

Replication Results For The Experiments For
Agent-Based Taxation And Almsgiving Model For Social Justice

| Replication | Only trade with ten dollars | | |
|-------------|-----------------------------|--------------|-------------|
| | proportion | kurtosis | skewness |
| 1 | 1.692204615 | 0.079966453 | 1.059726602 |
| 2 | 1.718001061 | 0.382643087 | 1.199106674 |
| 3 | 1.58515345 | 0.029138468 | 0.899362369 |
| 4 | 1.733596539 | 0.836726255 | 1.234122295 |
| 5 | 1.588641657 | 0.842947322 | 1.207975463 |
| 6 | 1.745328961 | 0.514560385 | 1.125593367 |
| 7 | 1.682078755 | -0.213498595 | 0.975402098 |
| 8 | 1.820064964 | 0.280590634 | 1.203350896 |
| 9 | 1.630347674 | 1.272419392 | 1.396998898 |
| 10 | 1.80435123 | 1.623027077 | 1.376713213 |
| 11 | 1.677798062 | 1.466427183 | 1.360573648 |
| 12 | 1.640746107 | 0.471626857 | 1.102623991 |
| 13 | 1.66796921 | 0.828255401 | 1.305858352 |
| 14 | 1.532956688 | 0.674243102 | 1.122677264 |

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| 15 | 1.571526297 | -0.198538579 | 0.890496411 |
| 16 | 1.62351592 | 0.698996389 | 1.235719037 |
| 17 | 1.691498702 | -0.015275145 | 1.005751851 |
| 18 | 1.647952583 | 0.959208468 | 1.346611468 |
| 19 | 1.770838403 | 0.608532074 | 1.129050522 |
| 20 | 1.806004105 | 0.55033174 | 1.282327235 |

| Replication | | 1/100 Zakat | |
|-------------|-------------|--------------|-------------|
| | proportion | kurtosis | skewness |
| 1 | 0.809304846 | -1.127306243 | 0.264105424 |
| 2 | 0.796523186 | -1.195034909 | 0.181188524 |
| 3 | 0.836869725 | -0.406075559 | 0.633806978 |
| 4 | 0.829172782 | -1.393409815 | 0.010403865 |
| 5 | 0.807726496 | -0.203213138 | 0.503927914 |
| 6 | 0.801188727 | -1.07024634 | 0.179483903 |
| 7 | 0.811783325 | -0.312716743 | 0.452461054 |
| 8 | 0.831118087 | -1.011347921 | 0.336655196 |
| 9 | 0.822074833 | -1.196689779 | 0.139228302 |
| 10 | 0.773875676 | -1.141440296 | 0.218373093 |

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| 11 | 0.795928616 | -0.842605529 | 0.459049598 |
| 12 | 0.773530806 | -1.177872163 | 0.174011506 |
| 13 | 0.776549359 | -0.818335828 | 0.028858545 |
| 14 | 0.777519229 | -1.421904469 | -0.008319236 |
| 15 | 0.853782326 | -0.439673031 | 0.363536437 |
| 16 | 0.781833963 | -0.975109922 | 0.152313824 |
| 17 | 0.808461424 | -0.12807161 | 0.36939463 |
| 18 | 0.804178341 | -1.108793086 | 0.149945892 |
| 19 | 0.833052678 | -1.054834462 | -0.075084688 |
| 20 | 0.835982992 | -0.787523707 | 0.536687927 |
| Replication | 1/40 Zakat | | |
| | proportion | kurtosis | skewness |
| 1 | 0.544690109 | -0.892222031 | 0.554077617 |
| 2 | 0.56650432 | -1.038982984 | 0.513449738 |
| 3 | 0.560918661 | -1.312177518 | 0.095539921 |
| 4 | 0.558348887 | -1.496611109 | 0.127282224 |
| 5 | 0.570135362 | -1.212340934 | 0.23997887 |
| 6 | 0.551807618 | -1.0009963 | 0.432304247 |

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| 7 | 0.555991869 | -0.873769593 | 0.515296548 |
| 8 | 0.570623172 | -1.413502101 | 0.208383397 |
| 9 | 0.561363002 | -1.246293955 | 0.236056376 |
| 10 | 0.564350926 | -0.551506062 | 0.579572601 |
| 11 | 0.554724072 | -0.921607067 | 0.548988398 |
| 12 | 0.552533442 | -0.533869964 | 0.599098988 |
| 13 | 0.538087497 | -0.644801555 | 0.506574849 |
| 14 | 0.553632494 | -1.129931795 | 0.284325934 |
| 15 | 0.597359306 | -0.801721098 | 0.471554326 |
| 16 | 0.576268542 | -1.144942728 | 0.137408894 |
| 17 | 0.58955469 | -0.659705028 | 0.559983686 |
| 18 | 0.551897215 | -1.168389964 | 0.270217508 |
| 19 | 0.559070674 | -1.31958068 | 0.282015762 |
| 20 | 0.56045667 | -0.905270622 | 0.600758104 |

| Replication | 1/10 Zakat | | |
|-------------|-------------|--------------|-------------|
| | proportion | kurtosis | skewness |
| 1 | 0.435018598 | -0.905652117 | 0.618484231 |
| 2 | 0.431743844 | -1.419298662 | 0.36805785 |

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| 3 | 0.431044345 | -1.171581195 | 0.411024521 |
| 4 | 0.421536013 | -1.437460384 | 0.350201522 |
| 5 | 0.420768645 | -1.439910129 | 0.391629191 |
| 6 | 0.424839021 | -0.605223709 | 0.601114102 |
| 7 | 0.429003135 | -0.946061334 | 0.520889695 |
| 8 | 0.424567151 | -0.304130955 | 0.773540305 |
| 9 | 0.432040024 | -0.547591244 | 0.680939999 |
| 10 | 0.422848114 | -0.822313937 | 0.567556959 |
| 11 | 0.424802153 | -1.081863254 | 0.457957371 |
| 12 | 0.421347497 | -0.758871712 | 0.458041466 |
| 13 | 0.419080256 | -0.980472761 | 0.485277937 |
| 14 | 0.420068438 | -0.814112532 | 0.535254484 |
| 15 | 0.429114011 | -1.178642932 | 0.43291676 |
| 16 | 0.425792367 | -1.339272208 | 0.250608127 |
| 17 | 0.424055617 | -0.962555212 | 0.561134403 |
| 18 | 0.422296946 | -0.330356105 | 0.801315279 |
| 19 | 0.430104919 | -0.474368424 | 0.653441007 |
| 20 | 0.423692146 | -0.28734503 | 0.59394832 |

| Replication | 1/10 taxation to bottom 10% | | |
|-------------|-----------------------------|-------------|-------------|
| | proportion | kurtosis | skewness |
| 1 | 0.534445318 | 3.373091603 | 1.786937466 |
| 2 | 0.531741509 | 3.005711473 | 1.709218981 |
| 3 | 0.550854956 | 3.556587841 | 1.815826374 |
| 4 | 0.540223107 | 3.235577023 | 1.721271392 |
| 5 | 0.551852984 | 1.559033694 | 1.424339388 |
| 6 | 0.552446279 | 1.894935797 | 1.530877708 |
| 7 | 0.561937087 | 4.019034611 | 1.891324475 |
| 8 | 0.602868647 | 4.07324161 | 1.880742862 |
| 9 | 0.604854294 | 6.173794472 | 2.232504586 |
| 10 | 0.57036942 | 3.559540852 | 1.930354124 |
| 11 | 0.57036942 | 3.559540852 | 1.930354124 |
| 12 | 0.553647685 | 4.240238315 | 1.970248633 |
| 13 | 0.581379466 | 1.461149108 | 1.368953368 |
| 14 | 0.555685835 | 1.655544318 | 1.518366014 |
| 15 | 0.601987861 | 5.3764386 | 2.133291374 |
| 16 | 0.651776096 | 5.705540274 | 2.123726534 |

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| 17 | 0.552284449 | 1.781908412 | 1.521142771 |
| 18 | 0.559005179 | 4.011231427 | 1.944279856 |
| 19 | 0.542004879 | 2.284795806 | 1.607419878 |
| 20 | 0.536969829 | 4.732227549 | 2.137467181 |

| Replication | 1/10 taxation to bottom 50% | | |
|-------------|-----------------------------|--------------|-------------|
| | proportion | kurtosis | skewness |
| 1 | 0.538332164 | 2.525648008 | 1.642963598 |
| 2 | 0.557050493 | 0.958278588 | 1.22777311 |
| 3 | 0.640491984 | 0.687644748 | 1.242451168 |
| 4 | 0.641104057 | 0.541522374 | 1.167886875 |
| 5 | 0.62288728 | 1.053820327 | 1.252268281 |
| 6 | 0.623850982 | 0.526611174 | 1.177920008 |
| 7 | 0.632247057 | 0.380111095 | 0.895982421 |
| 8 | 0.604901963 | -0.283292512 | 0.898493291 |
| 9 | 0.676304015 | -0.129978021 | 0.965896953 |
| 10 | 0.602935871 | 1.359410684 | 1.39946553 |
| 11 | 0.600133652 | 0.732520574 | 1.205262929 |

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| 12 | 0.59196329 | 0.215796415 | 1.08481631 |
| 13 | 0.61638761 | 0.497056774 | 1.134095135 |
| 14 | 0.608398851 | 0.641845845 | 1.006780815 |
| 15 | 0.626222176 | 0.253640555 | 1.168155955 |
| 16 | 0.629994768 | 0.648505207 | 1.258346058 |
| 17 | 0.657467616 | 1.401570762 | 1.349252204 |
| 18 | 0.614359409 | -0.281680387 | 0.954343265 |
| 19 | 0.583522566 | -0.081569599 | 1.050848832 |
| 20 | 0.615786338 | 0.110755278 | 1.035253178 |

| Replication | 2/10 taxation to bottom 10% | | |
|-------------|-----------------------------|-------------|-------------|
| | proportion | kurtosis | skewness |
| 1 | 0.33185233 | 5.135519079 | 2.210496517 |
| 2 | 0.335767892 | 2.422097731 | 1.634016326 |
| 3 | 0.333144666 | 3.329787631 | 1.905089403 |
| 4 | 0.339915234 | 0.340084014 | 1.248474308 |
| 5 | 0.327377881 | 1.097295348 | 1.540681663 |
| 6 | 0.333698377 | 4.148250937 | 1.99535222 |

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| 7 | 0.340308177 | 2.577009393 | 1.764635188 |
| 8 | 0.338571393 | 2.211199788 | 1.694890484 |
| 9 | 0.335984439 | 4.053208474 | 2.027125207 |
| 10 | 0.325642125 | 0.494600356 | 1.237069389 |
| 11 | 0.320800471 | 0.633885769 | 1.405747216 |
| 12 | 0.331148587 | 6.081444467 | 2.317029981 |
| 13 | 0.325513644 | 5.511801362 | 2.277649641 |
| 14 | 0.344789782 | 2.990120705 | 1.811867515 |
| 15 | 0.330666063 | 4.919374531 | 2.11237386 |
| 16 | 0.3268447 | 1.916099261 | 1.581466797 |
| 17 | 0.327712866 | 5.377893943 | 2.331518697 |
| 18 | 0.329498587 | 2.771101409 | 1.73751864 |
| 19 | 0.320432002 | 3.854469095 | 2.031865057 |
| 20 | 0.327125955 | 5.228877248 | 2.230258688 |

| Replication | 2/10 taxation to bottom 50% | | |
|-------------|-----------------------------|------------|-------------|
| | proportion | kurtosis | skewness |
| 1 | 0.34587389 | 2.09357886 | 1.637711454 |

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| 2 | 0.358399876 | 0.258686052 | 1.286230988 |
| 3 | 0.362649451 | 1.980725578 | 1.593148245 |
| 4 | 0.341955047 | 0.628295722 | 1.365038818 |
| 5 | 0.33954128 | 1.551828781 | 1.574736826 |
| 6 | 0.353639003 | 1.754960428 | 1.531716356 |
| 7 | 0.357116375 | -0.03488247 | 1.141389842 |
| 8 | 0.361212863 | 0.165144265 | 1.165027647 |
| 9 | 0.361105872 | 0.278530543 | 1.192395536 |
| 10 | 0.361043744 | 1.389229213 | 1.561053329 |
| 11 | 0.355821663 | 0.445434909 | 1.228571009 |
| 12 | 0.357678871 | 0.835684927 | 1.375100627 |
| 13 | 0.373881739 | 0.726560337 | 1.224765323 |
| 14 | 0.347334022 | 1.550037244 | 1.539233271 |
| 15 | 0.361009626 | 1.661244693 | 1.56802138 |
| 16 | 0.352260032 | 3.034591033 | 1.809596251 |
| 17 | 0.350882493 | 0.596884563 | 1.292692237 |
| 18 | 0.359511238 | 2.117590332 | 1.629784016 |
| 19 | 0.360137084 | 0.847207879 | 1.345918175 |

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| 20 | 0.357024897 | 0.576170157 | 1.37470819 |
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| Replication | 3/10 taxation to bottom 10% | | |
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| | proportion | kurtosis | skewness |
| 1 | 0.267689654 | 4.778881745 | 2.268583693 |
| 2 | 0.267424455 | 5.826928621 | 2.395602189 |
| 3 | 0.269614515 | 4.76510526 | 2.149617326 |
| 4 | 0.272176015 | 2.953903396 | 1.836356433 |
| 5 | 0.266787128 | 2.860508524 | 1.807053745 |
| 6 | 0.270305062 | 3.989287755 | 2.0027169 |
| 7 | 0.275439809 | 2.852202357 | 1.816857937 |
| 8 | 0.271178082 | 4.7952441 | 2.166565634 |
| 9 | 0.267182334 | 4.4844288 | 2.122416138 |
| 10 | 0.265328526 | 4.71777059 | 2.13454755 |
| 11 | 0.267182334 | 4.4844288 | 2.122416138 |
| 12 | 0.26984224 | 3.119645372 | 1.891393659 |
| 13 | 0.271797381 | 1.417875205 | 1.501896734 |
| 14 | 0.268256541 | 5.186813595 | 2.182181626 |

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| 15 | 0.266286372 | 0.583278941 | 1.388861087 |
| 16 | 0.270839167 | 4.645660758 | 2.142208667 |
| 17 | 0.273695933 | 3.454382351 | 1.867501708 |
| 18 | 0.267163609 | 1.865759105 | 1.649175188 |
| 19 | 0.268208011 | 2.621288354 | 1.757771434 |
| 20 | 0.26831146 | 2.286879443 | 1.721859886 |

| Replication | 3/10 taxation to bottom 50% | | |
|-------------|-----------------------------|-------------|-------------|
| | proportion | kurtosis | skewness |
| 1 | 0.282834054 | 1.189488152 | 1.468263992 |
| 2 | 0.280950398 | 1.484842408 | 1.541595253 |
| 3 | 0.289570373 | 1.35069255 | 1.524678984 |
| 4 | 0.2839658 | 1.274958087 | 1.485151349 |
| 5 | 0.281193298 | 0.648697854 | 1.297548635 |
| 6 | 0.28758504 | 1.44863728 | 1.417670097 |
| 7 | 0.284879887 | 0.463235222 | 1.344649218 |
| 8 | 0.283674659 | 2.085917348 | 1.600712191 |
| 9 | 0.281200156 | 0.441772278 | 1.257874199 |
| 10 | 0.283790573 | 1.858994416 | 1.59646117 |

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| 11 | 0.287032944 | 0.204633894 | 1.24968864 |
| 12 | 0.282636163 | 1.465300261 | 1.516508608 |
| 13 | 0.283736756 | 1.920161391 | 1.667321505 |
| 14 | 0.289004676 | 0.830791291 | 1.317846107 |
| 15 | 0.283116777 | 0.054139987 | 1.216097271 |
| 16 | 0.288407434 | 1.990330803 | 1.737941512 |
| 17 | 0.2835872 | 2.002669248 | 1.658919551 |
| 18 | 0.277350494 | 1.154497342 | 1.434946241 |
| 19 | 0.282238245 | 0.368662192 | 1.31410428 |
| 20 | 0.28852158 | 3.514830993 | 1.882660083 |