

Log file of replicating the results in the main text

Executing the Benchmark case

>
Equation solved. The sum of squared function values, $r = 4.485807\text{e-}24$, is less than $\text{sqrt}(\text{options.FunctionTolerance}) = 1.000000\text{e-}04$. The relative norm of the gradient of r , $9.471851\text{e-}12$, is less than $\text{options.OptimalityTolerance} = 1.000000\text{e-}08$.

Optimization Metric	Options
relative norm(grad r) = $9.47\text{e-}12$ (selected)	OptimalityTolerance = $1\text{e-}08$
$r = 4.49\text{e-}24$ (selected)	$\text{sqrt}(\text{FunctionTolerance}) = 1.0\text{e-}04$

$\gamma = 0.93$

Firm Size: Model vs Data

0.5090	0.2287	0.1097	0.1263	0.0263
0.4698	0.2797	0.1290	0.1020	0.0195

Employment Size: Model vs Data

0.1070	0.1343	0.1447	0.4086	0.2055
0.0864	0.1611	0.1655	0.3501	0.2369

Average Tax =
 0.1297

ke to yc
 0.0236

clean share
 0.5777

K/Y ratio
 1.6558

Executing the No-tax case

>
Equation solved. The sum of squared function values, $r = 7.285860\text{e-}18$, is less than $\text{sqrt}(\text{options.FunctionTolerance}) = 1.000000\text{e-}04$. The relative norm of the gradient of r , $7.626462\text{e-}09$, is less than $\text{options.OptimalityTolerance} = 1.000000\text{e-}08$.

Optimization Metric	Options
relative norm(grad r) = $7.63\text{e-}09$ (selected)	OptimalityTolerance = $1\text{e-}08$
$r = 7.29\text{e-}18$ (selected)	$\text{sqrt}(\text{FunctionTolerance}) = 1.0\text{e-}04$

$\gamma = 0.93$

Firm Size: Model vs Data

0.3599	0.2094	0.1256	0.2426	0.0625
0.4698	0.2797	0.1290	0.1020	0.0195

Employment Size: Model vs Data

0.0322	0.0521	0.0696	0.4202	0.4259
0.0864	0.1611	0.1655	0.3501	0.2369

Average Tax =

0

ke to yc

0.0200

clean share

0.8561

K/Y ratio

2.0598

Executing the Regulation case

>

Equation solved. The sum of squared function values, $r = 6.849363e-24$, is less than $\text{sqrt}(\text{options.FunctionTolerance}) = 1.000000e-04$. The relative norm of the gradient of r ,

$1.171334e-11$, is less than $\text{options.OptimalityTolerance} = 1.000000e-08$.

Optimization Metric

Options

relative norm(grad r) = $1.17e-11$
(selected)

OptimalityTolerance = $1e-08$

$r = 6.85e-24$
(selected)

$\text{sqrt}(\text{FunctionTolerance}) = 1.0e-04$

gamma = 0.93

Firm Size: Model vs Data

0.4993	0.2331	0.1118	0.1290	0.0267
0.4698	0.2797	0.1290	0.1020	0.0195

Employment Size: Model vs Data

0.1041	0.1345	0.1449	0.4105	0.2061
0.0864	0.1611	0.1655	0.3501	0.2369

Average Tax =

0.1306

ke to yc

0.0361

clean share

0.8510

K/Y ratio
1.6559

Executing the Flat-tax case

>
Equation solved. The sum of squared function values, $r = 1.363218e-20$, is less than $\text{sqrt}(\text{options.FunctionTolerance}) = 1.000000e-04$. The relative norm of the gradient of r , $4.852707e-10$, is less than $\text{options.OptimalityTolerance} = 1.000000e-08$.

Optimization Metric	Options
relative norm(grad r) = 4.85e-10 (selected)	OptimalityTolerance = 1e-08
r = 1.36e-20 (selected)	sqrt(FunctionTolerance) = 1.0e-04

gamma = 0.93

Firm Size: Model vs Data

0.3599	0.2094	0.1256	0.2426	0.0625
0.4698	0.2797	0.1290	0.1020	0.0195

Employment Size: Model vs Data

0.0322	0.0521	0.0696	0.4202	0.4259
0.0864	0.1611	0.1655	0.3501	0.2369

Average Tax =
0.1755

ke to yc
0.0171

clean share
0.7334

K/Y ratio
1.6985

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Print Results for the Benchmark

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Table 4: Aggregate Impacts
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	Polluting	Non-polluting
Aggregate Output	4.394794	4.470991
Aggregate Capital	7.295511	7.398675
Aggregate Consumption	3.717947	
Output per Worker	4.548950	4.536514
Output per Firm	272.831902	236.704029

Average Productivity	107095.981302	91502.148179
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Number of Firms	0.016108	0.018889
Mean Size	59.976896	52.177513
Median Size	23.674467	18.608131

Aggregate Pollution	0.008910
Aggregate Intensity	0.002027
Clean Share	0.577732

Table 5: Distributional Impacts

Polluting	0.027869	0.042601	0.074451	0.16805	0.68703
Non-Polluting	0.024264	0.037843	0.066528	0.15386	0.7175

Print Results for the No-tax case

Table 4: Aggregate Impacts

	Polluting	Non-polluting
Aggregate Output	5.764431	5.795189
Aggregate Capital	11.895902	11.931272
Aggregate Consumption	4.596618	
Output per Worker	5.833962	5.833962
Output per Firm	812.011289	738.169576
Average Productivity	236935.712435	215389.535454
Number of Firms	0.007099	0.007851
Mean Size	139.186929	126.529715
Median Size	43.089730	34.310304
Aggregate Pollution	0.006831	
Aggregate Intensity	0.001185	
Clean Share	0.856050	

Table 5: Distributional Impacts

Polluting	0.015288	0.02893	0.064635	0.18245	0.70869
Non-Polluting	0.012972	0.024912	0.056764	0.16965	0.7357

Print Results for the Regulation case

Table 4: Aggregate Impacts

	Polluting	Non-polluting
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Aggregate Output      4.350511                4.483445
Aggregate Capital     7.222504                7.419285
Aggregate Consumption 3.718865
Output per Worker     4.555633                4.534460
Output per Firm       300.578550            237.363393
Average Productivity 118996.476425        91502.148179
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Number of Firms       0.014474                0.018889
Mean Size             65.979532            52.346558
Median Size           27.883871            18.668418
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Aggregate Pollution   0.007647
Aggregate Intensity   0.001758
Clean Share           0.850999
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Table 5: Distributional Impacts

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Polluting      0.030212    0.046303    0.080107    0.17792    0.66545
Non-Polluting  0.024264    0.037843    0.066528    0.15386    0.7175
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Print Results for the Flat Tax

Table 4: Aggregate Impacts

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Polluting      Non-polluting
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Aggregate Output      4.752774                4.778134
Aggregate Capital     8.091781                8.110882
Aggregate Consumption 3.962355
Output per Worker     4.810102                4.810102
Output per Firm       669.503306            608.620814
Average Productivity 236935.712435        215389.535454
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Number of Firms       0.007099                0.007851
Mean Size             139.186929            126.529714
Median Size           43.089730            34.310304
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Aggregate Pollution   0.006241
Aggregate Intensity   0.001313
Clean Share           0.733354
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Table 5: Distributional Impacts

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Polluting      0.015288    0.02893    0.064635    0.18245    0.70869
Non-Polluting  0.012972    0.024912    0.056764    0.16965    0.7357
=====

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