Priors fit from elicited beliefs

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The prior distributions are fit to the elicited beliefs data in RStan using two distinct types of parametric models: skew-normal distributions, and finite mixtures of Gaussians with up to 5 components. Since the objective here is curve fitting, it does not matter that the mixture models are not identified, as the distributional quantiles we seek to match are identified. In cases where the parameter about which beliefs are elicited takes a logically bounded support, such as the percentage of firms who will take up the program or the correlation between the two potential outcome distributions, the distributions are truncated at the logical bounds. Each question, and each type of respondent (academics, policymakers, firms), has been fit separately giving a total of 28 distinct prior distributions.

Our procedure takes in the elicited prior data in the form of a set of bins (the bins are labeled with parameter value ranges), each paired with the number of "stones" individuals have placed in the given bin. We then take as many draws from the uniform distribution over the range of each bin as stones assigned to the bin, recovering the empirical distribution (the bin ranges are typically short, and in many cases cover only a single integer "cut" on the reals, so we believe the procedure is robust to the choice of the uniform). We confine ourselves to only as many draws as stones to reflect the true granularity of the information available to us, so we are usually drawing approximately 200 draws. We then fit the model to these 200 draws and recover the posterior distribution of the parameters most likely to govern the generation of this set of prior beliefs.

We then check that the fitted priors generate quantile values at the 10th, 25th, 50th, 75th and 90th percentiles are close enough to the empirical quantiles of the stones distribution at least 80% of the time. The results are shown in the table at the end of this document. Our definition of "close enough" is that the fitted quantiles should be within 20% of the original empirical distribution of the stones, or within 0.1 absolute units of those quantiles, whichever is larger (this allowance is necessary to allow reasonable fit near zero, since otherwise the models are forced to nail zero exactly to count as "fitting well" at whichever quantile zero falls at, which seems undesirable). We find that 82% of priors pass the test, which is within tolerance. We then check what tolerance would generate a 90% pass rate, and find that 25% tolerance (with 0.3 absolute unit allowance near zero) does so. A 95% pass rate is generated at 33% tolerance. The remaining failed matches most often occur in the tail quantiles (10th and 90th percentiles) of some of the more challenging distributions to fit, which we consider acceptable. These results can be recovered by running the R file "PriorDistributionFit.R".

The output below provides summaries of the posterior distributions of the priors for each case. Skew-Normal distributions are described by location ξ, scale ω and skewness α (if α is omitted or degenerate it has been set to 0 for parsimony in the case of visual evidence of symmetry). Mixture Gaussian distributions are characterised by a series of location parameters $\mu[i]$ for each component i (up to $i = 5$ is permitted), scale parameters $\sigma[i]$ and component weights $\Theta[i]$. Note that because the mixture models are technically not identified, for these models we sometimes fail to get convergence (by the Rhat < 1.1 criterion), but as noted above this is not a problem for the curve fitting exercise and these cases do not correspond to particularly major failures to match empirical quantiles. These tables of fitted parameters are followed by a table showing the quantile matching.

Q1 academics fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	68.95	0.11	4.25	62.30	66.08	68.37	71.19	78.67	1394.00	1.00
ω	31.79	0.10	3.76	26.14	29.16	31.23	33.84	40.53	1288.27	1.00
α	0.00	0.00	0.10	-0.19	-0.06	0.00	0.07	0.20	2070.70	1.00
lp___	-785.67	0.04	1.32	-789.18	-786.26	-785.33	-784.70	-784.19	1117.33	1.00

Q1 firms fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	81.07	0.21	4.60	73.75	79.57	81.42	83.35	87.12	485.61	1.00
ω	46.56	0.21	6.07	35.98	42.53	46.10	50.13	59.71	833.16	1.00
α	-3.38	0.03	0.96	-5.19	-3.97	-3.38	-2.81	-1.44	774.63	1.00
lp___	-718.23	0.04	1.32	-721.70	-718.84	-717.90	-717.25	-716.70	868.48	1.00

Q1 policy fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	73.00	0.02	1.14	70.90	72.23	72.98	73.72	75.33	2312.70	1.00
ω	12.66	0.02	0.91	11.07	12.01	12.61	13.22	14.59	2338.25	1.00
α	-0.00	0.00	0.10	-0.19	-0.07	0.00	0.06	0.19	3225.46	1.00
lp___	-417.67	0.03	1.23	-420.95	-418.20	-417.35	-416.81	-416.28	1546.34	1.00

Q2 academics fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	0.48	0.01	0.42	-0.33	0.20	0.48	0.76	1.31	1355.08	1.00
ω	9.43	0.01	0.53	8.45	9.05	9.41	9.78	10.57	1620.98	1.00
α	4.69	0.02	0.92	3.12	4.03	4.61	5.28	6.68	1533.34	1.00
lp___	-688.98	0.03	1.22	-692.19	-689.50	-688.66	-688.09	-687.60	1485.37	1.00

Q2 firms fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
$\mu[1]$	0.44	0.00	0.09	0.27	0.38	0.44	0.49	0.61	1111.31	1.01
$\mu[2]$	5.08	0.40	1.03	3.89	4.26	4.61	6.02	7.18	6.56	1.27
$\mu[3]$	9.39	0.48	1.41	7.03	7.67	9.93	10.65	10.96	8.57	1.25
$\mu[4]$	11.31	0.21	0.70	10.57	10.83	11.07	11.54	13.26	11.52	1.15
$\mu[5]$	21.02	0.08	2.59	15.40	19.23	21.42	23.05	24.97	1096.48	1.00
$\sigma[1]$	0.32	0.00	0.08	0.19	0.26	0.31	0.36	0.48	1850.20	1.00
$\sigma[2]$	1.59	0.28	0.75	0.65	0.94	1.32	2.22	3.10	7.11	1.24
$\sigma[3]$	1.30	0.18	1.03	0.27	0.47	0.72	2.34	3.25	34.04	1.08
$\sigma[4]$	1.17	0.06	0.53	0.27	0.68	1.28	1.54	2.13	87.20	1.03
$\sigma[5]$	6.24	0.05	1.64	3.63	4.97	6.10	7.38	9.73	1255.79	1.00
$\Theta[1]$	0.08	0.00	0.02	0.05	0.07	0.08	0.10	0.13	1777.53	1.00
$\Theta[2]$	0.24	0.04	0.11	0.08	0.15	0.20	0.34	0.47	7.12	1.24
$\Theta[3]$	0.25	0.02	0.15	0.07	0.13	0.21	0.38	0.54	91.81	1.03
$\Theta[4]$	0.29	0.02	0.15	0.08	0.17	0.26	0.44	0.55	39.13	1.09
$\Theta[5]$	0.13	0.00	0.04	0.07	0.10	0.12	0.15	0.21	1469.75	1.00
lp___	-594.78	0.13	3.33	-602.35	-596.72	-594.46	-592.43	-589.26	666.53	1.01

Q2 policy fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
$\mu[1]$	7.80	0.06	1.72	5.01	6.74	7.58	8.90	11.08	874.61	1.01
$\mu[2]$	11.01	0.05	1.70	7.30	10.09	11.14	12.03	14.36	1006.40	1.01
$\mu[3]$	13.95	0.08	1.97	10.66	12.44	13.72	15.38	18.01	681.15	1.01
$\mu[4]$	17.40	0.04	1.41	14.36	16.69	17.54	18.17	20.13	1544.41	1.00
$\mu[5]$	21.18	0.09	2.72	17.09	19.11	20.76	22.82	27.44	1018.61	1.00
$\sigma[1]$	2.17	0.10	3.07	0.34	1.21	1.84	2.62	4.79	875.23	1.00
$\sigma[2]$	2.72	0.04	1.54	0.67	1.81	2.58	3.39	5.55	1899.03	1.00
$\sigma[3]$	3.15	0.05	1.87	0.65	1.96	2.89	3.92	8.09	1353.08	1.00
$\sigma[4]$	2.95	0.15	2.59	0.44	1.29	2.10	3.66	9.22	297.03	1.01
$\sigma[5]$	6.88	0.15	3.20	1.04	5.95	6.98	8.00	10.82	435.60	1.01
$\Theta[1]$	0.15	0.00	0.11	0.02	0.07	0.12	0.20	0.43	734.27	1.01
$\Theta[2]$	0.21	0.00	0.13	0.03	0.11	0.19	0.29	0.51	1235.40	1.00
$\Theta[3]$	0.22	0.00	0.13	0.03	0.12	0.20	0.31	0.50	1785.34	1.00
$\Theta[4]$	0.21	0.00	0.12	0.04	0.12	0.19	0.28	0.50	1075.73	1.00
$\Theta[5]$	0.21	0.00	0.09	0.05	0.14	0.20	0.26	0.40	1315.76	1.00
lp___	-464.00	0.17	3.76	-472.77	-466.11	-463.60	-461.31	-457.92	465.04	1.00

Q3 Academics fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	-0.32	0.00	0.11	-0.52	-0.40	-0.33	-0.26	-0.11	1053.41	1.01
ω	1.71	0.00	0.11	1.50	1.63	1.71	1.78	1.95	1085.26	1.01
α	2.87	0.02	0.54	1.89	2.49	2.84	3.21	4.00	1141.75	1.01
lp___	-327.66	0.03	1.28	-331.00	-328.24	-327.33	-326.71	-326.20	1387.55	1.00

Q3 firms fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	-0.22	0.00	0.07	-0.36	-0.26	-0.22	-0.17	-0.08	2251.26	1.00
ω	2.63	0.00	0.13	2.37	2.54	2.62	2.71	2.90	2516.32	1.00
α	8.32	0.03	1.48	5.68	7.30	8.24	9.30	11.37	2288.17	1.00
lp___	-361.82	0.03	1.23	-365.13	-362.37	-361.51	-360.91	-360.42	1555.63	1.00

Q3 policy fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	-0.17	0.00	0.09	-0.36	-0.24	-0.18	-0.11	0.01	1590.10	1.00
ω	2.03	0.00	0.13	1.78	1.94	2.02	2.12	2.31	1854.89	1.00
α	6.05	0.04	1.48	3.50	5.01	5.91	7.00	9.29	1622.18	1.00
lp___	-221.11	0.03	1.19	-224.13	-221.67	-220.81	-220.25	-219.76	1587.48	1.00

Q4 Academics fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	-0.32	0.00	0.04	-0.41	-0.35	-0.32	-0.29	-0.24	1905.16	1.00
ω	1.46	0.00	0.08	1.32	1.40	1.45	1.50	1.61	2035.70	1.00
α	6.23	0.02	0.92	4.58	5.58	6.16	6.84	8.18	1950.89	1.00
lp___	-269.01	0.03	1.20	-272.14	-269.60	-268.71	-268.13	-267.61	1538.28	1.00

Q4 firms fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	-0.30	0.00	0.05	-0.41	-0.34	-0.30	-0.27	-0.21	2203.41	1.00
ω	1.89	0.00	0.10	1.71	1.82	1.89	1.95	2.08	2447.47	1.00
α	8.47	0.02	1.23	6.13	7.60	8.46	9.29	10.96	2514.23	1.00
lp___	-294.78	0.03	1.18	-297.85	-295.30	-294.47	-293.91	-293.43	1756.34	1.00

Q4 policy fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	1.38	0.00	0.13	1.09	1.31	1.39	1.47	1.60	885.79	1.01
ω	1.14	0.00	0.11	0.93	1.06	1.14	1.21	1.36	959.71	1.00
α	-2.07	0.02	0.57	-3.27	-2.42	-2.03	-1.69	-0.97	924.86	1.00
lp___	-163.75	0.03	1.22	-166.94	-164.33	-163.44	-162.83	-162.35	1363.88	1.00

Q5 Academics fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	2.72	0.01	0.20	2.32	2.60	2.73	2.86	3.10	974.36	1.01
ω	2.36	0.01	0.18	2.04	2.24	2.35	2.47	2.71	988.88	1.00
α	-2.06	0.01	0.44	-2.99	-2.33	-2.03	-1.75	-1.26	917.90	1.00
lp___	-417.44	0.04	1.25	-420.69	-418.00	-417.14	-416.53	-416.02	1152.90	1.00

Q5 firms fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
$\mu[1]$	0.93	0.01	0.09	0.75	0.88	0.93	0.99	1.11	36.89	1.17
$\mu[2]$	5.96	0.08	0.28	5.50	5.76	5.92	6.09	6.57	13.15	1.34
$\mu[3]$	8.77	0.51	1.44	6.04	9.13	9.48	9.65	9.88	7.88	3.02
$\sigma[1]$	0.89	0.02	0.06	0.77	0.85	0.89	0.93	1.03	10.68	1.19
$\sigma[2]$	1.51	0.38	1.02	0.51	0.81	1.06	1.60	3.72	7.19	2.34
$\sigma[3]$	0.62	0.07	0.29	0.13	0.42	0.64	0.82	1.15	15.65	1.33
$\Theta[1]$	0.70	0.01	0.04	0.61	0.68	0.70	0.72	0.76	17.77	1.18
$\Theta[2]$	0.19	0.02	0.05	0.11	0.15	0.18	0.22	0.31	9.84	1.57
$\Theta[3]$	0.11	0.01	0.03	0.05	0.09	0.12	0.14	0.17	14.43	1.38
lp___	-421.10	2.31	6.30	-434.56	-423.38	-418.35	-416.42	-414.88	7.47	2.46

Q5 policy fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	0.30	0.00	0.08	0.14	0.25	0.30	0.35	0.46	1836.71	1.00
ω	2.01	0.00	0.13	1.78	1.92	2.00	2.10	2.28	1941.13	1.00
α	6.34	0.03	1.28	4.06	5.42	6.29	7.16	9.07	1827.95	1.00
lp___	-218.49	0.03	1.22	-221.59	-219.06	-218.18	-217.60	-217.10	1873.97	1.00

Q6 Academics fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	-0.62	0.01	0.37	-1.30	-0.87	-0.63	-0.39	0.12	1487.50	1.00
ω	9.33	0.01	0.50	8.43	8.99	9.32	9.64	10.36	1571.70	1.00
α	5.24	0.03	0.97	3.46	4.56	5.21	5.86	7.22	1480.98	1.00
lp___	-684.31	0.03	1.21	-687.37	-684.84	-683.99	-683.42	-682.95	1389.43	1.01

Q6 firms fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
$\mu[1]$	0.22	0.21	0.45	-0.96	0.05	0.39	0.51	0.68	4.66	1.35
$\mu[2]$	3.47	2.07	2.94	0.44	0.53	3.22	6.40	6.70	2.00	23.18
$\mu[3]$	9.97	0.82	1.29	8.32	8.79	9.22	11.33	11.81	2.52	2.48
$\sigma[1]$	1.11	0.31	0.72	0.26	0.71	0.85	1.33	2.80	5.29	1.29
$\sigma[2]$	0.68	0.29	0.45	0.18	0.26	0.37	1.13	1.38	2.51	2.50
$\sigma[3]$	2.59	0.41	0.73	1.52	1.85	2.88	3.20	3.74	3.13	1.88
$\Theta[1]$	0.15	0.06	0.09	0.02	0.06	0.15	0.24	0.29	2.21	3.22
$\Theta[2]$	0.25	0.06	0.10	0.11	0.17	0.22	0.35	0.42	2.98	1.91
$\Theta[3]$	0.60	0.12	0.18	0.34	0.41	0.71	0.77	0.82	2.31	2.99
lp___	-535.73	4.01	6.02	-545.68	-540.97	-537.55	-529.78	-527.39	2.25	2.92

Q6 policy fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
$\mu[1]$	3.93	0.00	0.15	3.66	3.83	3.92	4.03	4.25	2925.07	1.00
$\mu[2]$	9.73	0.02	0.65	8.21	9.45	9.79	10.08	10.89	1022.59	1.01
$\mu[3]$	20.68	0.12	3.12	13.47	18.93	20.88	22.77	26.20	670.76	1.00
$\mu[4]$	34.45	0.08	4.19	26.61	31.57	34.32	37.19	42.81	2829.37	1.00
$\sigma[1]$	0.71	0.00	0.14	0.45	0.61	0.70	0.80	1.00	1910.16	1.00
$\sigma[2]$	1.68	0.03	0.96	0.48	0.95	1.40	2.25	3.98	867.53	1.00
$\sigma[3]$	7.31	0.04	1.70	3.74	6.31	7.35	8.39	10.49	1485.48	1.00
$\sigma[4]$	23.76	0.07	3.23	18.68	21.55	23.33	25.51	31.46	2136.78	1.00
$\Theta[1]$	0.26	0.00	0.04	0.18	0.23	0.26	0.29	0.35	3070.36	1.00
$\Theta[2]$	0.17	0.00	0.06	0.07	0.13	0.16	0.20	0.30	1079.94	1.00
$\Theta[3]$	0.26	0.00	0.07	0.10	0.21	0.26	0.30	0.40	1457.04	1.00
$\Theta[4]$	0.31	0.00	0.07	0.19	0.26	0.31	0.36	0.49	1017.77	1.01
lp___	-547.33	0.10	2.74	-553.81	-548.83	-546.96	-545.32	-543.21	741.84	1.01

Q7 Academics fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	1.55	0.06	1.62	-1.12	0.52	1.46	2.43	4.61	631.50	1.00
ω	17.43	0.05	1.33	14.95	16.56	17.40	18.26	20.07	810.42	1.00
α	2.23	0.02	0.51	1.34	1.89	2.21	2.55	3.25	724.43	1.00
lp___	-854.44	0.05	1.42	-858.16	-855.02	-854.08	-853.46	-852.95	878.57	1.00

Q7 firms fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	1.02	0.02	0.64	-0.26	0.60	1.02	1.45	2.24	1503.40	1.00
ω	14.04	0.02	0.80	12.56	13.50	13.98	14.56	15.70	1687.83	1.00
α	4.01	0.02	0.65	2.90	3.55	3.96	4.43	5.39	1750.33	1.00
lp___	-708.33	0.03	1.22	-711.40	-708.88	-708.02	-707.45	-706.96	1423.69	1.00

Q7 Policy fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	4.08	0.01	0.58	2.97	3.68	4.07	4.46	5.20	1699.88	1.00
ω	11.20	0.02	0.76	9.78	10.68	11.18	11.68	12.80	1788.61	1.00
α	4.81	0.03	1.04	2.97	4.07	4.75	5.48	6.99	1494.49	1.00
lp___	-459.21	0.03	1.23	-462.30	-459.76	-458.89	-458.31	-457.80	1372.25	1.00

Q8 Academics fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
$\mu[1]$	0.25	0.33	0.47	-0.05	-0.01	0.00	0.26	1.09	2.00	57.58
$\mu[2]$	2.69	1.42	2.01	0.34	1.57	2.25	3.38	5.89	2.00	232.04
$\mu[3]$	4.61	0.97	1.37	3.00	3.75	4.34	5.24	6.74	2.00	212.01
$\mu[4]$	10.60	2.84	4.02	4.01	9.26	11.77	13.04	15.15	2.00	58.10
$\sigma[1]$	18.61	16.23	23.08	0.00	0.00	8.91	26.36	64.58	2.02	15.03
$\sigma[2]$	14.44	14.88	21.04	0.67	1.50	2.93	16.22	50.92	2.00	275.88
$\sigma[3]$	19.83	23.10	32.68	0.00	0.00	1.46	20.96	77.35	2.00	187.59
$\sigma[4]$	27.88	20.30	28.72	10.11	10.34	10.89	31.32	77.95	2.00	57.78
$\Theta[1]$	0.25	0.20	0.29	0.05	0.10	0.10	0.27	0.75	2.00	100.45
$\Theta[2]$	0.16	0.07	0.10	0.08	0.08	0.11	0.19	0.34	2.01	16.79
$\Theta[3]$	0.08	0.02	0.03	0.04	0.06	0.08	0.09	0.12	2.01	17.31
$\Theta[4]$	0.51	0.20	0.28	0.03	0.41	0.65	0.71	0.74	2.00	47.54
lp___	-729.84	60.43	85.48	-862.91	-786.78	-706.11	-652.61	-651.20	2.00	67.72

Q8 firms fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	9.88	0.05	1.02	7.36	9.47	10.01	10.50	11.31	421.43	1.02
ω	6.87	0.03	0.65	5.49	6.48	6.89	7.29	8.09	537.74	1.02
α	-1.68	0.02	0.52	-2.67	-2.00	-1.69	-1.40	-0.55	455.42	1.02
lp___	-604.59	0.05	1.37	-608.20	-605.16	-604.22	-603.59	-603.08	807.38	1.00

Q8 Policy fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	2.85	0.02	0.76	1.35	2.35	2.85	3.36	4.35	1458.37	1.00
ω	13.53	0.02	0.98	11.70	12.84	13.47	14.16	15.58	1734.39	1.00
α	3.94	0.02	0.76	2.61	3.42	3.90	4.40	5.60	1594.74	1.00
lp___	-485.71	0.03	1.26	-489.00	-486.30	-485.37	-484.78	-484.28	1492.37	1.00

Q9 Academics fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	0.03	0.00	0.05	-0.03	-0.00	0.02	0.04	0.19	322.18	1.00
ω	0.20	0.00	0.02	0.15	0.18	0.20	0.21	0.24	477.43	1.00
α	1.53	0.04	0.71	-0.34	1.19	1.59	2.00	2.70	376.60	1.00
lp___	111.09	0.05	1.26	107.95	110.38	111.41	112.05	112.63	765.10	1.00

Q9 Policy fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	0.26	0.00	0.01	0.25	0.26	0.26	0.26	0.27	3421.33	1.00
ω	0.09	0.00	0.01	0.08	0.08	0.09	0.09	0.10	3056.53	1.00
α	0.00	0.00	0.10	-0.20	-0.07	0.00	0.07	0.21	3224.24	1.00
lp___	142.09	0.03	1.20	138.99	141.53	142.42	142.99	143.47	1555.33	1.00

Q10 Academics fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	0.74	0.01	0.15	0.46	0.62	0.74	0.87	0.99	565.10	1.01
ω	0.56	0.01	0.15	0.38	0.45	0.51	0.63	0.95	551.80	1.01
α	0.66	0.03	0.71	-0.61	0.16	0.61	1.13	2.16	519.21	1.01
lp___	202.29	0.06	1.47	198.48	201.58	202.67	203.37	204.01	583.91	1.00

Q10 Policy fit

	mean	se_mean	sd	2.5%	25%	50%	75%	97.5%	n_eff	Rhat
ξ	0.93	0.00	0.05	0.80	0.89	0.94	0.97	1.00	1395.34	1.00
ω	0.42	0.00	0.03	0.35	0.40	0.42	0.44	0.49	1468.83	1.00
α	0.00	0.00	0.10	-0.20	-0.07	0.00	0.07	0.20	2178.96	1.00
lp___	133.34	0.04	1.38	129.78	132.69	133.69	134.34	134.94	995.48	1.00

	10%	25%	50%	75%	90%
Q1_academics_prior_draws_stones	27	43	65	79	88
Q1_academics_prior_draws_fitted	27.63	45.04	63.65	79.79	90.8
Q1_firm_prior_draws_stones	17	33	58	68	78.3
Q1_firm_prior_draws_fitted	17.43	33.61	52.08	68.53	80.03
Q1_policy_prior_draws_stones	57	66	71	80	89
Q1_policy_prior_draws_fitted	56.69	64.66	73.01	80.97	88.24
Q2_academics_prior_draws_stones	1.1	3.4	6.19	10.79	14.98
Q2_academics_prior_draws_fitted	1.17	3.42	6.85	11.36	16.05
Q2_firm_prior_draws_stones	3.09	5.67	10.13	11.69	14.72
Q2_firm_prior_draws_fitted	2.67	5.83	9.67	11.61	16.3
Q2_policy_prior_draws_stones	7.24	10.45	13.83	18.2	22.46
Q2_policy_prior_draws_fitted	7.42	10.18	13.99	18.08	22.4
Q3_academics_prior_draws_stones	−0.2	0.2	0.6	1.58	2.43
Q3_academics_prior_draws_fitted	−0.35	0.15	0.83	1.65	2.49
Q3_firm_prior_draws_stones	0	0.4	1.5	2.82	3.9
Q3_firm_prior_draws_fitted	0.09	0.62	1.56	2.8	4.1
Q3_policy_prior_draws_stones	−0.01	0.4	1.1	2	3.8
Q3_policy_prior_draws_fitted	0.02	0.47	1.2	2.17	3.17
Q4_academics_prior_draws_stones	−0.1	0	0.5	1.25	2
Q4_academics_prior_draws_fitted	−0.18	0.14	0.66	1.35	2.07
Q4_firm_prior_draws_stones	−0.1	0.1	0.5	1.6	2.4
Q4_firm_prior_draws_fitted	−0.09	0.3	0.97	1.87	2.81
Q4_policy_prior_draws_stones	−0.2	0.1	0.7	1.1	1.5
Q4_policy_prior_draws_fitted	−0.49	0.07	0.63	1.12	1.51
Q5_academics_prior_draws_stones	−0.61	0.3	1.2	2.1	3
Q5_academics_prior_draws_fitted	−1.15	0.01	1.17	2.19	3.02
Q5_firm_prior_draws_stones	0	0.5	1.45	5.3	9.11
Q5_firm_prior_draws_fitted	−0.06	0.58	1.42	5.29	8.95
Q5_policy_prior_draws_stones	0.5	0.8	1.4	2.5	4.01
Q5_policy_prior_draws_fitted	0.5	0.94	1.65	2.61	3.6
Q6_academics_prior_draws_stones	0.26	1.78	5.86	10.41	14.17
Q6_academics_prior_draws_fitted	0.17	2.32	5.68	10.13	14.75
Q6_firm_prior_draws_stones	0.47	4.18	6.88	10.65	12.58
Q6_firm_prior_draws_fitted	0.43	5.14	7.26	10.5	12.59
Q6_policy_prior_draws_stones	3.59	4.77	13.03	29.23	56.78
Q6_policy_prior_draws_fitted	3.47	4.58	12.05	26.7	45.77
Q7_academics_prior_draws_stones	1	6	12	23	27
Q7_academics_prior_draws_fitted	−0.11	5.75	13.07	21.57	30.19
Q7_firm_prior_draws_stones	2	6	9	13.25	19.2
Q7_firm_prior_draws_fitted	1.73	5.29	10.47	17.19	24.16
Q7_policy_prior_draws_stones	6	7	12	15	23.2
Q7_policy_prior_draws_fitted	4.93	7.57	11.63	16.96	22.5
Q8_academics_prior_draws_stones	−1.1	1	8	17	26.1
Q8_academics_prior_draws_fitted	−6.51	0.39	6.48	12.93	20.12
Q8_firm_prior_draws_stones	−1	3	6	9	12
Q8_firm_prior_draws_fitted	−1.42	1.99	5.46	8.62	11.27
Q8_policy_prior_draws_stones	5	7	10	18.75	26.3
Q8_policy_prior_draws_fitted	3.51	6.98	11.96	18.39	25.07
Q9_academics_prior_draws_stones	−0.03	0.06	0.13	0.24	0.33
Q9_academics_prior_draws_fitted	−0.02	0.06	0.15	0.25	0.35
Q9_policy_prior_draws_stones	0.16	0.22	0.27	0.32	0.35
Q9_policy_prior_draws_fitted	0.15	0.2	0.26	0.32	0.37
Q10_academics_prior_draws_stones	0.19	0.43	0.66	0.84	0.94
Q10_academics_prior_draws_fitted	0.19	0.43	0.66	0.84	0.94
Q10_policy_prior_draws_stones	0.27	0.38	0.66	0.93	0.98
Q10_policy_prior_draws_fitted	0.27	0.47	0.68	0.84	0.94