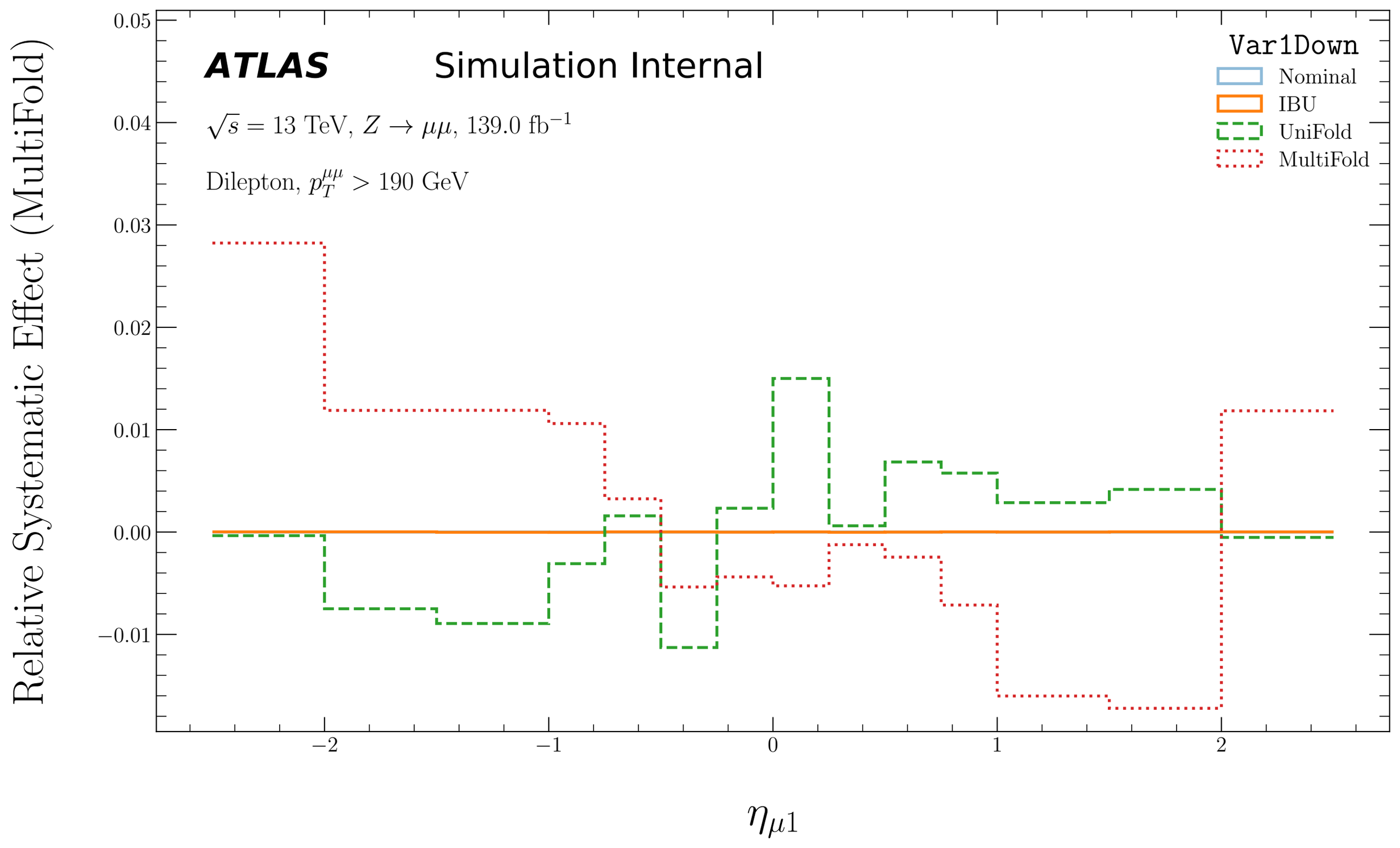

ATLAS
Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
$\eta_{\mu 1}$

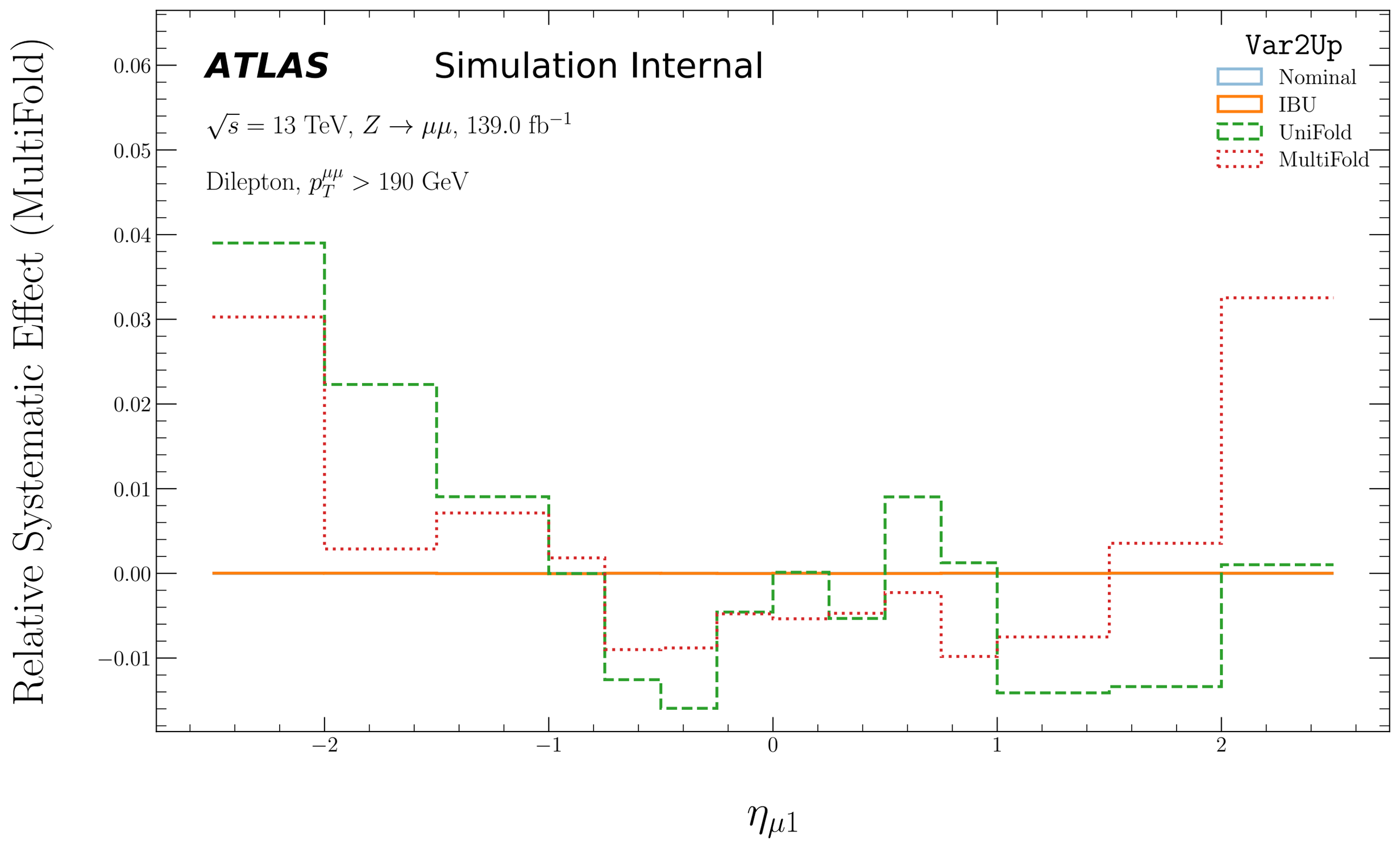

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
$\eta_{\mu 1}$

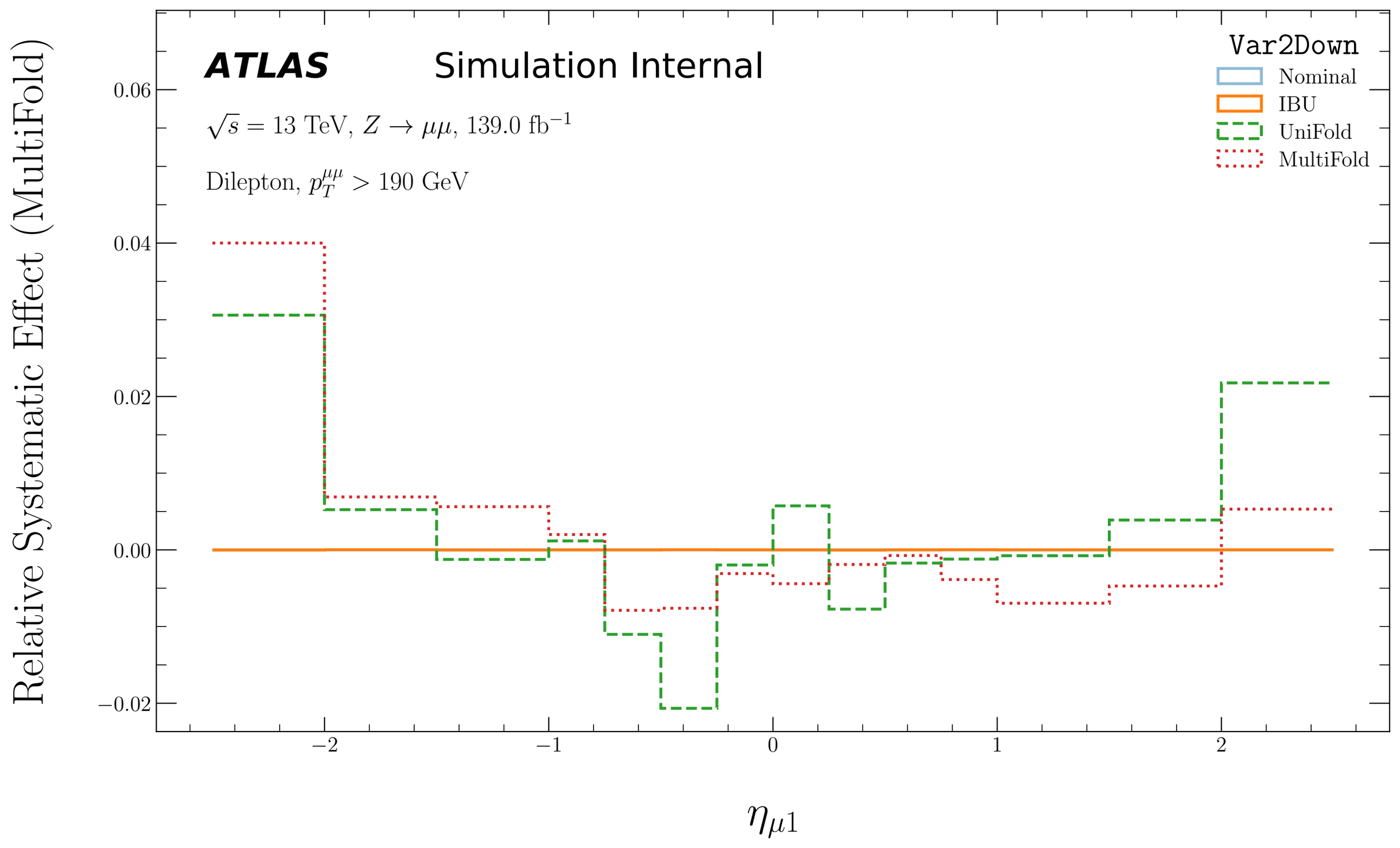

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
$\eta_{\mu 1}$

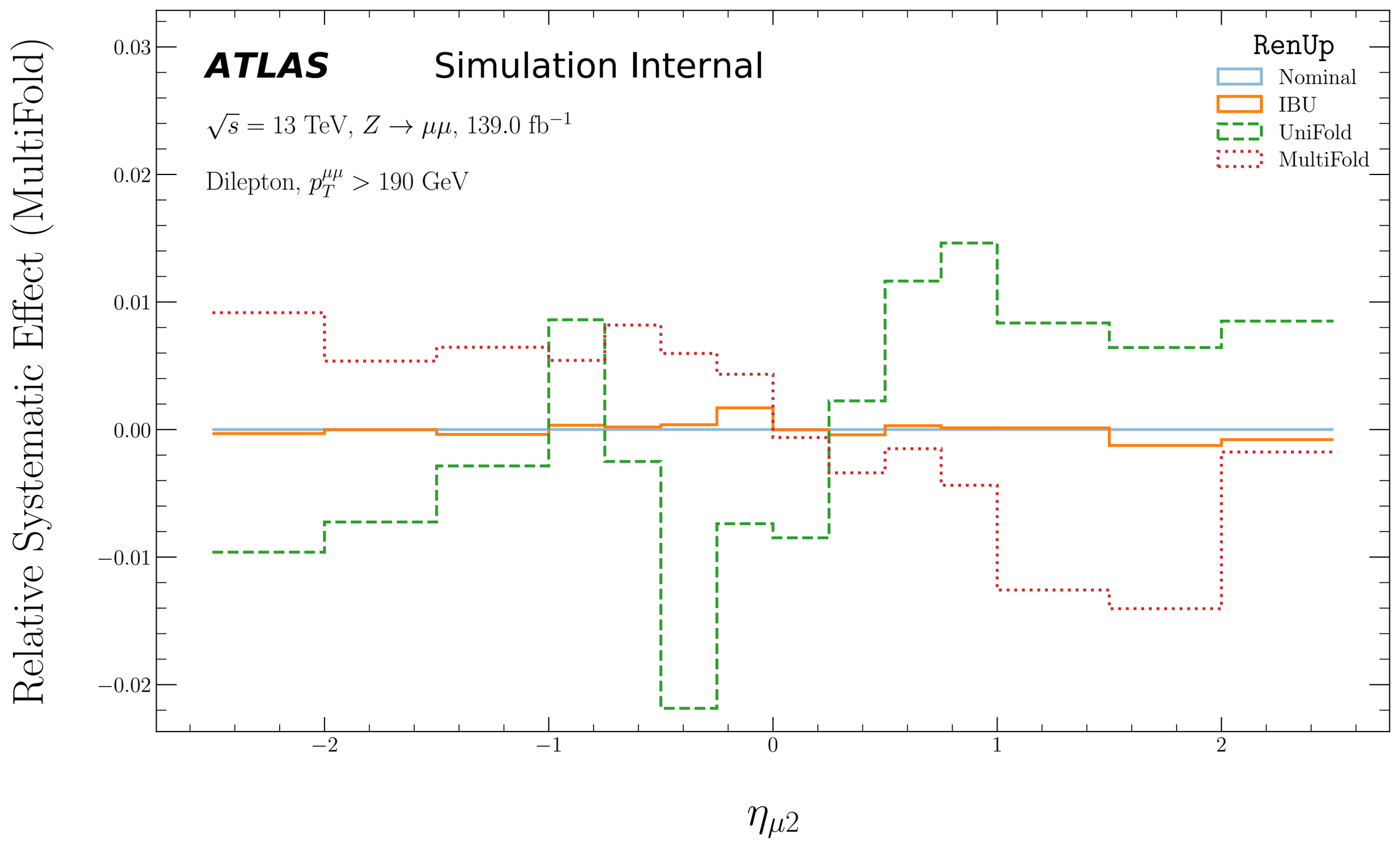

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
$\eta_{\mu 1}$

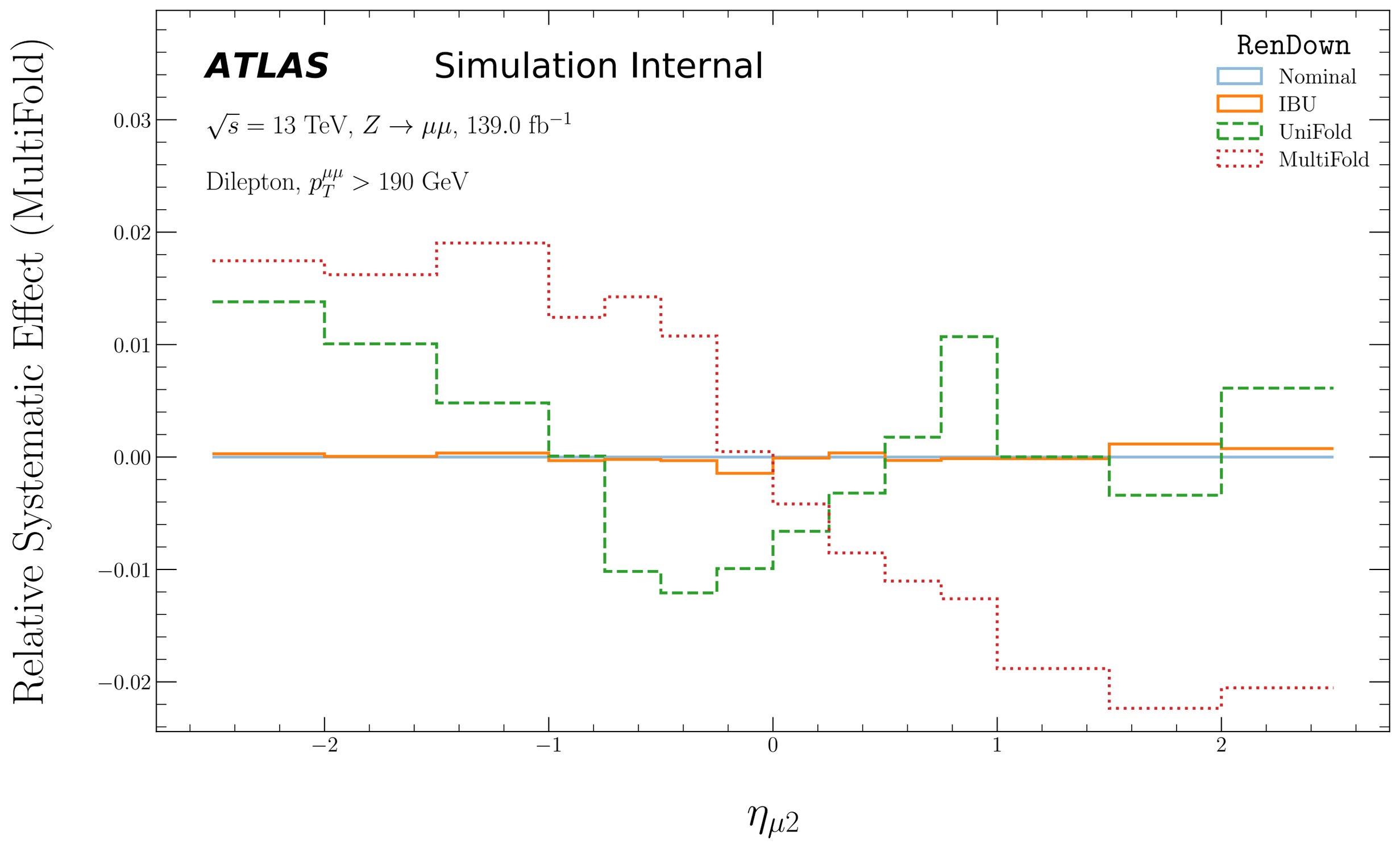

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
$\eta_{\mu 1}$
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2

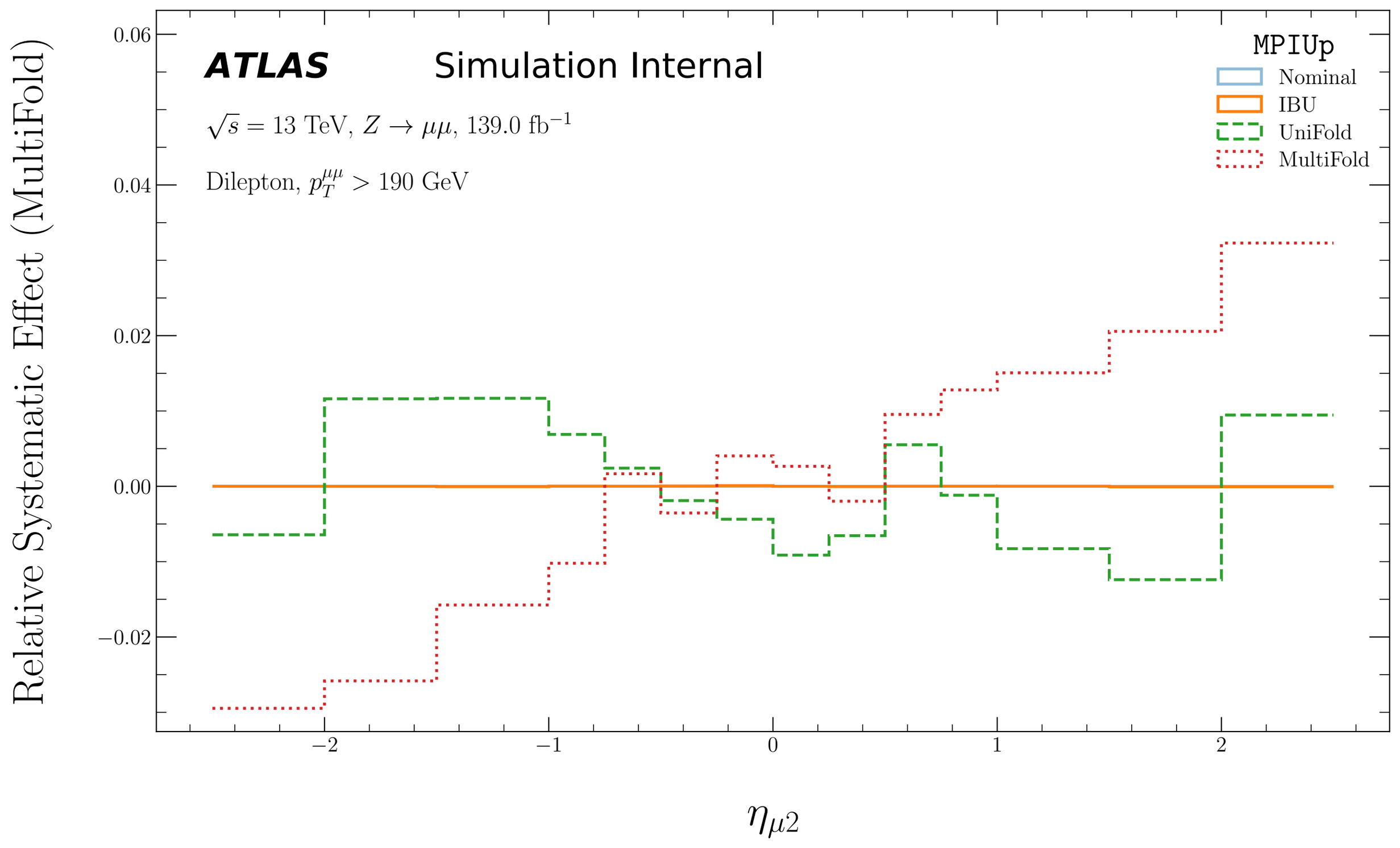

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−2
−1
0
1
2
$\eta_{\mu 1}$

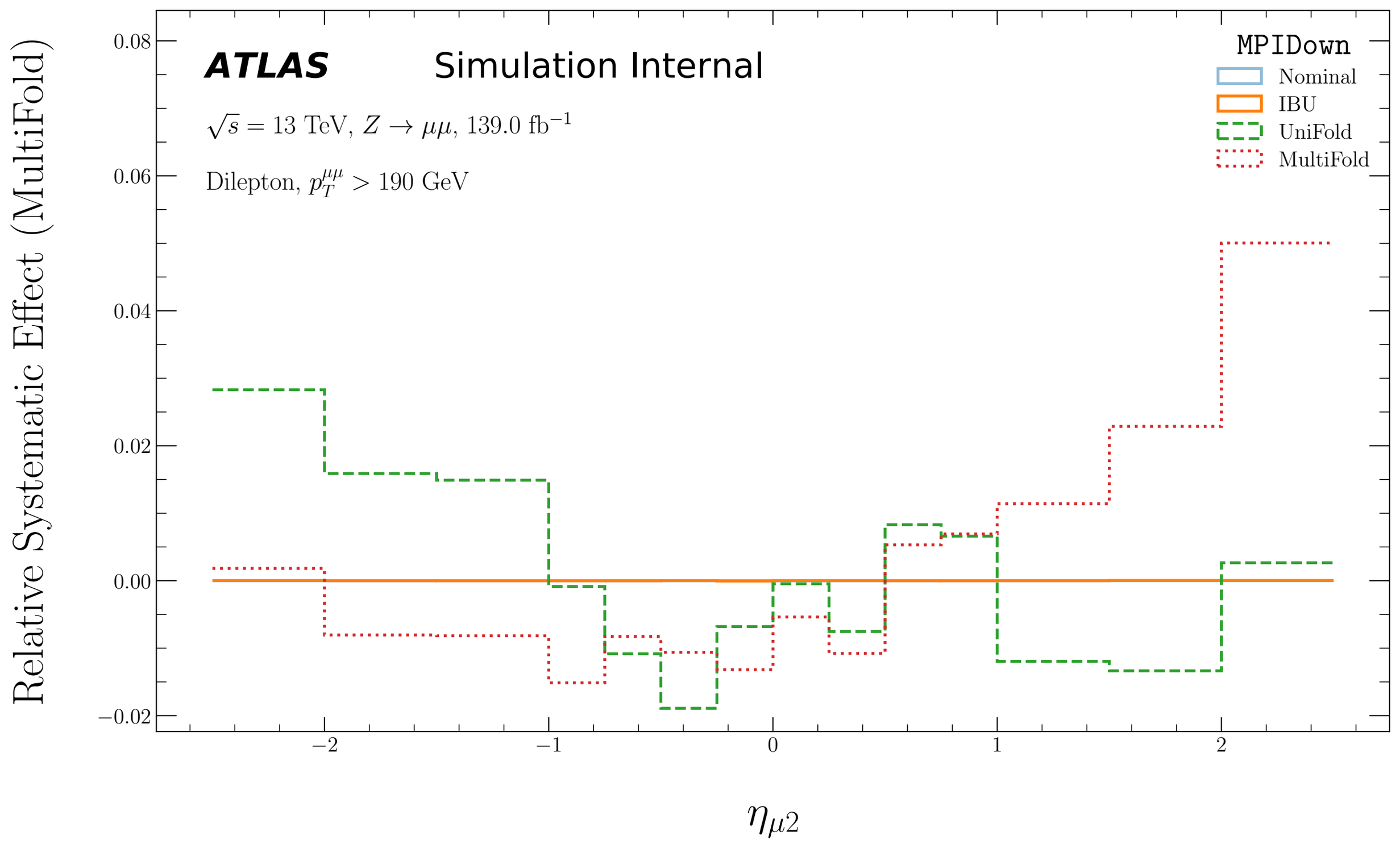

ATLAS
Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.06
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−2
−1
0
1
2
$\eta_{\mu 1}$

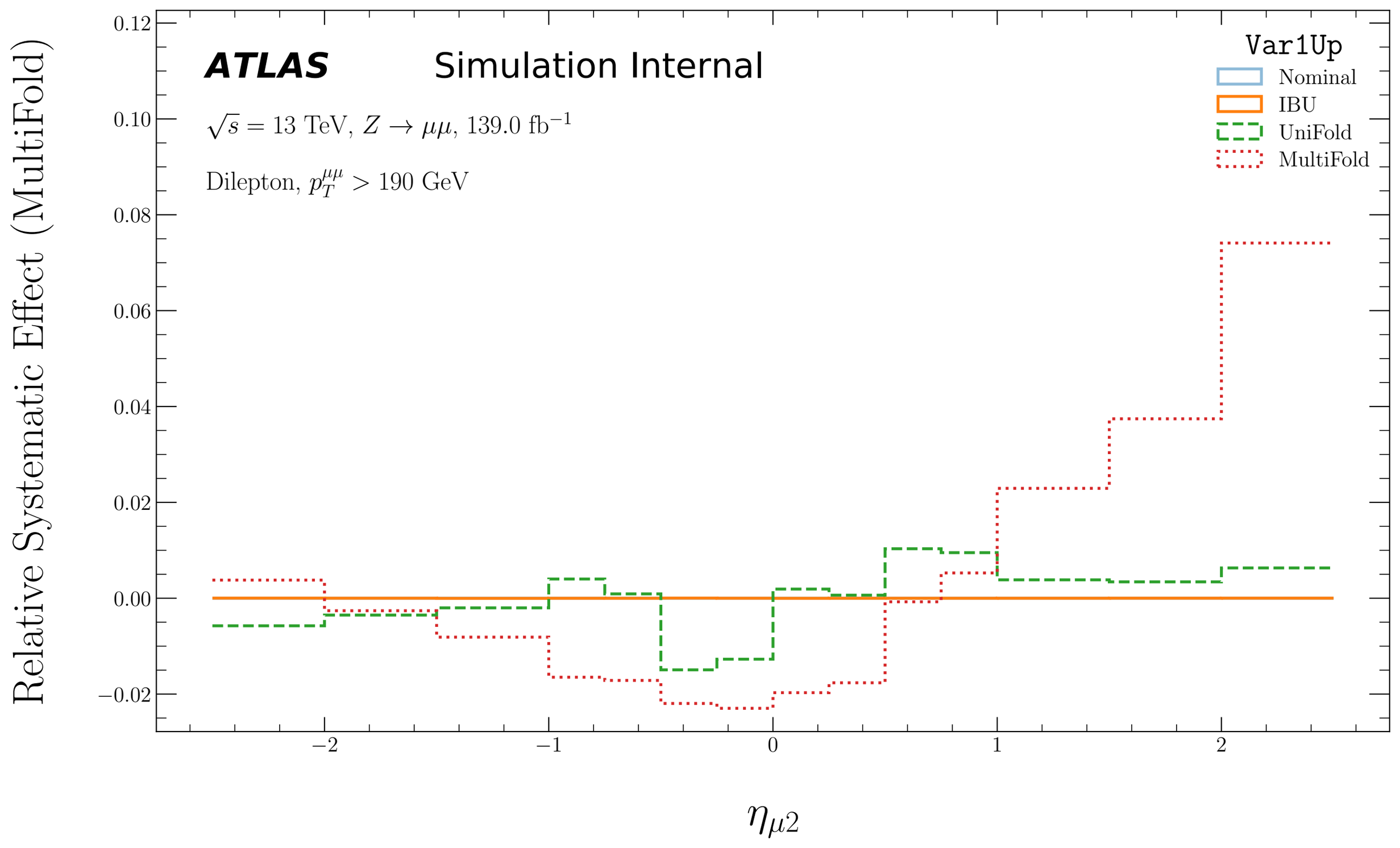

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
$\eta_{\mu 1}$

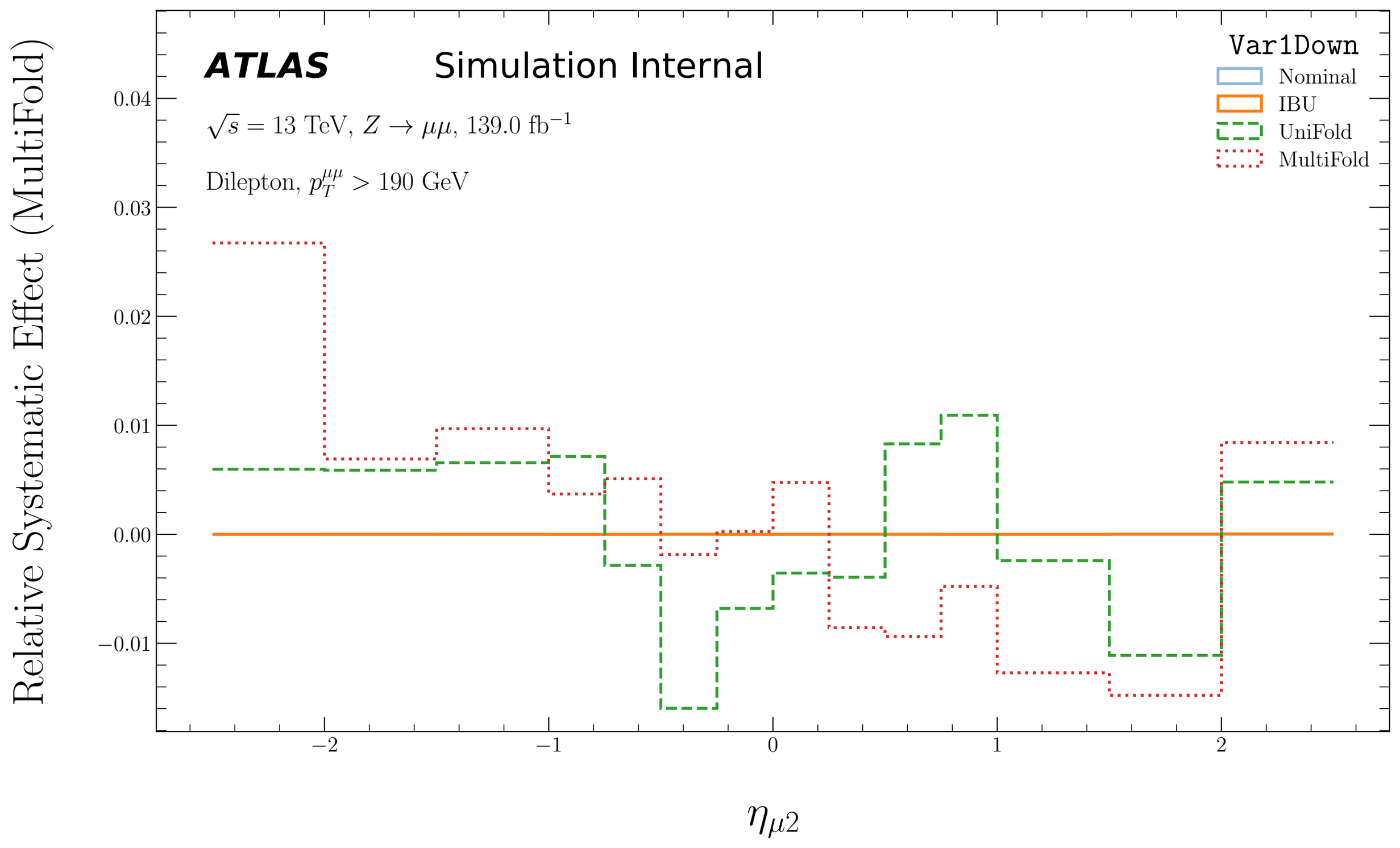

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.03
0.02
0.01
0.00
−0.01
−0.02
−2
−1
0
1
2
$\eta_{\mu 2}$

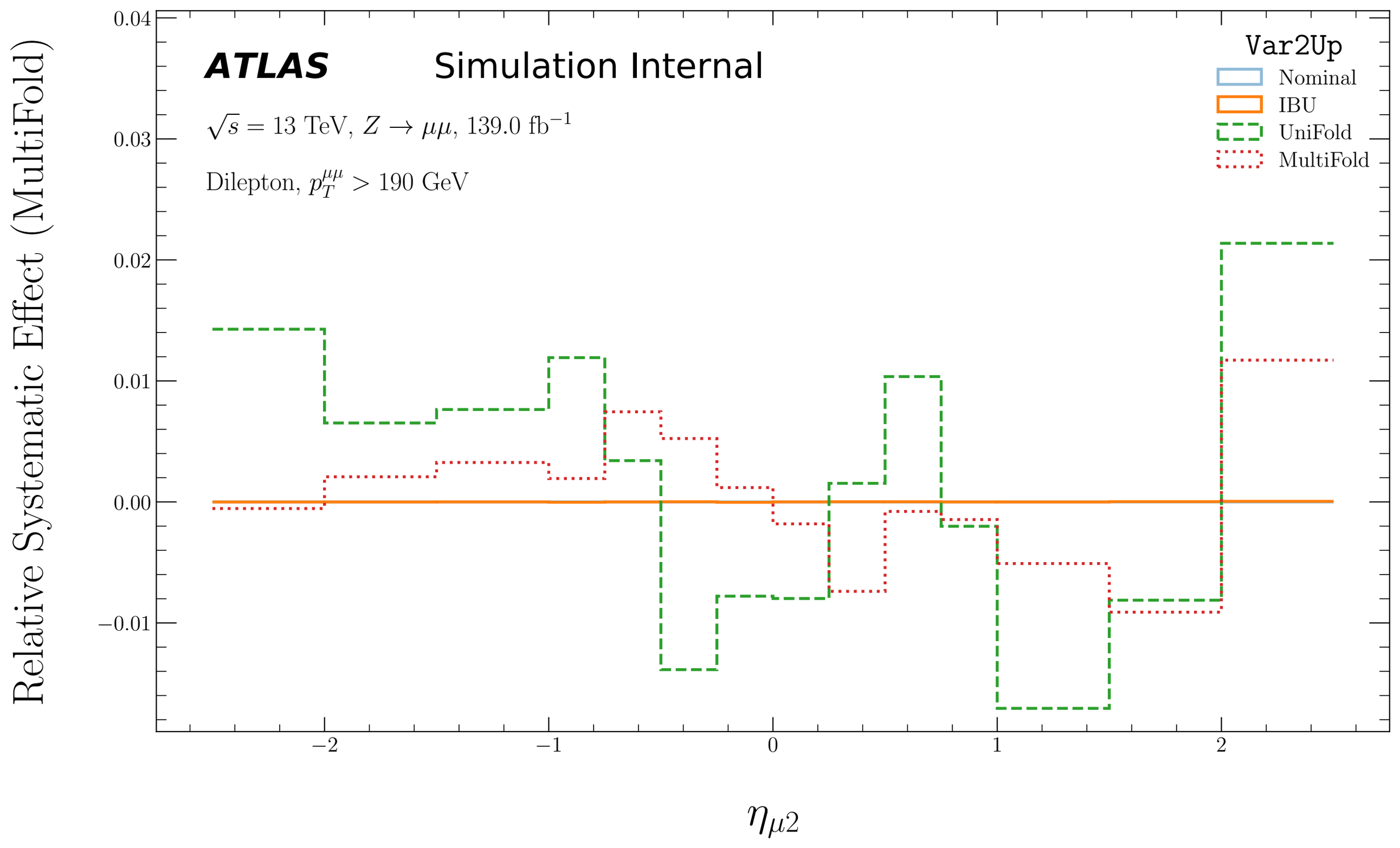

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.03
0.02
0.01
0.00
−0.01
−0.02
−2
−1
0
1
2
$\eta_{\mu 2}$

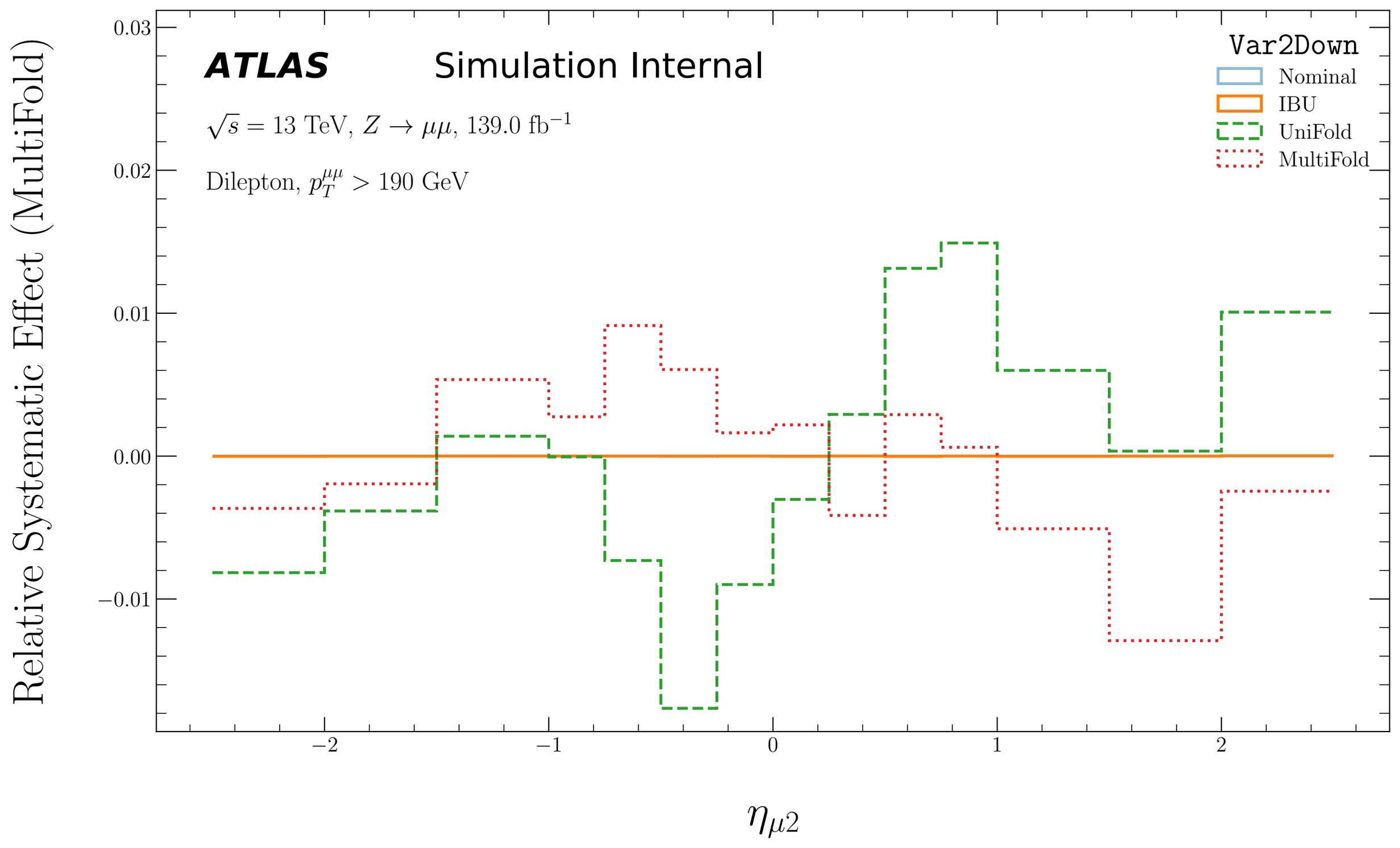

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
$\eta_{\mu 2}$

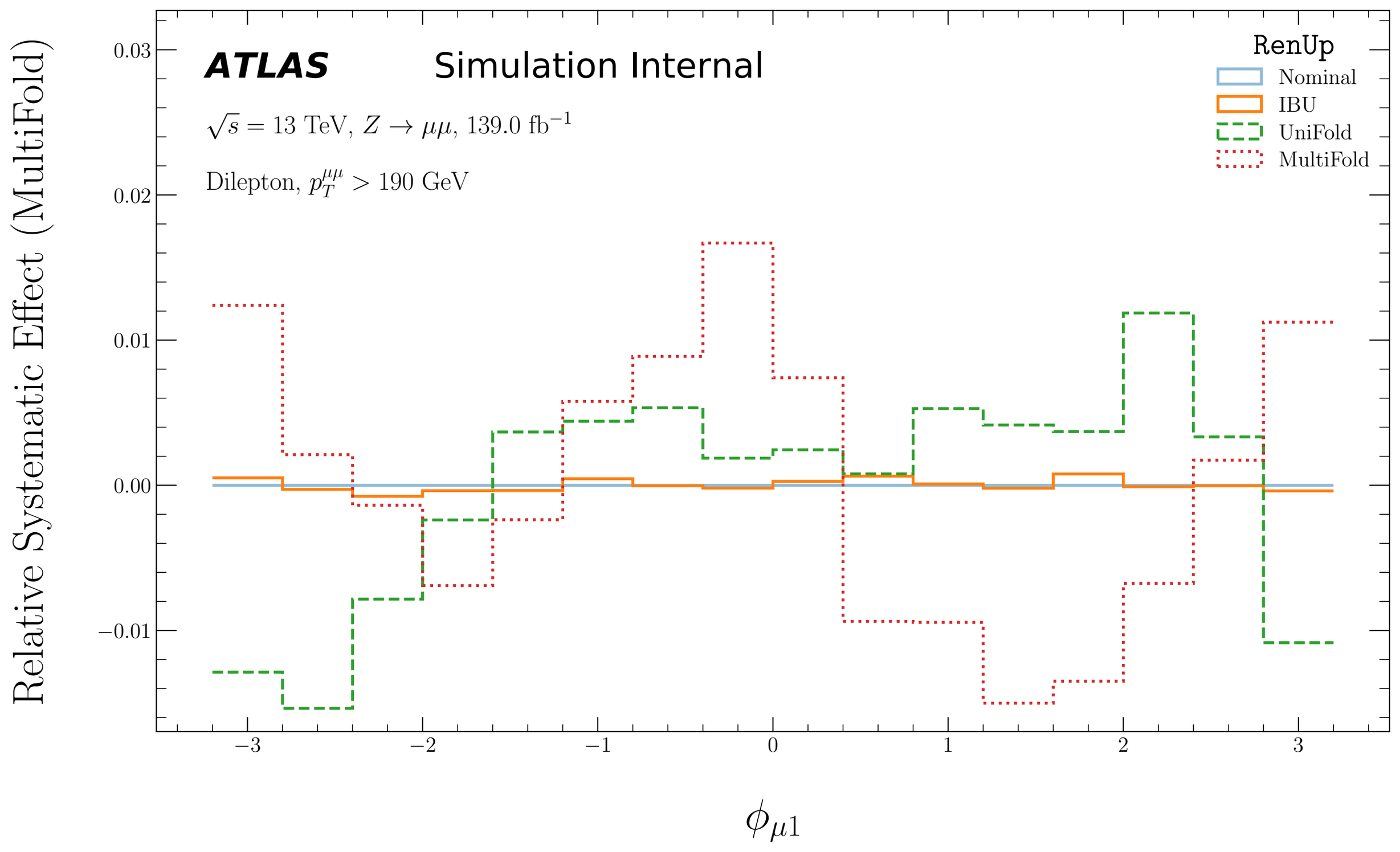

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.08
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
$\eta_{\mu 2}$

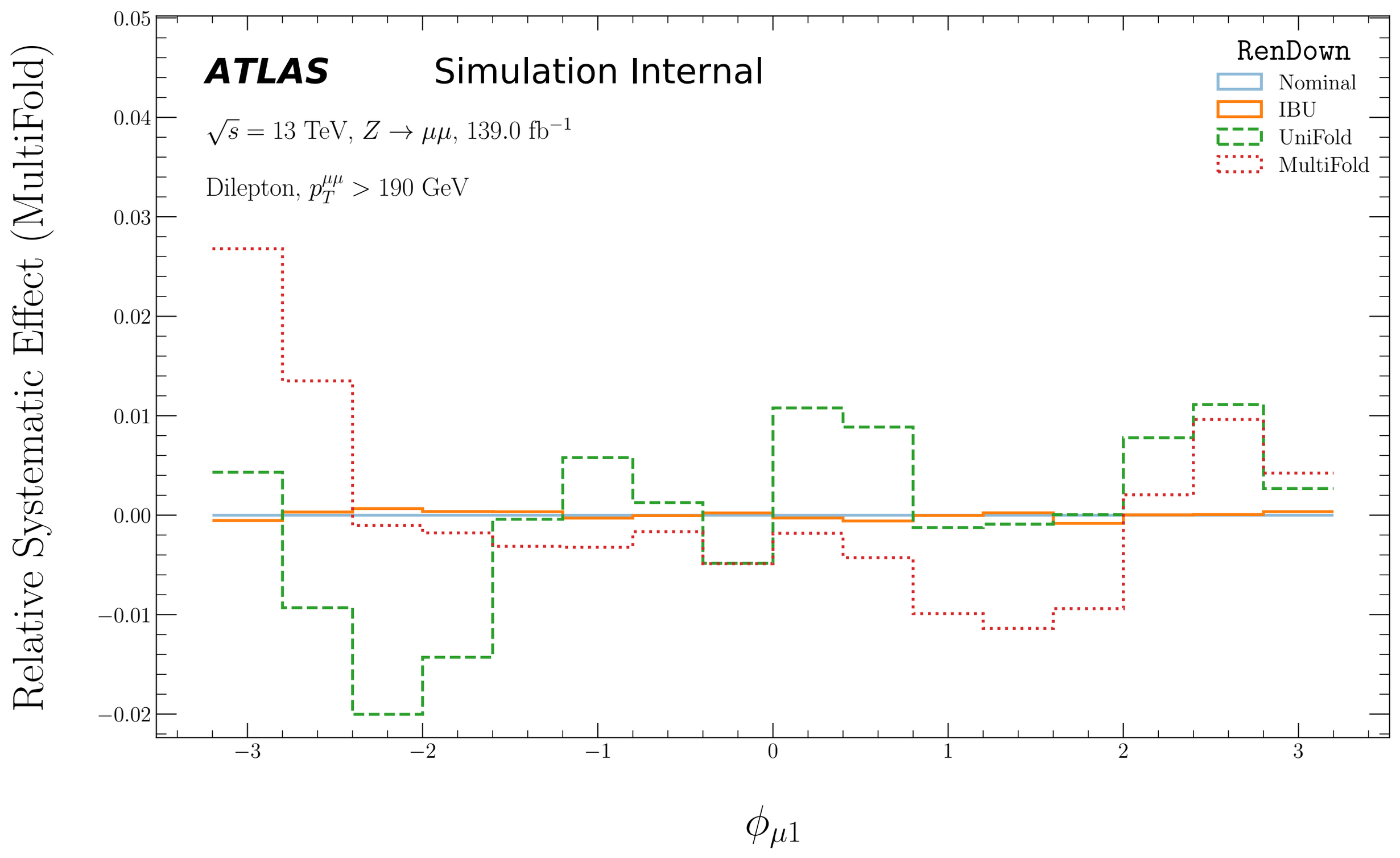

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.12
0.10
0.08
0.06
0.04
0.02
0.00
−0.02
−2
−1
0
1
2
$\eta_{\mu 2}$

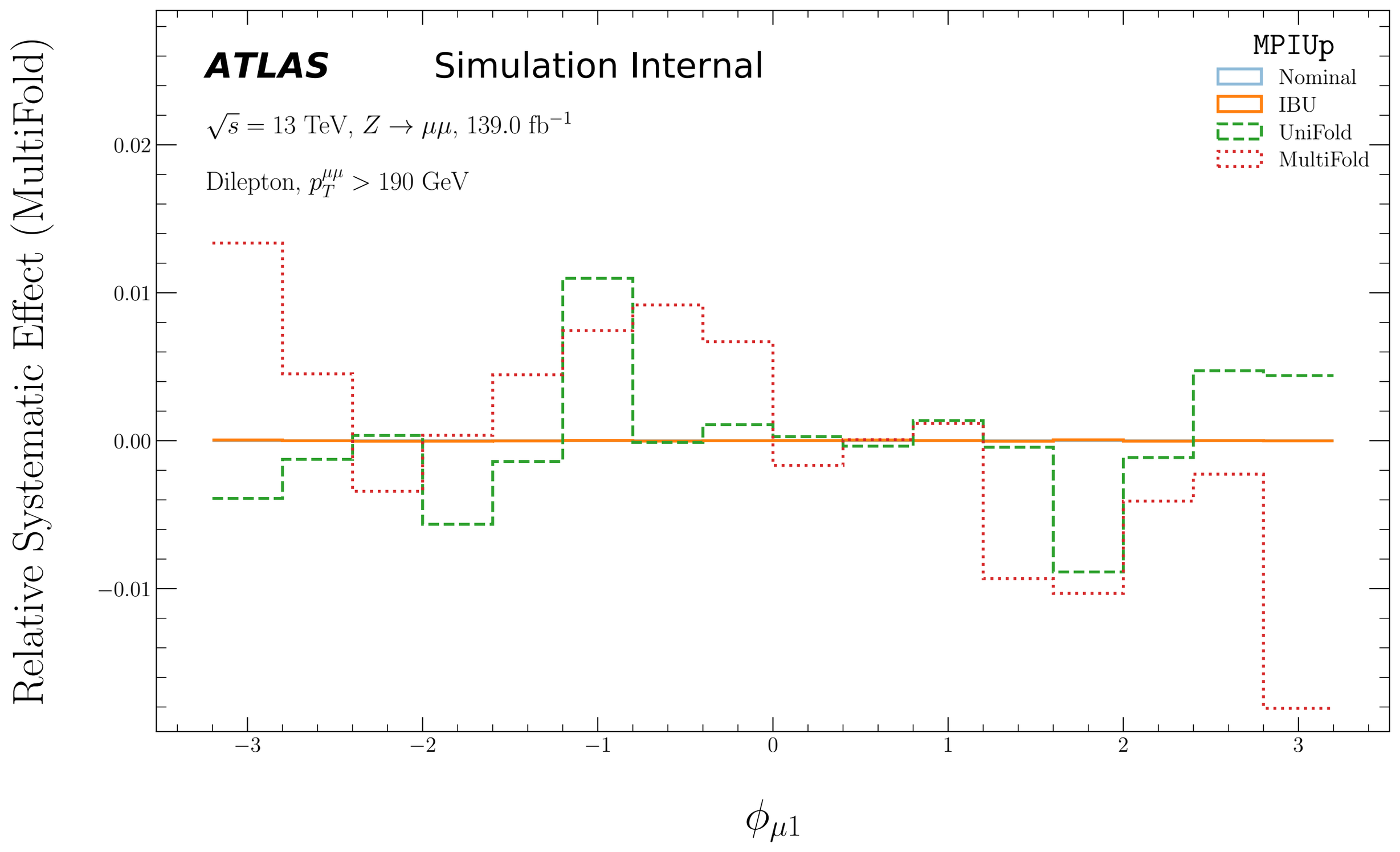

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.04
0.03
0.02
0.01
0.00
−0.01
−2
−1
0
1
2
$\eta_{\mu 2}$

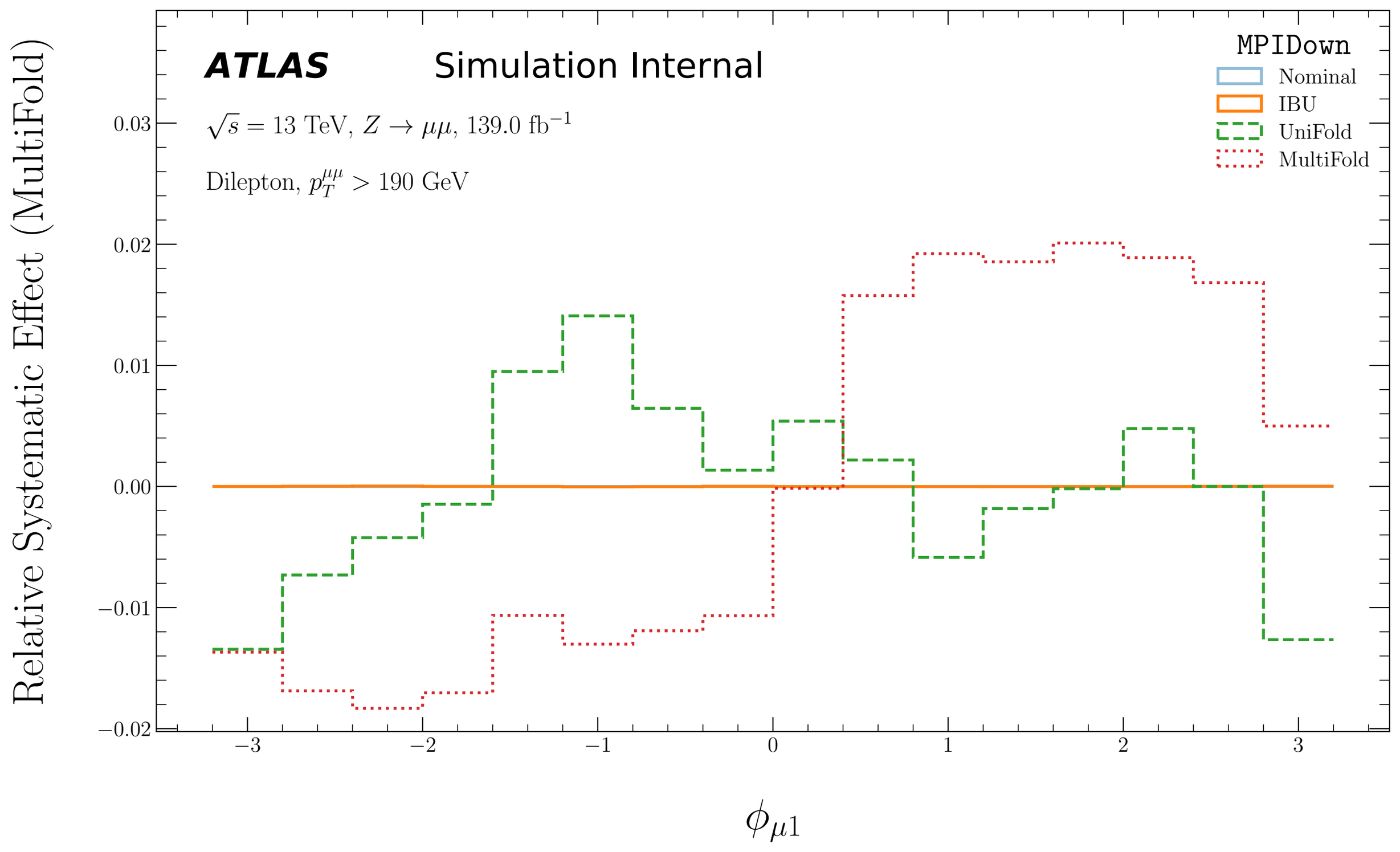

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.04
0.03
0.02
0.01
0.00
−0.01
−2
−1
0
1
2
$\eta_{\mu 2}$

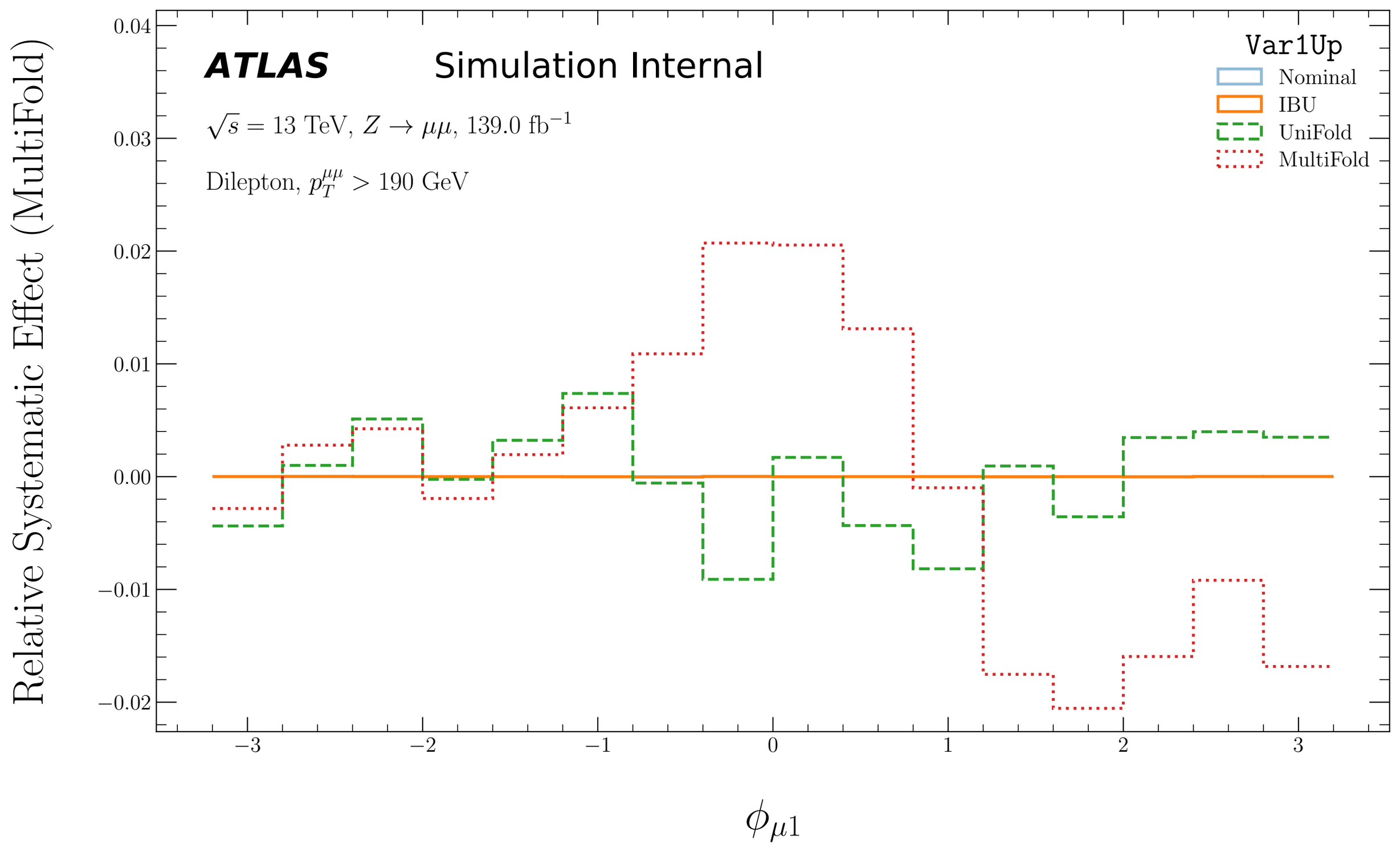

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.03
0.02
0.01
0.00
−0.01
−2
−1
0
1
2
$\eta_{\mu 2}$

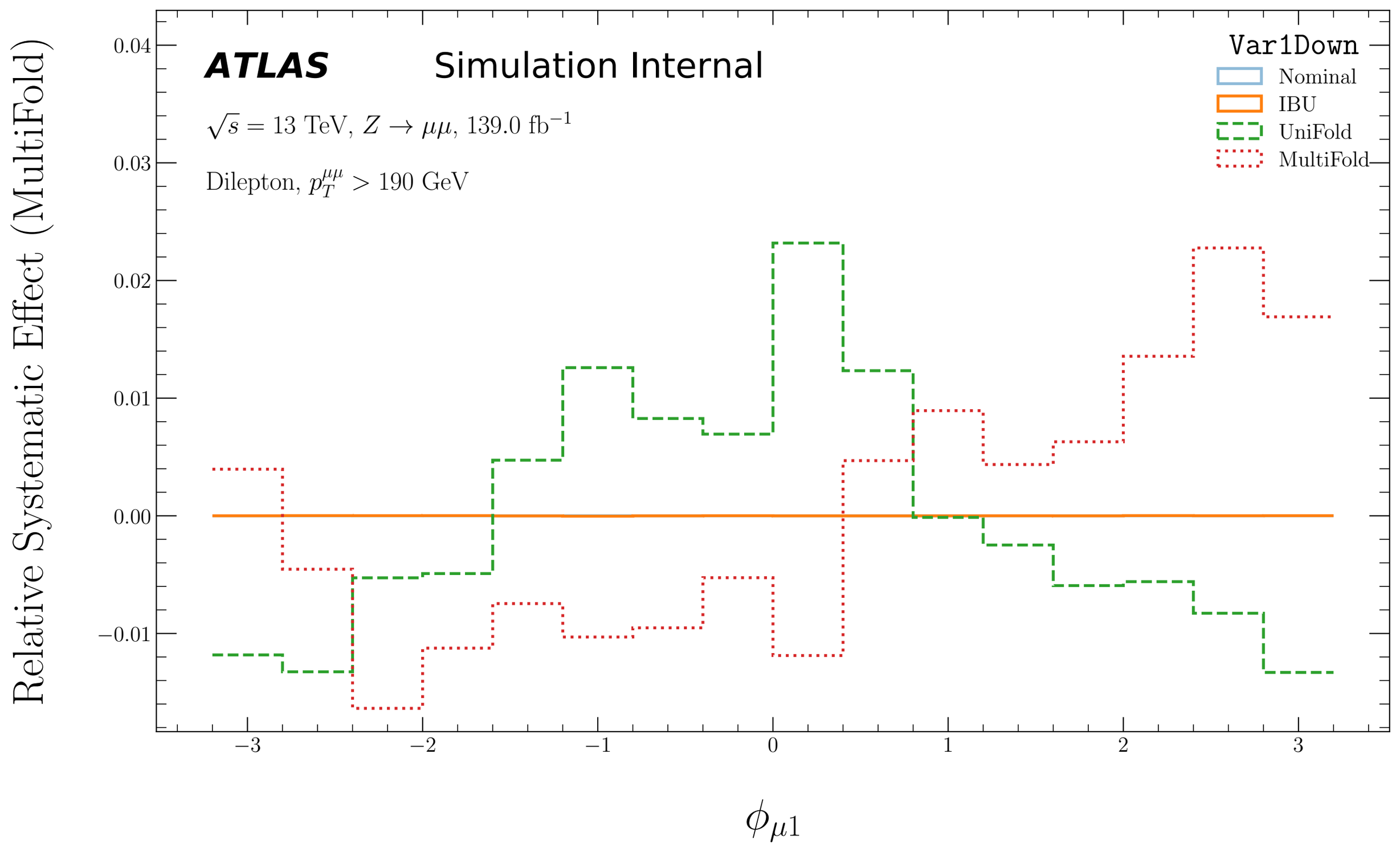

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.03
0.02
0.01
0.00
−0.01
−3
−2
−1
0
1
2
3
$\phi_{\mu 1}$

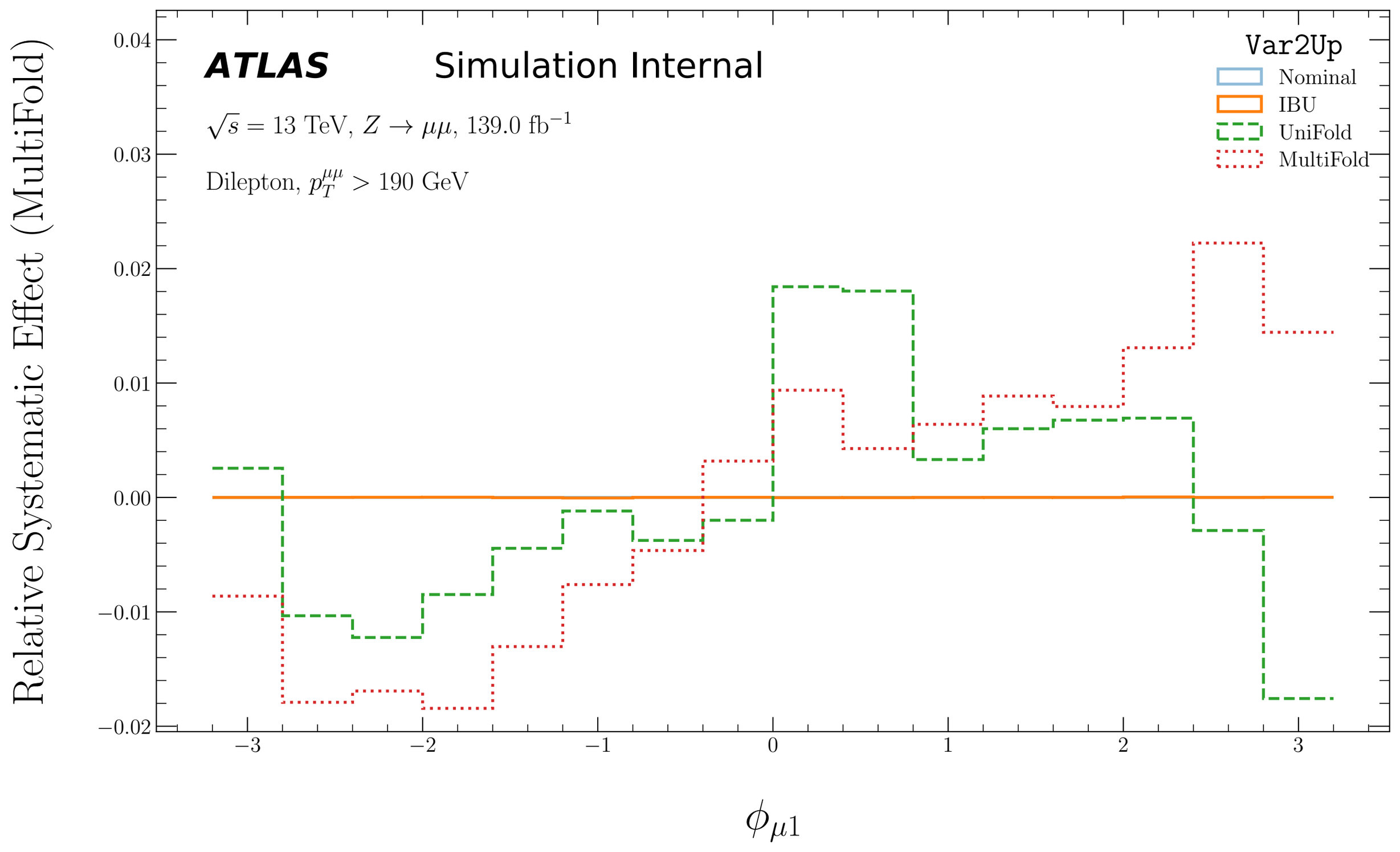

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
$\phi_{\mu 1}$
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
−3
−2
−1
0
1
2
3

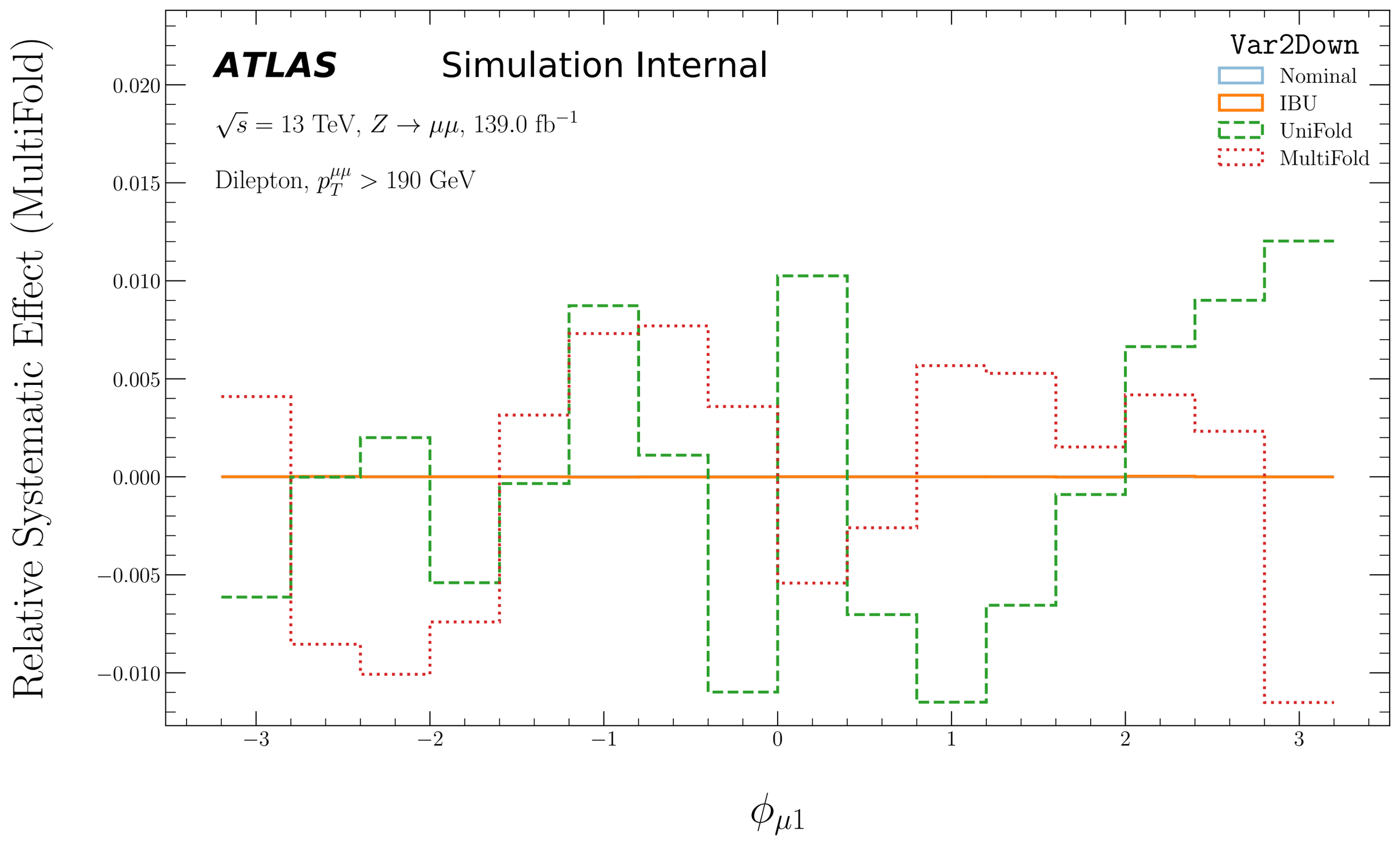

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.02
0.01
0.00
−0.01
−3
−2
−1
0
1
2
3
$\phi_{\mu 1}$

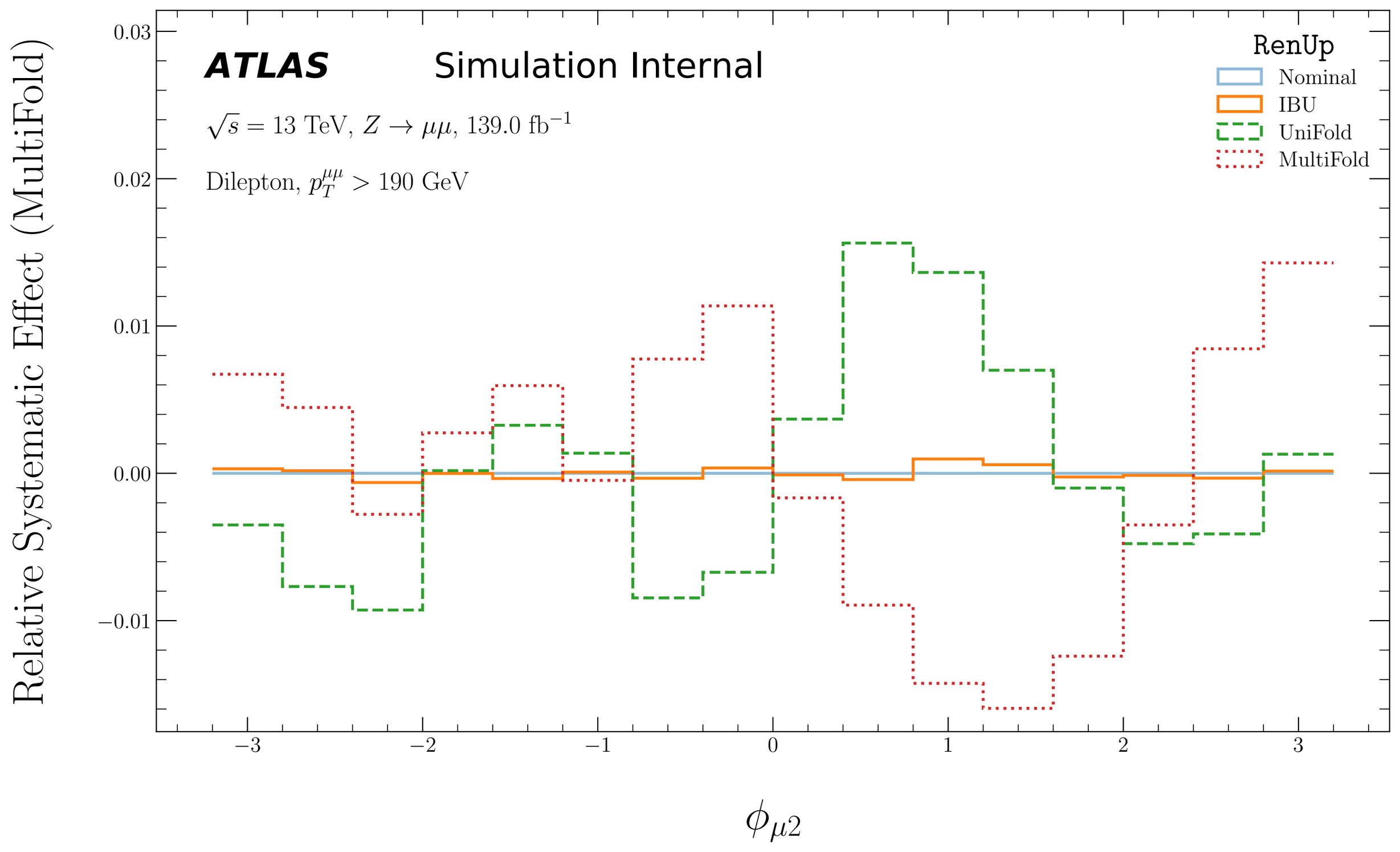

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.03
0.02
0.01
0.00
−0.01
−0.02
−3
−2
−1
0
1
2
3
$\phi_{\mu 1}$

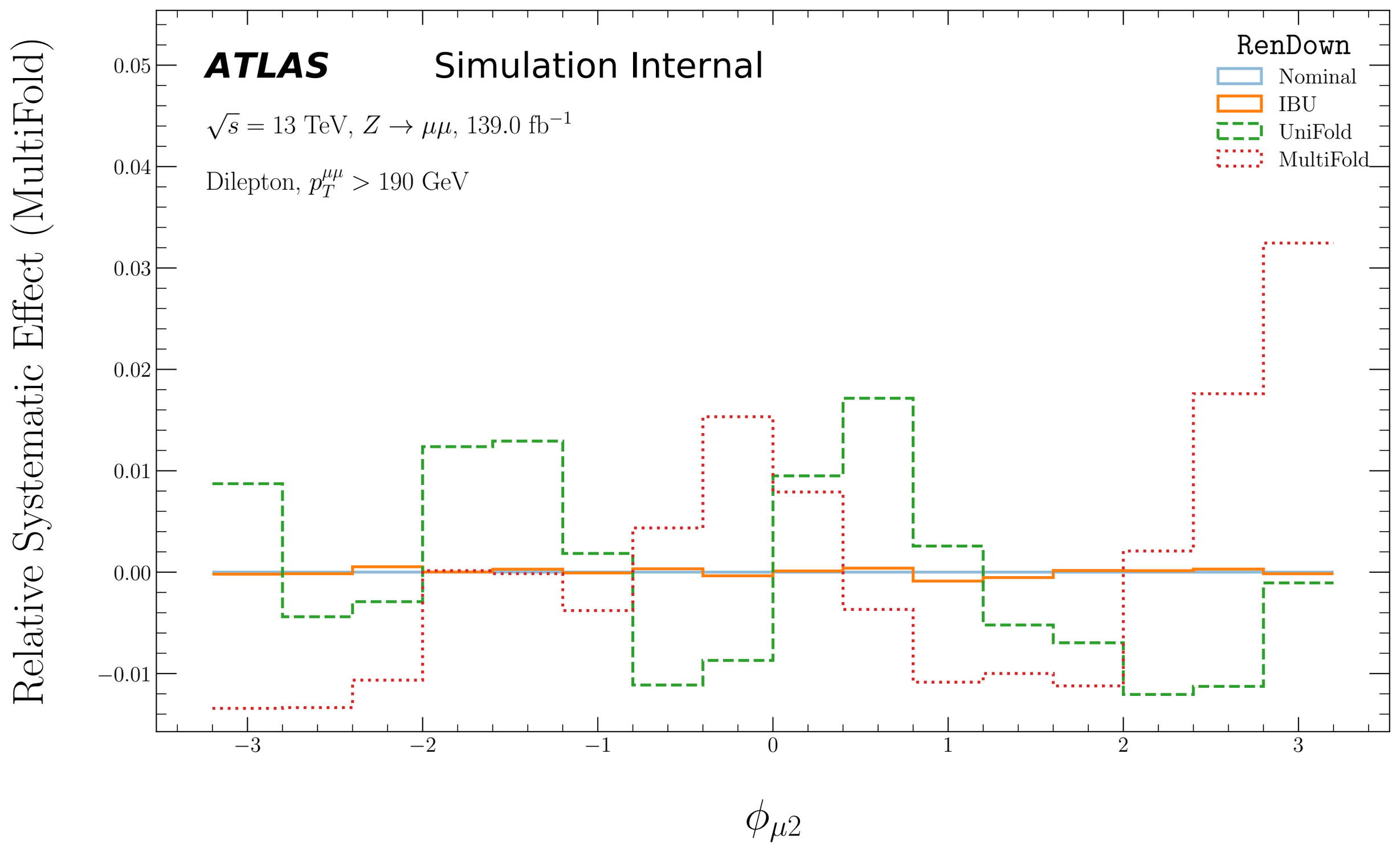

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
−3
−2
−1
0
1
2
3
$\phi_{\mu 1}$

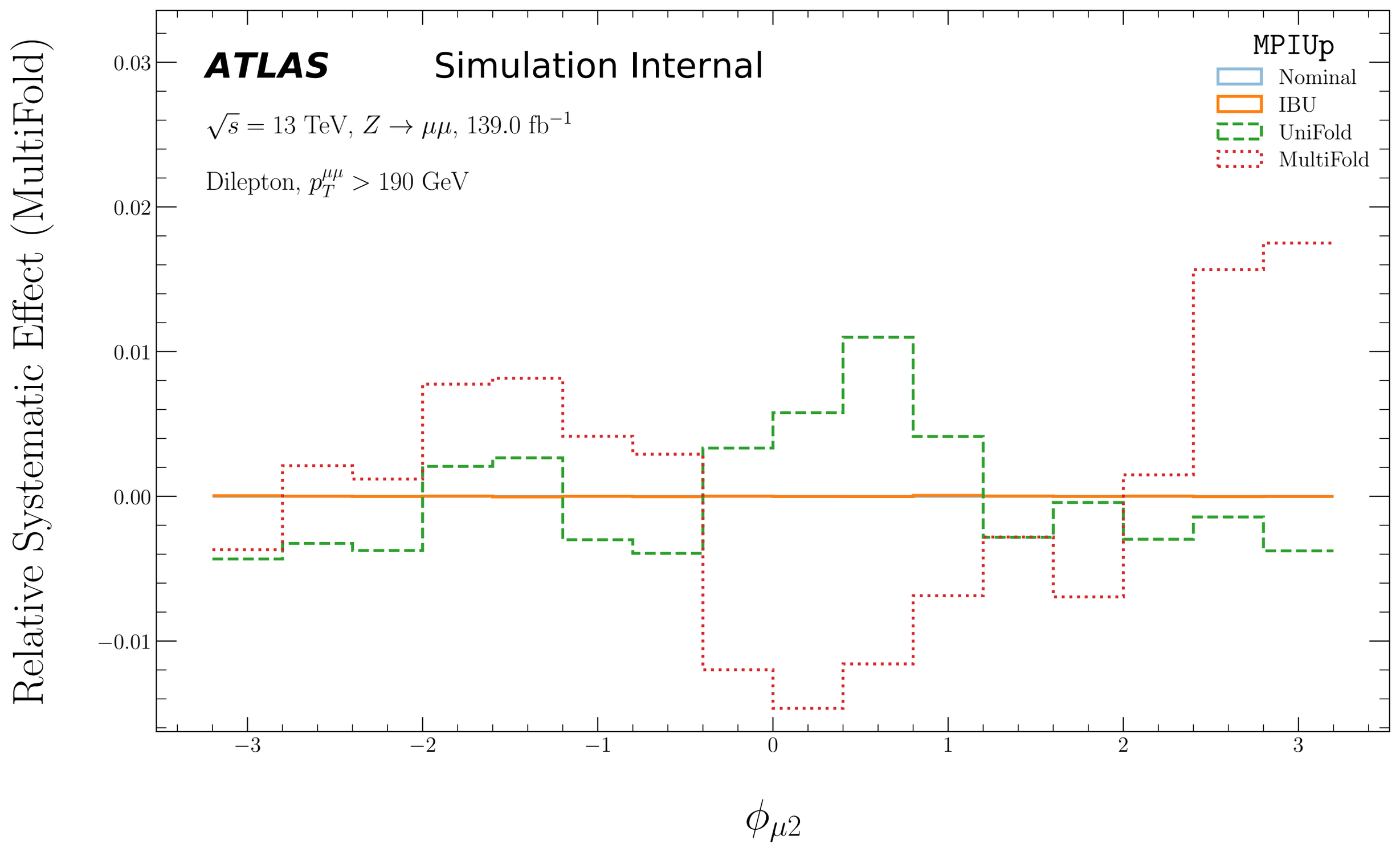

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.04
0.03
0.02
0.01
0.00
−0.01
−3
−2
−1
0
1
2
3
$\phi_{\mu 1}$

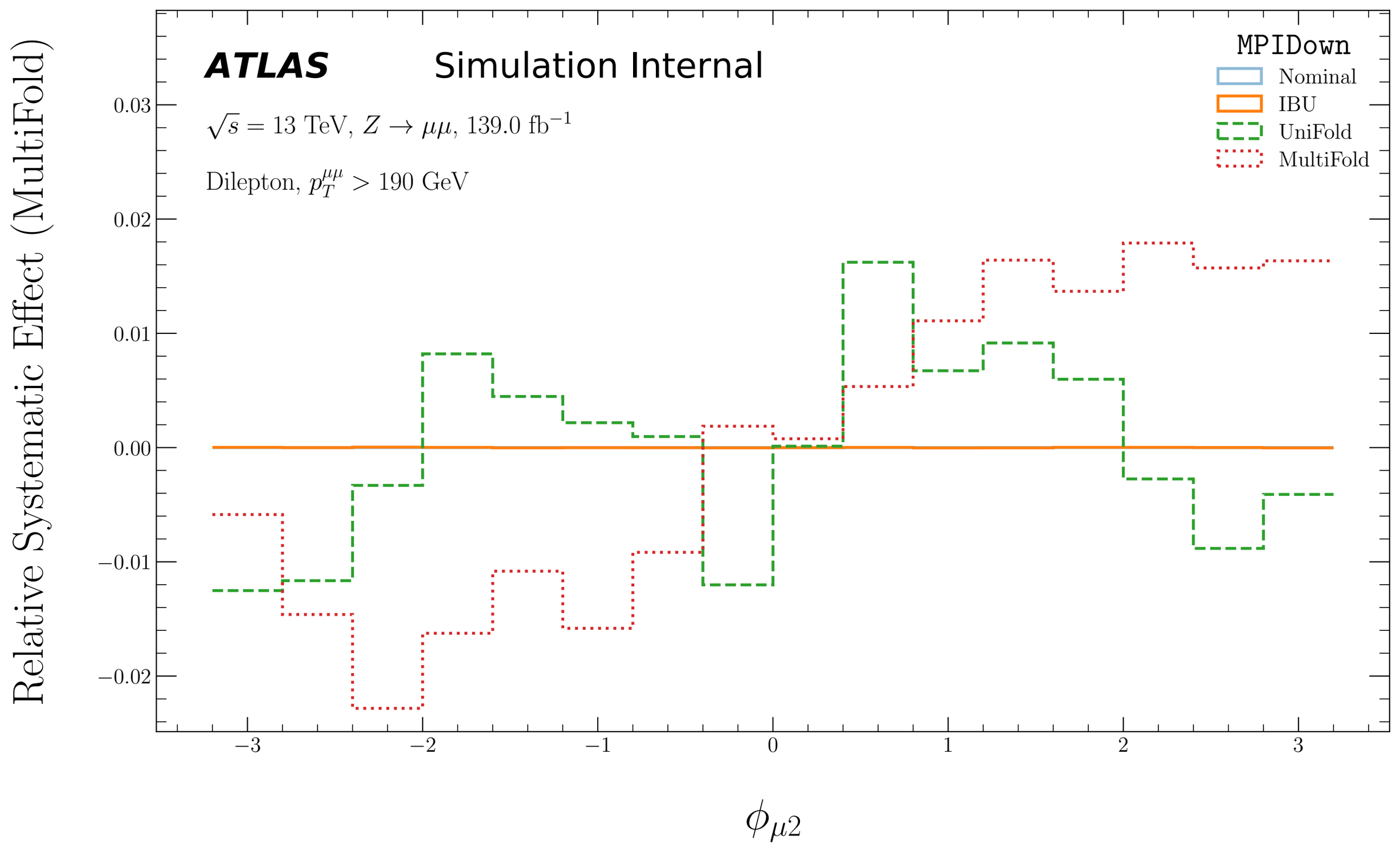

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
−3
−2
−1
0
1
2
3
$\phi_{\mu 1}$

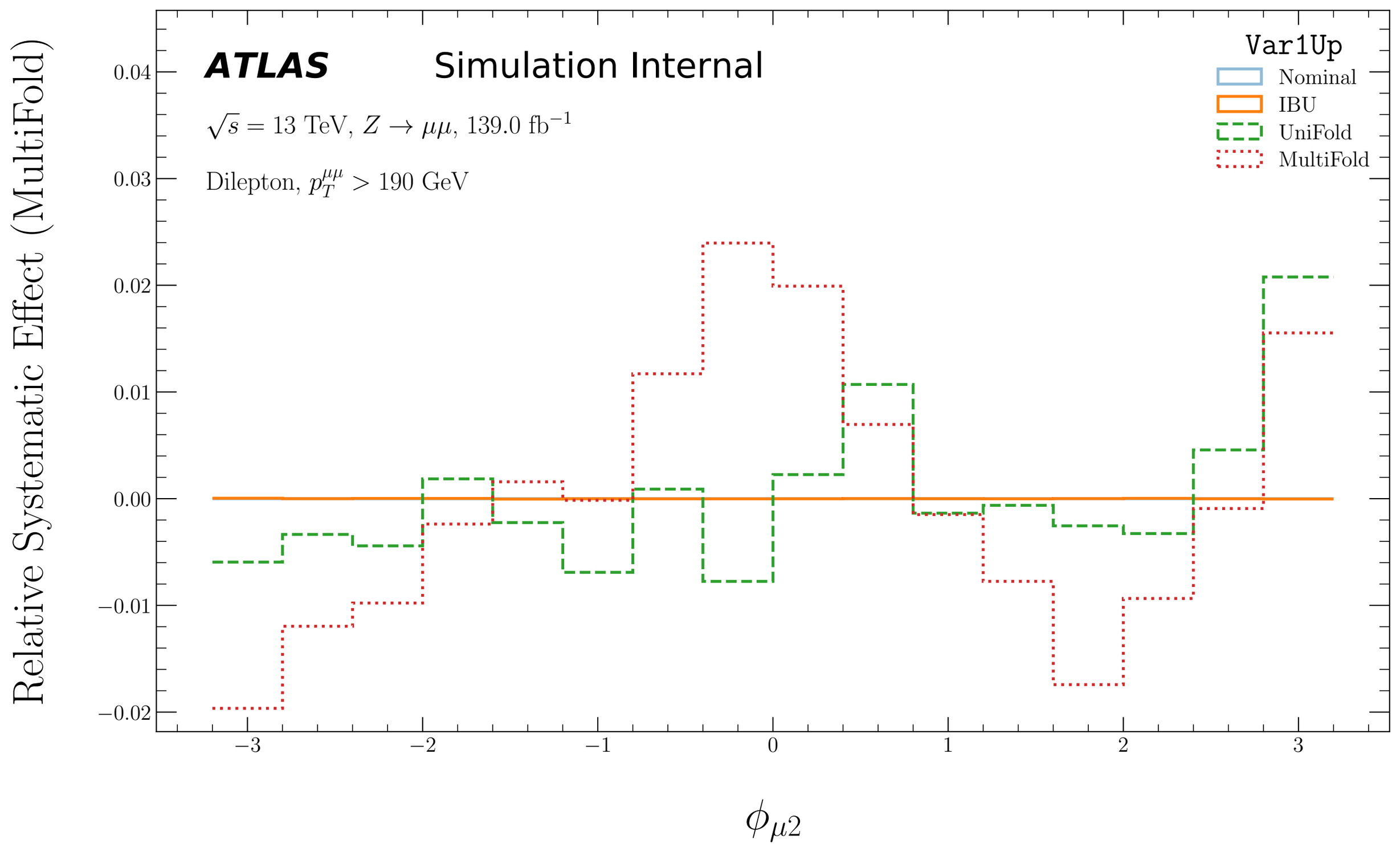

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.020
0.015
0.010
0.005
0.000
−0.005
−0.010
−3
−2
−1
0
1
2
3
$\phi_{\mu 1}$

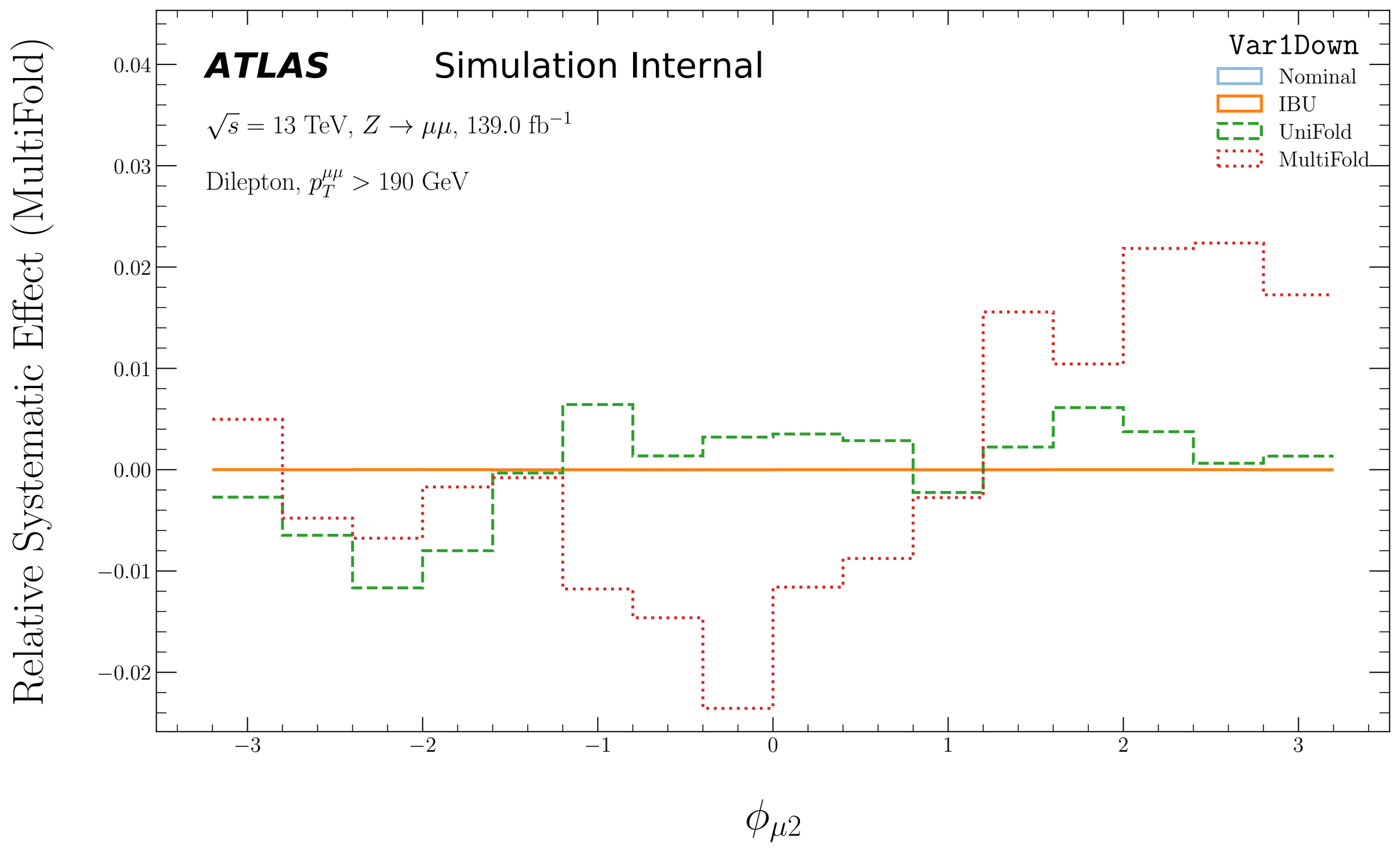

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.03
0.02
0.01
0.00
−0.01
−3
−2
−1
0
1
2
3
$\phi_{\mu 2}$

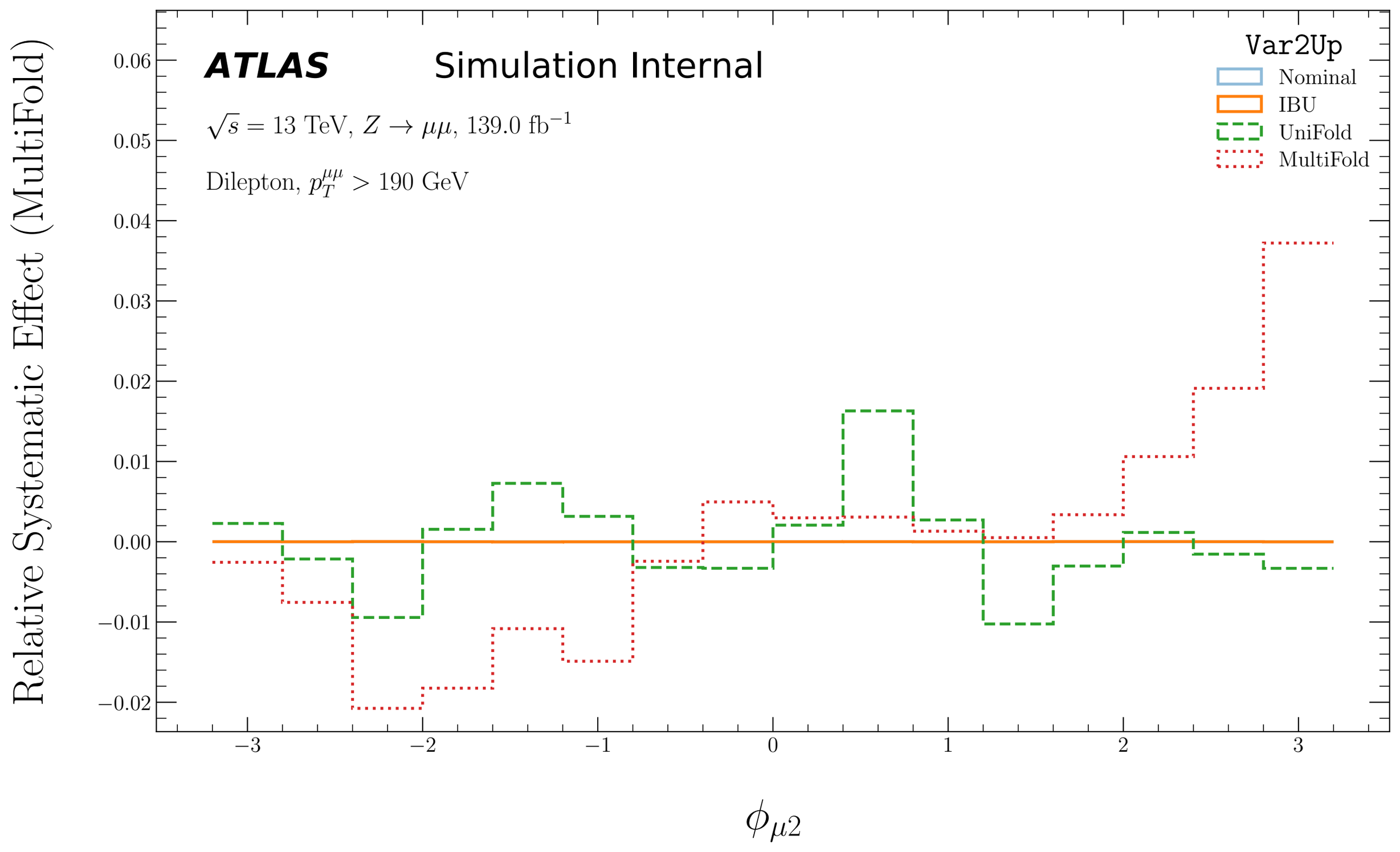

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
RenDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−3
−2
−1
0
1
2
3
$\phi_{\mu 2}$

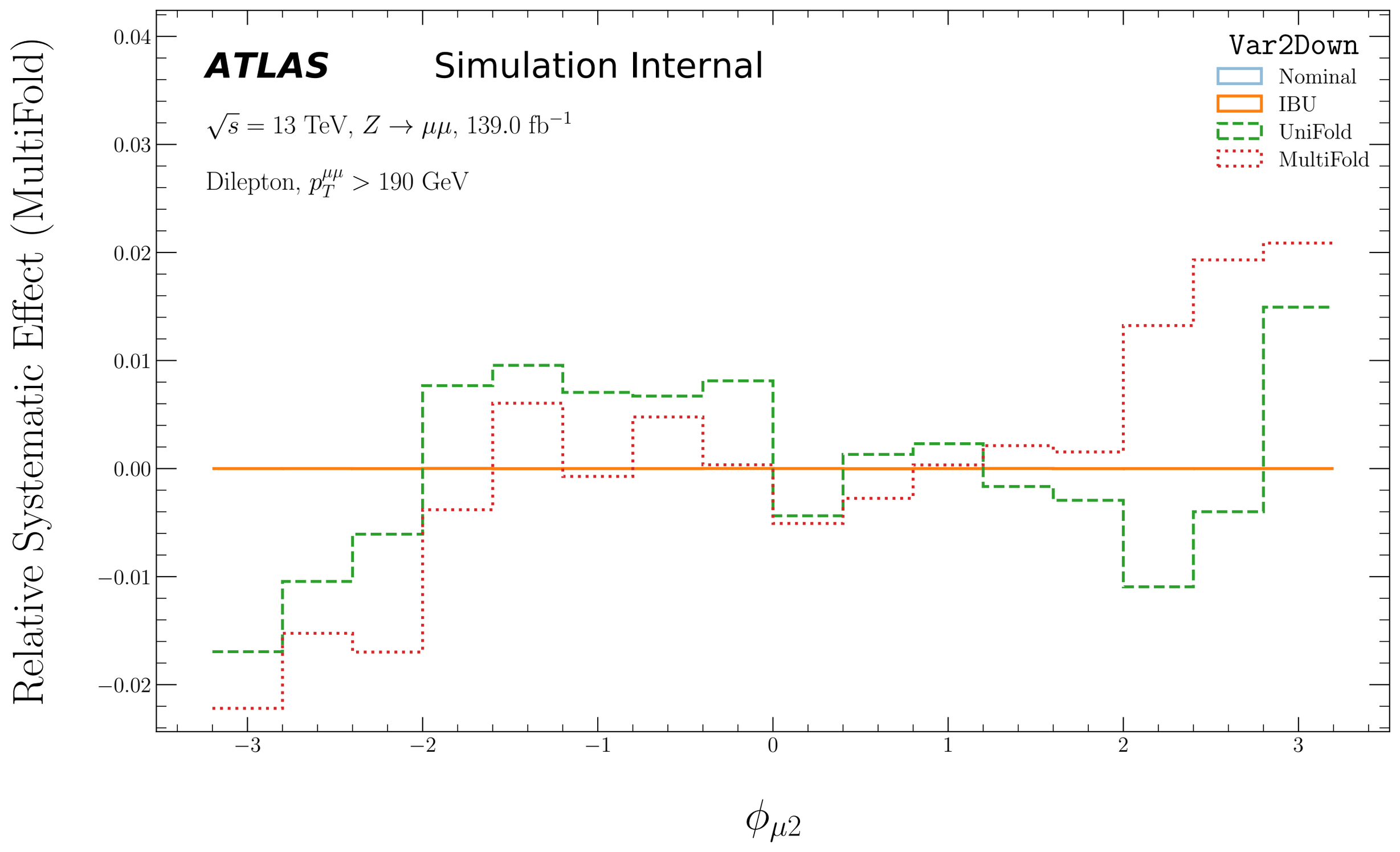

ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIUp
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.03
0.02
0.01
0.00
−0.01
−3
−2
−1
0
1
2
3
$\phi_{\mu 2}$


ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
MPIDown
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.03
0.02
0.01
0.00
−0.01
−0.02
−3
−2
−1
0
1
2
3
$\phi_{\mu 2}$


ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
−3
−2
−1
0
1
2
3
$\phi_{\mu 2}$


ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var1Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
−3
−2
−1
0
1
2
3
$\phi_{\mu 2}$


ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Up
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.06
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
−3
−2
−1
0
1
2
3
$\phi_{\mu 2}$


ATLAS Simulation Internal
$\sqrt{s} = 13$ TeV, $Z \to \mu\mu$, 139.0 fb^{-1}
Dilepton, $p_T^{\mu\mu} > 190$ GeV
Var2Down
Nominal
IBU
UniFold
MultiFold
Relative Systematic Effect (MultiFold)
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
−3
−2
−1
0
1
2
3
$\phi_{\mu 2}$