

| Dependent Variable: | ln1p_cited_by_count | | | | | | | | |
|--|---------------------|----------|----------|-------------------|-----------|----------|----------|----------|----------|
| | All Fields | | | Molecular Biology | | | Medicine | | |
| | All PDB | High PDB | CEM | All PDB | High PDB | CEM | All PDB | High PDB | CEM |
| AlphaFold | 0.132*** | 0.176*** | 0.141*** | 0.097*** | 0.206*** | 0.141*** | 0.215*** | 0.108* | 0.141*** |
| (0.020) | (0.037) | (0.017) | (0.025) | (0.043) | (0.017) | (0.026) | (0.062) | (0.017) | (0.017) |
| Counterfactual AI | 0.060** | 0.036 | 0.061** | 0.073* | 0.023 | 0.061** | 0.081** | -0.126 | 0.061** |
| (0.023) | (0.040) | (0.023) | (0.036) | (0.053) | (0.023) | (0.033) | (0.080) | (0.080) | (0.023) |
| Counterfactual No AI | 0.166*** | 0.165*** | 0.173*** | 0.059** | 0.142*** | 0.173*** | 0.198*** | 0.127 | 0.173*** |
| (0.035) | (0.048) | (0.033) | (0.023) | (0.051) | (0.033) | (0.047) | (0.082) | (0.033) | (0.033) |
| AlphaFold - Method | 0.006 | -0.027** | 0.015 | 0.021* | -0.003 | 0.015 | -0.007 | -0.030** | 0.015 |
| (0.013) | (0.011) | (0.014) | (0.011) | (0.021) | (0.014) | (0.013) | (0.012) | (0.012) | (0.014) |
| Counterfactual AI - Method | -0.017 | 0.033 | 0.012 | -0.014 | 0.057 | 0.012 | 0.024 | 0.125 | 0.012 |
| (0.020) | (0.051) | (0.021) | (0.030) | (0.077) | (0.021) | (0.037) | (0.121) | (0.021) | (0.021) |
| Counterfactual No AI - Method | 0.028 | -0.010 | 0.035* | -0.009 | -0.001 | 0.035* | 0.013 | -0.029 | 0.035* |
| (0.017) | (0.021) | (0.018) | (0.026) | (0.027) | (0.018) | (0.017) | (0.018) | (0.018) | (0.018) |
| field_agriculturalLand_biological_sciences | 13.3*** | 12.5*** | 13.6*** | 15.4*** | 17.1*** | 13.6*** | 21.2*** | 18.6* | 13.6*** |
| (1.61) | (3.17) | (1.84) | (1.60) | (3.61) | (1.84) | (2.73) | (9.68) | (1.84) | (1.84) |
| field_arts_and_humanities | 1.11 | 19.2 | 1.74 | 29.8 | 69.4 | 1.74 | -0.505 | -37.8 | 1.74 |
| (2.27) | (15.2) | (2.56) | (17.9) | (58.8) | (2.56) | (18.6) | (79.6) | (2.56) | (2.56) |
| field_biochemistry_genetics_and_molecular_biology | 7.56*** | 7.97*** | 7.39*** | 7.01*** | 6.72*** | 7.39*** | 3.91* | 10.6*** | 7.39*** |
| (2.13) | (1.72) | (2.04) | (1.44) | (1.42) | (2.04) | (1.95) | (3.03) | (2.04) | (2.04) |
| field_business_management_and_accounting | 10.7 | 32.3** | 5.91 | 20.3* | 16.7 | 5.91 | 13.2 | 147.5 | 5.91 |
| (6.46) | (15.5) | (7.51) | (11.2) | (34.8) | (7.51) | (10.9) | (112.9) | (7.51) | (7.51) |
| field_chemical_engineering | 25.8*** | 51.2*** | 26.9*** | 31.4** | 65.6*** | 26.9*** | 18.1 | 124.5* | 26.9*** |
| (5.74) | (19.9) | (6.13) | (12.0) | (22.3) | (6.13) | (21.1) | (67.4) | (6.13) | (6.13) |
| field_chemistry | 12.3*** | 10.6*** | 14.0*** | 11.8*** | 12.1*** | 14.0*** | 10.7*** | 8.16 | 14.0*** |
| (1.25) | (2.66) | (1.28) | (1.76) | (3.80) | (1.28) | (3.10) | (8.39) | (1.28) | (1.28) |
| field_computer_science | 11.8*** | 10.0* | 13.9*** | 8.58*** | -2.44 | 13.9*** | 3.76 | 17.0 | 13.9*** |
| (1.94) | (5.90) | (1.88) | (3.11) | (7.97) | (1.88) | (7.18) | (13.7) | (1.88) | (1.88) |
| field_decision_sciences | -1.50 | -14.8 | -4.71* | 4.33 | 5.36 | -4.71* | 13.3 | -40.0 | -4.71* |
| (3.98) | (20.4) | (2.78) | (11.5) | (30.4) | (2.78) | (19.0) | (95.4) | (2.78) | (2.78) |
| field_dentistry | 19.0*** | 56.2*** | 19.0*** | 23.6*** | 57.0*** | 19.0*** | 32.2*** | 51.5 | 19.0*** |
| (3.79) | (10.5) | (3.95) | (7.50) | (20.5) | (3.95) | (7.20) | (40.6) | (3.95) | (3.95) |
| field_earth_and_planetary_sciences | -5.07*** | -8.65** | -5.69*** | -5.30 | -16.1 | -5.69*** | -16.5 | -39.8 | -5.69*** |
| (1.74) | (3.18) | (1.74) | (6.25) | (17.3) | (1.74) | (30.7) | (40.9) | (1.74) | (1.74) |
| field_economics_econometrics_and_finance | 11.9*** | 19.3 | 15.5*** | -6.28 | -33.6 | 15.5*** | 9.74* | 9.18 | 15.5*** |
| (3.20) | (22.6) | (3.37) | (11.3) | (32.0) | (3.37) | (5.76) | (30.5) | (3.37) | (3.37) |
| field_energy | 25.2*** | 12.3** | 23.5*** | 25.2*** | 18.3* | 23.5*** | 49.5*** | -46.3 | 23.5*** |
| (3.10) | (5.09) | (2.93) | (5.24) | (9.38) | (2.93) | (15.0) | (43.0) | (2.93) | (2.93) |
| field_engineering | 17.9*** | 8.81** | 17.6*** | 17.0*** | 14.9*** | 17.6*** | 22.3*** | 5.14 | 17.6*** |
| (1.59) | (3.92) | (1.67) | (1.65) | (4.33) | (1.67) | (3.64) | (10.7) | (1.67) | (1.67) |
| field_environmental_science | 14.1*** | 10.2** | 14.2*** | 14.4*** | 14.1** | 14.2*** | 17.7*** | 7.90 | 14.2*** |
| (1.02) | (3.76) | (1.18) | (2.17) | (5.18) | (1.18) | (4.62) | (10.5) | (1.18) | (1.18) |
| field_health_professions | 4.38 | -2.32 | 2.70 | 9.51 | 28.2 | 2.70 | 4.47 | -17.0 | 2.70 |
| (2.75) | (17.5) | (2.98) | (7.41) | (22.1) | (2.98) | (4.62) | (21.9) | (2.98) | (2.98) |
| field_immunology_and_microbiology | 9.69*** | 8.96*** | 10.4*** | 14.9*** | 13.2*** | 10.4*** | 7.15** | 13.0** | 10.4*** |
| (2.60) | (2.72) | (2.33) | (1.71) | (3.75) | (2.33) | (2.95) | (5.42) | (2.33) | (2.33) |
| field_materials_science | 9.45*** | 2.09 | 8.32*** | 17.1*** | 4.16 | 8.32*** | 15.5*** | 17.4 | 8.32*** |
| (1.72) | (1.49) | (1.81) | (2.35) | (4.12) | (1.81) | (3.70) | (10.3) | (1.81) | (1.81) |
| field_mathematics | 46.4*** | 82.3*** | 46.5*** | 11.8 | 70.7** | 46.5*** | 50.3*** | 60.7** | 46.5*** |
| (5.79) | (17.1) | (6.36) | (11.8) | (26.5) | (6.36) | (6.43) | (26.4) | (6.36) | (6.36) |
| field_medicine | 10.6*** | 11.8*** | 10.9*** | 7.85*** | 9.53*** | 10.9*** | 11.2** | 9.07*** | 10.9*** |
| (2.10) | (2.05) | (2.05) | (1.47) | (2.48) | (2.05) | (0.941) | (2.15) | (2.05) | (2.05) |
| field_neuroscience | 13.3** | 17.7*** | 13.6*** | 12.9*** | 23.3*** | 13.6*** | 18.5*** | 11.6 | 13.6*** |
| (1.27) | (3.64) | (1.21) | (3.60) | (4.58) | (1.21) | (2.39) | (8.74) | (1.21) | (1.21) |
| field_nursing | 14.3*** | 11.3* | 13.3*** | 9.71** | 8.25 | 13.3*** | 15.0*** | 23.3 | 13.3*** |
| (1.71) | (5.96) | (1.87) | (3.92) | (9.35) | (1.87) | (4.36) | (21.4) | (1.87) | (1.87) |
| field_pharmacology_toxicology_and_pharmaceutics | 9.68*** | 6.28 | 9.19*** | 10.4** | 7.78 | 9.19*** | 5.25 | 0.780 | 9.19*** |
| (2.70) | (5.67) | (3.20) | (5.05) | (7.10) | (3.20) | (5.35) | (15.8) | (3.20) | (3.20) |
| field_physics_and_astronomy | 5.74*** | 11.3** | 5.87*** | 8.12 | 14.2 | 5.87*** | -4.48 | 44.4* | 5.87*** |
| (1.36) | (4.58) | (1.36) | (5.09) | (10.9) | (1.36) | (7.66) | (21.3) | (1.36) | (1.36) |
| field_psychology | 21.6*** | -1.56 | 22.9*** | 18.3*** | 2.04 | 22.9*** | 23.8*** | 34.2 | 22.9*** |
| (3.80) | (13.9) | (3.56) | (6.08) | (23.5) | (3.56) | (4.41) | (32.6) | (3.56) | (3.56) |
| field_social_sciences | 14.0*** | 16.0 | 14.8*** | 5.35 | 19.3 | 14.8*** | 10.2 | 58.1 | 14.8*** |
| (2.62) | (12.0) | (2.79) | (4.90) | (12.4) | (2.79) | (6.71) | (36.7) | (2.79) | (2.79) |
| field_veterinary | 5.11 | -7.06 | 4.53 | -15.4 | -21.5 | 4.53 | 5.83 | -36.8 | 4.53 |
| (3.68) | (13.7) | (3.64) | (11.3) | (36.0) | (3.64) | (7.30) | (23.3) | (3.64) | (3.64) |
| mesh_ | 59.7*** | 118.8*** | 70.3*** | 59.4*** | 54.7 | 70.3*** | 79.8*** | 182.6*** | 70.3*** |
| (9.27) | (34.3) | (9.34) | (14.9) | (47.3) | (9.34) | (21.2) | (62.6) | (9.34) | (9.34) |
| mesh_A | 9.34*** | 15.2*** | 9.15*** | 12.2*** | 18.1*** | 9.15*** | 10.8*** | 16.4*** | 9.15*** |
| (0.757) | (2.77) | (0.809) | (1.08) | (3.59) | (0.809) | (1.77) | (3.82) | (0.809) | (0.809) |
| mesh_B | 8.93*** | 12.0*** | 8.74*** | 11.2*** | 7.85** | 8.74*** | 19.0*** | 20.1*** | 8.74*** |
| (0.755) | (2.10) | (0.729) | (1.22) | (2.97) | (0.729) | (2.42) | (5.48) | (0.729) | (0.729) |
| mesh_C | 10.9*** | 18.9*** | 11.1*** | 11.3*** | 15.3*** | 11.1*** | 10.6*** | 25.1*** | 11.1*** |
| (1.10) | (2.78) | (1.10) | (1.18) | (2.91) | (1.10) | (1.25) | (6.44) | (1.10) | (1.10) |
| mesh_D | 3.49*** | 5.66*** | 3.72*** | 2.80*** | 5.65*** | 3.72*** | 6.51*** | 3.72*** | 3.72*** |
| (0.383) | (0.810) | (0.438) | (0.499) | (1.04) | (0.438) | (0.614) | (1.85) | (0.438) | (0.438) |
| mesh_E | 3.60*** | 9.38*** | 3.83*** | 3.53** | 7.35* | 3.83*** | 4.62** | 16.3* | 3.83*** |
| (0.901) | (2.94) | (0.940) | (1.47) | (3.80) | (0.940) | (1.74) | (8.21) | (0.940) | (0.940) |
| mesh_F | 8.71*** | 0.230 | 8.45*** | 11.0*** | 10.1 | 8.45*** | 15.0*** | 12.5 | 8.45*** |
| (1.81) | (7.93) | (2.01) | (2.95) | (10.2) | (2.01) | (3.37) | (13.1) | (2.01) | (2.01) |
| mesh_G | 9.80*** | 7.77*** | 9.28*** | 11.0*** | 8.12*** | 9.28*** | 14.0*** | 6.53 | 9.28*** |
| (0.718) | (1.97) | (0.713) | (0.905) | (2.25) | (0.713) | (1.69) | (5.18) | (0.713) | (0.713) |
| mesh_H | 18.7*** | 36.6*** | 15.4*** | 20.1*** | 43.8*** | 15.4*** | 27.1*** | 41.8 | 15.4*** |
| (2.63) | (9.81) | (2.61) | (5.19) | (15.2) | (2.61) | (9.83) | (47.9) | (2.61) | (2.61) |
| mesh_I | -0.519 | 23.3 | -1.87 | 5.66 | 74.5 | -1.87 | -0.795 | -12.6 | -1.87 |
| (5.08) | (49.3) | (4.70) | (8.12) | (66.2) | (4.70) | (11.4) | (82.7) | (4.70) | (4.70) |
| mesh_J | 4.42*** | 23.5*** | 4.88*** | 7.45*** | 23.3*** | 4.88*** | 14.7*** | -18.3 | 4.88*** |
| (1.17) | (4.74) | (1.41) | (2.13) | (5.99) | (1.41) | (4.70) | (20.7) | (1.41) | (1.41) |
| mesh_K | -12.3* | 13.4 | -31.2** | 10.7 | 69.0 | -31.2** | -77.4** | -345.3** | -31.2** |
| (7.06) | (47.5) | (15.1) | (25.4) | (59.9) | (15.1) | (35.9) | (161.3) | (15.1) | (15.1) |
| mesh_L | 14.4*** | 27.0*** | 13.2*** | 16.6*** | 27.7*** | 13.2*** | 21.4*** | -11.0 | 13.2*** |
| (1.36) | (5.84) | (1.51) | (2.50) | (7.55) | (1.51) | (4.57) | (18.4) | (1.51) | (1.51) |
| mesh_M | 12.5*** | 33.9*** | 12.4*** | 13.9*** | 1.65 | 12.4*** | 15.8*** | 46.2*** | 12.4*** |
| (1.93) | (8.85) | (1.77) | (3.64) | (11.9) | (1.77) | (2.65) | (15.9) | (1.77) | (1.77) |
| mesh_N | 12.5*** | 28.2*** | 12.1*** | 19.0*** | 24.6** | 12.1*** | 19.7*** | 32.0* | 12.1*** |
| (0.983) | (7.22) | (1.04) | (2.88) | (9.33) | (1.04) | (2.62) | (17.1) | (1.04) | (1.04) |
| mesh_Z | 0.354 | -24.3 | -0.085 | -4.08 | 22.5 | -0.085 | -8.47* | -34.9 | -0.085 |
| (2.73) | (18.4) | (2.08) | (8.06) | (25.2) | (2.08) | (4.92) | (35.4) | (2.08) | (2.08) |
| mesh_n | 6.15* | -10.1 | 5.79* | 9.69* | 16.6 | 5.79* | 9.20* | -28.6 | 5.79* |
| (3.13) | (11.0) | (2.89) | (4.89) | (14.4) | (2.89) | (5.32) | (22.8) | (2.89) | (2.89) |
| AlphaFold × Counterfactual AI | 0.019 | -0.055 | 0.010 | 0.019 | -0.063 | 0.010 | -0.078 | -0.083 | 0.010 |
| (0.032) | (0.120) | (0.041) | (0.073) | (0.139) | (0.041) | (0.058) | (0.183) | (0.041) | (0.041) |
| AlphaFold × Counterfactual No AI | 0.027 | 0.073 | 0.016 | 0.032 | 0.007 | 0.016 | -0.025 | 0.121 | 0.016 |
| (0.056) | (0.087) | (0.059) | (0.052) | (0.109) | (0.059) | (0.061) | (0.106) | (0.059) | (0.059) |
| AlphaFold - Method × Counterfactual AI - Method | -0.009 | -0.022 | -0.048 | -0.045 | -0.109*** | -0.048 | 0.003 | 0.019 | -0.048 |
| (0.031) | (0.041) | (0.046) | (0.056) | (0.039) | (0.046) | (0.046) | (0.052) | (0.046) | (0.046) |
| AlphaFold - Method × Counterfactual No AI - Method | -0.003** | 0.0002 | -0.009** | -0.0009 | -0.0007 | -0.009** | -0.003* | 0.0010 | -0.009** |
| (0.002) | (0.001) | (0.004) | (0.001) | (0.002) | (0.004) | (0.002) | (0.003) | (0.004) | (0.004) |
| Fixed-effects | | | | | | | | | |
| pl_id | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| quarter_year | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| institution_type | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| institution_cited_by_count | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

| Dependent Variable: | Inlp_cit_0 | | | | | | | | |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | All Fields | | | Molecular Biology | | | Medicine | | |
| | All PDB | High PDB | CEM | All PDB | High PDB | CEM | All PDB | High PDB | CEM |
| AlphaFold | 0.136*** (0.028) | 0.197*** (0.047) | 0.127*** (0.026) | 0.070*** (0.026) | 0.178*** (0.052) | 0.127*** (0.026) | 0.225*** (0.049) | 0.168*** (0.079) | 0.127*** (0.026) |
| Counterfactual AI | 0.083*** (0.026) | 0.068 (0.043) | 0.082*** (0.023) | 0.087*** (0.035) | 0.066* (0.038) | 0.082*** (0.023) | 0.157*** (0.044) | -0.086 (0.106) | 0.082*** (0.023) |
| Counterfactual No AI | 0.209*** (0.064) | 0.279*** (0.100) | 0.207*** (0.057) | 0.090*** (0.032) | 0.156* (0.077) | 0.207*** (0.057) | 0.269*** (0.082) | 0.239* (0.138) | 0.207*** (0.057) |
| AlphaFold - Method | -0.014 (0.018) | -0.028* (0.016) | -0.006 (0.018) | 0.024* (0.013) | 0.018 (0.023) | -0.006 (0.018) | -0.031 (0.019) | -0.035** (0.016) | -0.006 (0.018) |
| Counterfactual AI - Method | -0.011 (0.021) | 0.052 (0.047) | 0.004 (0.024) | -0.009 (0.028) | 0.040 (0.069) | 0.004 (0.024) | -0.003 (0.043) | 0.169 (0.122) | 0.004 (0.024) |
| Counterfactual No AI - Method | 0.034 (0.024) | 0.022 (0.026) | 0.037 (0.024) | 0.015 (0.019) | -0.014 (0.020) | 0.037 (0.034) | 0.014 (0.020) | 0.004 (0.021) | 0.037 (0.024) |
| field_agricultural_and_biological_sciences | 9.76*** (1.39) | 10.5*** (2.76) | 9.83*** (1.53) | 10.8*** (1.64) | 12.9*** (3.68) | 9.83*** (1.53) | 19.0*** (2.86) | 18.8*** (9.19) | 9.83*** (1.53) |
| field_arts_and_humanities | 2.91 (2.67) | 15.2 (10.4) | 3.50 (2.99) | 35.8*** (12.6) | 99.8*** (43.7) | 3.50 (2.99) | -2.75 (17.2) | -11.7 (49.8) | 3.50 (2.99) |
| field_biochemistry_genetics_and_molecular_biology | 5.24*** (1.45) | 5.62*** (1.34) | 5.11*** (1.35) | 5.09*** (1.01) | 5.13*** (1.09) | 5.11*** (1.35) | 0.136 (1.18) | 3.09 (3.59) | 5.11*** (1.35) |
| field_business_management_and_accounting | 4.98 (5.40) | 31.9 (22.2) | 2.16 (6.21) | 5.69 (13.0) | 16.5 (39.2) | 2.16 (6.21) | 2.65 (8.30) | 9.15 (113.5) | 2.16 (6.21) |
| field_chemical_engineering | 18.67*** (4.11) | 20.6 (15.1) | 18.8*** (4.30) | 14.1 (8.75) | 24.5 (23.7) | 18.8*** (4.30) | 2.77 (22.6) | -78.7 (87.4) | 18.8*** (4.30) |
| field_chemistry | 8.62*** (0.977) | 8.95*** (2.29) | 9.97*** (1.06) | 6.83*** (1.37) | 8.83*** (2.69) | 9.97*** (1.06) | 3.92 (3.21) | 7.70 (7.09) | 9.97*** (1.06) |
| field_computer_science | 9.89*** (1.66) | 7.02 (6.43) | 11.4*** (1.67) | 7.16* (2.96) | -2.37 (7.36) | 11.4*** (1.67) | 6.16 (6.09) | 9.41 (13.4) | 11.4*** (1.67) |
| field_decision_sciences | 2.13 (2.17) | -11.6 (21.0) | 0.052 (1.95) | -1.77 (7.08) | 0.468 (34.9) | 0.052 (1.95) | -0.107 (17.1) | 46.2 (44.8) | 0.052 (1.95) |
| field_dentistry | 8.09*** (3.37) | 24.1*** (7.57) | 7.80*** (3.78) | -2.31 (7.55) | 27.7 (17.9) | 7.80*** (3.78) | 15.8*** (7.29) | 7.92 (25.7) | 7.80*** (3.78) |
| field_earth_and_planetary_sciences | -3.32*** (1.53) | -4.52 (3.19) | -3.31** (1.51) | 9.03 (6.06) | 15.1 (19.3) | -3.31** (1.51) | -31.5 (25.2) | -70.2 (40.7) | -3.31** (1.51) |
| field_economics_econometrics_and_finance | 14.2*** (3.23) | 35.5* (19.3) | 16.6*** (3.32) | 3.61 (10.3) | 50.1 (47.3) | 16.6*** (3.32) | 9.33* (4.66) | 18.8 (35.2) | 16.6*** (3.32) |
| field_energy | 19.7*** (2.93) | 3.34 (4.73) | 18.7*** (2.86) | 14.0*** (9.44) | 5.27 (9.34) | 18.7*** (2.86) | 30.1* (17.3) | -47.7 (33.6) | 18.7*** (2.86) |
| field_engineering | 12.1*** (1.14) | 4.78* (2.73) | 11.7*** (1.23) | 9.37*** (1.61) | 6.76* (3.81) | 11.7*** (1.23) | 13.0*** (2.73) | -3.74 (12.9) | 11.7*** (1.23) |
| field_environmental_sciences | 9.54*** (0.986) | 4.35 (3.10) | 9.33*** (1.14) | 16.1*** (1.84) | 9.33*** (3.92) | 4.35 (3.10) | -6.62 (3.77) | 9.33*** (1.14) | 16.1*** (1.84) |
| field_health_professions | 3.22 (2.25) | -10.6 (15.5) | 2.70 (2.40) | 5.82 (6.60) | 2.19 (21.1) | 2.70 (2.40) | -1.38 (3.94) | -39.2** (2.70) | 2.70 (2.40) |
| field_immunology_and_microbiology | 4.76*** (1.68) | 6.20*** (2.50) | 5.10*** (1.46) | 8.44*** (1.18) | 10.1*** (3.16) | 5.10*** (1.46) | 1.66 (2.08) | 7.45 (4.47) | 5.10*** (1.46) |
| field_materials_sciences | 7.43*** (1.12) | 1.72 (1.27) | 6.70*** (1.24) | 10.4*** (2.04) | 3.17 (3.01) | 6.70*** (1.24) | 10.6*** (4.06) | 7.52 (6.70) | 6.70*** (1.24) |
| field_mathematics | 63.3*** (9.45) | 96.9*** (22.9) | 64.1*** (9.37) | 13.4 (9.30) | 70.7*** (27.2) | 64.1*** (9.37) | 70.2*** (10.7) | 76.0*** (33.2) | 64.1*** (9.37) |
| field_medicine | 8.87*** (1.71) | 12.1*** (2.30) | 8.86*** (1.65) | 4.50*** (1.02) | 5.80*** (2.03) | 8.86*** (1.65) | 8.15*** (0.845) | 8.19*** (2.68) | 8.86*** (1.65) |
| field_neuroscience | 8.08*** (1.09) | 12.6*** (3.38) | 8.30*** (0.989) | 9.38*** (1.43) | 17.9*** (3.98) | 8.30*** (0.989) | 8.62*** (2.50) | -7.23 (10.0) | 8.30*** (0.989) |
| field_nursing | 8.05*** (1.67) | 4.16 (5.46) | 7.88*** (1.78) | 3.66 (3.51) | 7.41 (7.58) | 7.88*** (1.78) | 4.08 (4.32) | -3.01 (23.5) | 7.88*** (1.78) |
| field_pharmacology_toxicology_and_pharmaceutics | 5.76*** (2.04) | 4.64 (3.99) | 5.71*** (2.48) | 5.39 (4.73) | 5.99 (5.80) | 5.71*** (2.48) | -0.601 (9.23) | 9.23 (26.3) | 5.71*** (2.48) |
| field_physics_and_astronomy | 5.12*** (1.14) | 8.13* (3.30) | 5.31*** (1.12) | 8.61*** (4.04) | 14.3*** (6.36) | 5.31*** (1.12) | -3.35 (5.10) | 4.7 (24.4) | 5.31*** (1.12) |
| field_psychology | 15.7*** (3.51) | -16.0 (11.8) | 15.0*** (3.21) | 13.4 (7.23) | 15.0*** (19.1) | 15.7*** (3.21) | 15.0*** (3.21) | 15.0*** (34.1) | 15.7*** (3.21) |
| field_social_sciences | 13.0*** (2.89) | 16.4 (10.2) | 13.3*** (3.01) | 0.617 (4.80) | 7.59 (12.4) | 13.3*** (3.01) | 12.1 (7.39) | 42.3 (35.8) | 13.3*** (3.01) |
| field_veterinary | -6.11* (3.09) | 1.12 (11.5) | -7.88*** (2.78) | -8.08 (8.58) | 1.27 (31.5) | -7.88*** (2.78) | -18.2*** (6.19) | -26.6 (29.0) | -7.88*** (2.78) |
| mesh_ | 55.9*** (8.84) | 121.9*** (33.5) | 65.3*** (11.1) | 52.2*** (12.1) | 36.3 (40.4) | 65.3*** (11.1) | 67.5*** (18.0) | 187.0*** (76.3) | 65.3*** (11.1) |
| mesh_A | 4.36*** (0.668) | 7.69*** (2.21) | 4.09*** (0.699) | 6.65*** (0.922) | 10.7*** (2.91) | 4.09*** (0.699) | 3.88*** (1.51) | 7.07 (4.36) | 4.09*** (0.699) |
| mesh_B | 7.04*** (0.666) | 9.30*** (2.13) | 6.88*** (0.656) | 7.70*** (1.03) | 6.13* (2.62) | 6.88*** (0.656) | 17.0*** (2.10) | 16.3*** (5.62) | 6.88*** (0.656) |
| mesh_C | 6.69*** (1.30) | 9.40*** (3.16) | 6.59*** (1.27) | 5.27*** (1.04) | 7.05 (2.79) | 6.59*** (1.27) | 7.34*** (1.58) | 18.5* (7.35) | 6.59*** (1.27) |
| mesh_D | 2.19*** (0.341) | 3.86*** (0.602) | 2.34*** (0.371) | 1.54*** (0.400) | 3.42*** (0.718) | 2.34*** (0.371) | 4.40*** (0.582) | 4.98*** (1.82) | 2.34*** (0.371) |
| mesh_E | 2.76*** (0.597) | 7.44*** (2.42) | 2.80*** (0.593) | 4.02*** (1.05) | 8.69*** (2.59) | 2.80*** (0.593) | 2.30 (1.45) | 11.7 (7.77) | 2.80*** (0.593) |
| mesh_F | 1.91 (1.22) | -5.72 (7.62) | 1.31 (1.20) | 3.77 (9.28) | 1.62 (7.01) | 1.31 (1.20) | 4.45* (1.20) | 7.76 (15.8) | 1.31 (1.20) |
| mesh_G | 6.58*** (0.703) | 5.16*** (1.66) | 5.96*** (0.707) | 7.41*** (0.828) | 4.71*** (1.67) | 5.96*** (0.707) | 9.66*** (1.53) | 8.58* (4.50) | 5.96*** (0.707) |
| mesh_H | 14.6*** (2.22) | 28.8*** (6.70) | 11.7*** (2.35) | 17.6*** (3.95) | 35.6*** (9.89) | 11.7*** (2.35) | 23.3*** (7.91) | 42.7 (41.4) | 11.7*** (2.35) |
| mesh_I | -1.48 (3.02) | 22.8 (50.2) | -2.77 (2.44) | -3.49 (8.41) | 88.7* (52.4) | -2.77 (2.44) | -2.05 (9.24) | 12.2 (74.1) | -2.77 (2.44) |
| mesh_J | 1.19 (0.742) | 12.1** (4.92) | 1.35 (0.865) | 3.07* (1.57) | 14.4*** (5.67) | 1.35 (0.865) | 2.14 (3.78) | -8.29 (21.6) | 1.35 (0.865) |
| mesh_K | 2.77 (4.81) | -17.6 (42.8) | -10.3 (10.5) | -3.96 (17.5) | 0.776 (50.9) | -10.3 (10.5) | -15.7 (24.9) | -167.0 (215.6) | -10.3 (10.5) |
| mesh_L | 9.55*** (1.01) | 16.7*** (4.75) | 8.78*** (1.13) | 9.85*** (1.54) | 18.2*** (5.69) | 8.78*** (1.13) | 15.2*** (3.77) | -13.7 (16.1) | 8.78*** (1.13) |
| mesh_M | 8.30*** (1.65) | 29.8*** (9.89) | 7.27*** (1.64) | 5.78* (3.02) | -3.20 (11.1) | 7.27*** (1.64) | 12.0*** (1.94) | 31.9* (12.2) | 7.27*** (1.64) |
| mesh_N | 8.14*** (1.01) | 27.7*** (8.09) | 7.79*** (0.977) | 13.0*** (2.29) | 26.4*** (10.4) | 7.79*** (0.977) | 13.7*** (2.35) | 38.9*** (13.8) | 7.79*** (0.977) |
| mesh_Z | 3.15 (1.98) | -14.0 (21.3) | 2.80 (2.00) | -3.44 (6.54) | -5.41 (25.0) | 2.80 (2.00) | -3.56 (4.54) | -11.0 (39.1) | 2.80 (2.00) |
| mesh_n | 4.93* (2.62) | 2.69 (11.2) | 4.98* (2.54) | 9.04*** (4.26) | 14.5 (19.4) | 4.98* (2.54) | 5.71 (8.58) | 4.98* (19.6) | 9.04*** (4.26) |
| AlphaFold × Counterfactual AI | 0.056* (0.030) | -0.091 (0.097) | 0.021 (0.034) | 0.017 (0.061) | -0.147 (0.094) | 0.021 (0.034) | -0.008 (0.066) | -0.061 (0.263) | 0.017 (0.034) |
| AlphaFold × Counterfactual No AI | 0.003 (0.101) | -0.004 (0.158) | 0.002 (0.099) | 0.013 (0.045) | -0.025 (0.115) | 0.002 (0.099) | -0.054 (0.115) | 0.071 (0.196) | 0.003 (0.099) |
| AlphaFold - Method × Counterfactual AI - Method | -0.005 (0.030) | -0.018 (0.049) | -0.043 (0.039) | -0.032 (0.064) | -0.108** (0.043) | -0.043 (0.039) | 0.001 (0.041) | -0.006 (0.063) | -0.049 (0.039) |
| AlphaFold - Method × Counterfactual No AI - Method | -0.003 (0.002) | -0.0009 (0.001) | -0.007 (0.005) | -0.002 (0.0010) | -0.0002 (0.001) | -0.007 (0.005) | -0.003 (0.002) | -0.0009 (0.002) | -0.003 (0.005) |
| Fixed-effects | | | | | | | | | |
| pl_id | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| quarter_year | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| institution_type | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| institution_cited_by_count | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

| Dependent Variable: | Infp.cit.1 | | | | | | | | |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | All Fields | | | Molecular Biology | | | Medicine | | |
| | All PDB | High PDB | CEM | All PDB | High PDB | CEM | All PDB | High PDB | CEM |
| AlphaFold | 0.107*** (0.025) | 0.172*** (0.044) | 0.110*** (0.022) | 0.083*** (0.028) | 0.172*** (0.047) | 0.110*** (0.022) | 0.189*** (0.033) | 0.137*** (0.064) | 0.110*** (0.022) |
| Counterfactual AI | 0.045* (0.026) | 0.060 (0.041) | 0.050* (0.025) | 0.061* (0.034) | 0.049 (0.053) | 0.050* (0.025) | 0.075 (0.051) | -0.080 (0.085) | 0.050* (0.025) |
| Counterfactual No AI | 0.168*** (0.045) | 0.204*** (0.056) | 0.172*** (0.042) | 0.080*** (0.025) | 0.187*** (0.037) | 0.172*** (0.042) | 0.209*** (0.059) | 0.161* (0.087) | 0.172*** (0.042) |
| AlphaFold - Method | -0.026 (0.021) | -0.060** (0.016) | -0.018 (0.022) | -0.024 (0.036) | -0.049 (0.032) | -0.018 (0.022) | -0.034* (0.017) | -0.058** (0.012) | -0.018 (0.024) |
| Counterfactual AI - Method | -0.004 (0.026) | 0.049 (0.052) | 0.025 (0.024) | 0.002 (0.034) | 0.076 (0.071) | 0.025 (0.024) | 0.025 (0.044) | 0.146 (0.112) | 0.025 (0.025) |
| Counterfactual No AI - Method | 0.013 (0.023) | -0.011 (0.023) | 0.015 (0.023) | -0.019 (0.030) | -0.007 (0.031) | 0.015 (0.023) | 0.005 (0.022) | -0.034 (0.022) | 0.015 (0.013) |
| field_agricultural_and_biological_sciences | 11.8*** (1.66) | 10.8*** (2.27) | 12.3*** (1.89) | 13.8*** (1.71) | 13.9*** (3.74) | 12.3*** (1.89) | 19.1*** (2.67) | 16.8* (8.58) | 12.3*** (1.89) |
| field_arts_and_humanities | 0.922 (2.38) | 14.7 (12.0) | 1.31 (2.59) | 26.0 (19.1) | 66.7 (54.2) | 1.31 (2.59) | 8.17 (17.8) | -27.5 (49.3) | 1.38 (2.59) |
| field_biochemistry_genetics_and_molecular_biology | 6.76*** (1.93) | 6.89*** (1.50) | 6.54*** (1.83) | 6.29*** (1.27) | 5.90*** (1.24) | 6.54*** (1.83) | 3.10* (1.83) | 7.98*** (2.94) | 6.54*** (1.83) |
| field_business_management_and_accounting | 7.75 (5.69) | 37.5* (15.0) | 2.60 (6.48) | 7.83 (12.4) | 23.8 (36.3) | 2.60 (6.48) | 9.26 (10.0) | 100.5 (98.1) | 2.60 (6.48) |
| field_chemical_engineering | 22.4*** (4.76) | 23.7*** (14.9) | 23.8*** (4.76) | 27.5* (11.0) | 64.9*** (18.3) | 23.8*** (4.76) | 9.33 (20.6) | 43.3 (38.1) | 23.8*** (4.76) |
| field_chemistry | 11.4*** (1.15) | 9.77*** (2.63) | 12.7*** (1.17) | 10.5*** (1.62) | 11.5*** (3.47) | 12.7*** (1.17) | 8.69*** (2.66) | 5.26 (7.77) | 12.7*** (1.17) |
| field_computer_science | 11.0*** (2.15) | 9.18 (5.81) | 13.0*** (1.94) | 6.17* (3.36) | -2.76 (8.24) | 13.0*** (1.94) | 5.52 (6.78) | 17.3 (10.5) | 13.0*** (1.94) |
| field_decision_sciences | 0.904 (2.60) | -4.47 (16.4) | -1.88 (2.77) | -2.72 (11.9) | 2.04 (26.8) | -1.88 (2.77) | 9.74 (17.8) | 17.4 (72.4) | -1.88 (2.77) |
| field_dentistry | 15.5*** (4.33) | 50.1*** (9.60) | 15.0*** (3.65) | 17.8* (7.53) | 59.6*** (19.2) | 15.0*** (3.65) | 28.7*** (7.19) | 41.6 (33.3) | 15.0*** (3.65) |
| field_earth_and_planetary_sciences | -3.69*** (1.81) | -10.3*** (3.14) | -5.25*** (1.74) | 7.82 (5.97) | 14.1 (15.7) | -5.25*** (1.74) | -18.1 (24.6) | -42.4 (31.2) | -5.25*** (1.74) |
| field_economics_econometrics_and_finance | 12.5*** (3.02) | 20.5 (22.8) | 14.5*** (3.52) | 0.866 (1.41) | -8.05 (59.7) | 14.5*** (3.52) | 10.1* (5.18) | -11.6 (32.2) | 14.5*** (3.52) |
| field_energy | 22.0*** (3.83) | 9.06 (7.75) | 20.5*** (3.89) | 20.2*** (5.02) | 14.2 (9.24) | 20.5*** (3.89) | 37.0** (16.6) | -31.2 (45.4) | 20.5*** (3.89) |
| field_engineering | 15.7*** (2.02) | 7.34* (3.19) | 15.5*** (1.95) | 14.8*** (2.17) | 13.0*** (4.50) | 15.5*** (1.95) | 20.4*** (3.90) | -0.363 (1.13) | 15.5*** (1.95) |
| field_environmental_science | 12.2*** (1.34) | 9.58*** (3.24) | 12.2*** (1.35) | 12.3*** (2.10) | 12.3*** (5.02) | 12.2*** (1.35) | 17.5*** (4.60) | 12.2*** (12.3) | 12.2*** (1.35) |
| field_health_professions | 3.87 (2.29) | -0.229 (14.2) | 2.70 (2.64) | 8.38 (7.01) | 16.2 (21.7) | 2.70 (2.64) | 2.15 (4.26) | -0.745 (19.5) | 2.70 (2.64) |
| field_immunology_and_microbiology | 8.36*** (2.26) | 7.92*** (2.59) | 8.92*** (2.05) | 12.1*** (1.49) | 10.6*** (3.19) | 8.92*** (2.05) | 5.97*** (2.44) | 12.1*** (4.50) | 8.92*** (2.05) |
| field_materials_science | 8.34*** (1.57) | 1.32 (1.33) | 7.26*** (1.63) | 15.2*** (2.48) | 3.51 (3.85) | 7.26*** (1.63) | 14.6*** (3.43) | 12.8 (13.8) | 7.26*** (1.63) |
| field_mathematics | 47.5*** (7.46) | 90.7*** (20.8) | 48.2*** (7.68) | 12.3 (9.10) | 53.9* (26.9) | 48.2*** (7.68) | 51.7*** (7.98) | 76.7*** (25.9) | 48.2*** (7.68) |
| field_medicine | 9.94*** (1.98) | 11.5*** (2.05) | 10.1*** (1.93) | 7.02*** (1.18) | 7.68*** (1.29) | 10.1*** (1.93) | 10.3*** (0.898) | 8.48*** (2.26) | 10.1*** (1.93) |
| field_neuroscience | 11.9*** (1.09) | 17.1*** (3.39) | 12.1*** (1.05) | 12.6*** (1.47) | 23.2*** (4.43) | 12.1*** (1.05) | 14.5*** (2.29) | 5.55 (8.08) | 12.1*** (1.05) |
| field_nursing | 10.6*** (1.67) | 6.06 (4.85) | 9.65*** (1.64) | 9.29* (3.64) | 7.35 (8.41) | 9.65*** (1.64) | 10.5* (4.43) | 15.3 (15.4) | 9.65*** (1.64) |
| field_pharmacology_toxicology_and_pharmaceutics | 8.62*** (2.54) | 6.64 (5.03) | 8.25*** (2.90) | 9.57*** (4.68) | 6.50 (7.03) | 8.25*** (2.90) | 1.21 (5.14) | 3.47 (16.5) | 8.25*** (2.90) |
| field_physics_and_astronomy | 5.18*** (1.49) | 12.1*** (4.43) | 5.37*** (1.52) | 7.66 (5.02) | 18.5* (10.6) | 5.37*** (1.52) | -8.39 (7.93) | 41.6* (19.7) | 5.37*** (1.52) |
| field_psychology | 19.5*** (3.84) | -7.49 (11.9) | 20.5*** (3.62) | 18.2 (6.25) | 18.2 (21.7) | 20.5*** (3.62) | 28.5*** (4.82) | 20.5*** (32.2) | 18.2 (6.25) |
| field_social_sciences | 13.1*** (3.02) | 18.0* (10.6) | 12.9*** (3.02) | -1.21 (5.79) | 12.9*** (12.6) | 12.9*** (3.02) | 11.6 (7.06) | 49.1 (36.6) | 12.9*** (3.02) |
| field_veterinary | 3.45 (3.00) | 4.05 (13.0) | 3.75 (3.05) | -5.84 (9.68) | 8.44 (27.1) | 3.75 (3.05) | -0.253 (6.78) | -42.8 (28.8) | 3.75 (3.05) |
| mesh_ | 60.8*** (9.61) | 125.1*** (32.8) | 72.7*** (10.2) | 51.2*** (15.8) | 50.6 (40.4) | 72.7*** (10.2) | 82.0*** (21.7) | 184.8*** (62.6) | 72.7*** (10.2) |
| mesh_A | 6.97*** (0.730) | 11.8*** (2.53) | 6.85*** (0.782) | 9.46*** (1.05) | 15.0*** (3.15) | 6.85*** (0.782) | 6.83*** (1.69) | 10.6*** (3.81) | 6.85*** (0.782) |
| mesh_B | 8.01*** (0.764) | 10.4*** (2.04) | 7.71*** (0.735) | 9.22*** (1.24) | 5.81*** (2.68) | 7.71*** (0.735) | 18.6*** (2.28) | 18.0*** (5.84) | 7.71*** (0.735) |
| mesh_C | 9.63*** (1.14) | 16.6*** (2.91) | 9.71*** (1.13) | 9.57*** (1.10) | 12.7*** (2.56) | 9.71*** (1.13) | 9.52*** (1.32) | 22.6*** (6.68) | 9.71*** (1.13) |
| mesh_D | 3.20*** (0.382) | 5.66*** (0.704) | 3.42*** (0.435) | 2.69*** (0.466) | 5.55*** (0.909) | 3.42*** (0.435) | 5.96*** (0.577) | 6.32*** (1.71) | 3.42*** (0.435) |
| mesh_E | 3.60*** (0.786) | 10.1*** (2.57) | 3.84*** (0.808) | 4.61*** (1.38) | 9.97*** (3.17) | 3.84*** (0.808) | 3.69*** (1.71) | 13.3 (7.92) | 3.84*** (0.808) |
| mesh_F | 6.06*** (1.02) | -10.2 (8.23) | 5.64*** (1.72) | 6.11*** (2.60) | -1.44 (10.9) | 5.64*** (1.72) | 12.3*** (2.93) | 16.7 (51.0) | 5.64*** (1.72) |
| mesh_G | 8.71*** (0.732) | 6.36*** (1.84) | 8.12*** (0.711) | 9.56*** (0.823) | 6.64*** (2.17) | 8.12*** (0.711) | 12.4*** (1.45) | 7.30 (7.36) | 6.36*** (1.84) |
| mesh_H | 17.8*** (2.35) | 35.0*** (9.29) | 15.4*** (2.27) | 20.4*** (4.51) | 38.5*** (15.0) | 15.4*** (2.27) | 22.7*** (9.22) | 36.0 (44.4) | 15.4*** (2.27) |
| mesh_I | -2.55 (3.98) | 21.4 (50.7) | -2.66 (3.86) | -0.843 (6.62) | 82.4 (71.8) | -2.66 (3.86) | -4.82 (11.3) | 15.0 (83.6) | -2.66 (3.86) |
| mesh_J | 3.17*** (0.961) | 17.5*** (4.78) | 3.64*** (1.15) | 5.06*** (2.00) | 15.6*** (6.39) | 3.64*** (1.15) | 10.8*** (4.36) | 3.19 (18.9) | 3.64*** (1.15) |
| mesh_K | -11.5* (6.12) | 25.8 (41.4) | -28.0** (12.2) | -5.32 (24.4) | 76.6 (56.5) | -28.0** (12.2) | -34.5 (26.4) | -304.2* (173.2) | -28.0** (12.2) |
| mesh_L | 12.6*** (1.19) | 24.7*** (5.45) | 11.2*** (1.40) | 13.2*** (2.21) | 23.8*** (7.50) | 11.2*** (1.40) | 19.0*** (4.22) | -10.6 (16.0) | 11.2*** (1.40) |
| mesh_M | 10.9*** (1.78) | 34.0*** (9.74) | 10.9*** (1.66) | 11.1*** (3.25) | 4.82 (10.6) | 10.9*** (1.66) | 13.6*** (2.51) | 38.9*** (17.6) | 10.9*** (1.66) |
| mesh_N | 10.9*** (0.972) | 23.7*** (7.68) | 10.4*** (1.04) | 18.0*** (2.57) | 24.7*** (9.44) | 10.4*** (1.04) | 17.3*** (2.37) | 33.6*** (15.7) | 10.4*** (1.04) |
| mesh_Z | 1.14 (2.55) | -17.3 (17.3) | 1.22 (2.65) | -5.12 (7.18) | 11.7 (24.9) | 1.22 (2.65) | -6.28 (5.06) | -24.4 (32.4) | 1.22 (2.65) |
| mesh_n | 6.25*** (2.90) | -5.03 (11.3) | 5.96*** (2.59) | 12.0*** (4.51) | 13.7 (14.0) | 5.96*** (2.59) | 9.04*** (5.16) | -7.65 (22.2) | 5.96*** (2.59) |
| AlphaFold × Counterfactual AI | 0.041 (0.038) | -0.062 (0.122) | 0.030 (0.038) | 0.029 (0.079) | -0.064 (0.134) | 0.030 (0.038) | -0.129* (0.075) | -0.117 (0.211) | 0.030 (0.038) |
| AlphaFold × Counterfactual No AI | -0.026 (0.078) | 0.065 (0.093) | -0.029 (0.076) | -0.004 (0.072) | -0.011 (0.103) | -0.029 (0.076) | -0.095 (0.076) | 0.132 (0.107) | -0.026 (0.076) |
| AlphaFold - Method × Counterfactual AI - Method | 0.005 (0.029) | 0.011 (0.039) | -0.042 (0.040) | -0.016 (0.056) | -0.065 (0.045) | -0.042 (0.040) | 0.046 (0.055) | 0.042 (0.058) | 0.005 (0.040) |
| AlphaFold - Method × Counterfactual No AI - Method | -0.002 (0.002) | 0.0002 (0.0008) | -0.006 (0.006) | -0.0003 (0.002) | -0.0002 (0.002) | -0.006 (0.006) | -0.002 (0.002) | 0.002 (0.003) | -0.006 (0.006) |
| Fixed-effects | | | | | | | | | |
| pl_id | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| quarter_year | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| institution_type | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| institution_cited_by_count | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

| Dependent Variable: | lnIp_fwci | | | | | | | | |
|--|------------|----------|----------|-------------------|----------|----------|----------|-----------|----------|
| | All Fields | | | Molecular Biology | | | Medicine | | |
| | All PDB | High PDB | CEM | All PDB | High PDB | CEM | All PDB | High PDB | CEM |
| AlphaFold | 0.033** | 0.049** | 0.035*** | 0.012 | 0.047 | 0.035*** | 0.071*** | 0.073 | 0.035*** |
| Counterfactual AI | (0.013) | (0.018) | (0.011) | (0.021) | (0.031) | (0.011) | (0.017) | (0.045) | (0.011) |
| Counterfactual No AI | -0.008 | -0.036 | -0.007 | 0.003 | -0.026 | -0.007 | -0.003 | -0.227*** | -0.007 |
| AlphaFold - Method | (0.010) | (0.028) | (0.011) | (0.020) | (0.041) | (0.011) | (0.023) | (0.074) | (0.011) |
| Counterfactual AI - Method | 0.032** | -0.012 | 0.041*** | -0.021 | -0.0005 | 0.041*** | 0.046** | -0.019 | 0.041*** |
| Counterfactual No AI - Method | (0.012) | (0.022) | (0.012) | (0.014) | (0.032) | (0.012) | (0.017) | (0.042) | (0.012) |
| field_agricultural_and_biological_sciences | 0.001 | -0.014* | 0.008 | 0.012* | 0.001 | 0.008 | -0.009 | -0.033** | 0.008 |
| field_arts_and_humanities | (0.006) | (0.008) | (0.007) | (0.005) | (0.013) | (0.007) | (0.006) | (0.009) | (0.007) |
| field_biochemistry_genetics_and_molecular_biology | 0.008 | 0.101** | 0.031* | 0.017 | 0.120** | 0.031* | 0.014 | 0.189** | 0.031* |
| field_business_management_and_accounting | (0.013) | (0.038) | (0.018) | (0.019) | (0.057) | (0.018) | (0.030) | (0.090) | (0.018) |
| field_chemical_engineering | 0.005 | -0.009 | 0.007 | -0.013 | -0.001 | 0.007 | -0.007 | -0.020 | 0.007 |
| field_computer_science | (0.009) | (0.011) | (0.010) | (0.017) | (0.020) | (0.010) | (0.008) | (0.015) | (0.010) |
| field_decision_sciences | 2.17*** | 3.07 | 2.25*** | 1.35* | 6.42** | 2.25*** | 0.955 | 2.76 | 2.25*** |
| field_dentistry | (0.431) | (2.16) | (0.500) | (0.768) | (2.50) | (0.500) | (1.41) | (5.80) | (0.500) |
| field_environmental_science | -1.69 | 0.152 | -1.30 | 9.41 | -0.961 | -1.30 | -0.962 | -82.9*** | -1.30 |
| field_health_professions | (1.85) | (6.21) | (1.93) | (9.91) | (29.6) | (1.93) | (10.8) | (26.1) | (1.93) |
| field_immunology_and_microbiology | -2.13*** | -2.30*** | -2.19*** | -0.808*** | -0.667* | -2.19*** | -2.28** | -1.60 | -2.19*** |
| field_materials_science | (0.450) | (0.359) | (0.496) | (0.203) | (0.390) | (0.496) | (0.858) | (2.29) | (0.496) |
| field_mathematics | -5.70 | -10.5 | -7.88** | -15.3** | -20.8 | -7.88** | -5.36 | 56.8 | -7.88** |
| field_medicine | (3.69) | (12.2) | (3.84) | (7.46) | (25.8) | (3.84) | (5.44) | (80.2) | (3.84) |
| field_neuroscience | -0.010 | -5.04 | 1.66 | -2.15 | -16.6 | 1.66 | -14.5 | -7.95 | 1.66 |
| field_nursing | (3.26) | (12.1) | (3.57) | (5.55) | (12.9) | (3.57) | (13.6) | (25.6) | (3.57) |
| field_pharmacology_toxicology_and_pharmaceutics | -2.66*** | -1.45 | -2.30*** | -1.75* | -1.27 | -2.30*** | -3.63 | -4.48 | -2.30*** |
| field_physics_and_astronomy | (0.573) | (1.56) | (0.644) | (0.901) | (2.21) | (0.644) | (2.17) | (6.70) | (0.644) |
| field_psychology | -0.955 | -0.510 | -0.010 | -4.01** | -11.1** | -0.010 | -5.72** | 3.31 | -0.010 |
| field_social_sciences | (0.855) | (3.20) | (0.916) | (1.74) | (4.35) | (0.916) | (2.62) | (8.66) | (0.916) |
| field_veterinary | -5.71*** | -2.93 | -6.85*** | 0.806 | 7.44 | -6.85*** | -11.7 | 24.4 | -6.85*** |
| mesh | (2.09) | (12.6) | (1.61) | (8.36) | (19.6) | (1.61) | (10.2) | (53.0) | (1.61) |
| mesh_A | 4.98** | 15.9** | 4.25** | -0.596 | 18.6 | 4.25** | 7.39* | 23.4 | 4.25** |
| mesh_B | (1.91) | (5.88) | (1.91) | (4.10) | (12.7) | (1.91) | (4.20) | (19.5) | (1.91) |
| mesh_C | -1.20 | -4.52* | -1.38 | -2.49 | -5.04 | -1.38 | -10.5 | -38.1 | -1.38 |
| mesh_D | (1.08) | (2.35) | (1.24) | (3.43) | (11.6) | (1.24) | (11.4) | (26.8) | (1.24) |
| mesh_E | -0.375 | -15.8* | 0.707 | -10.3 | -10.8 | 0.707 | -4.22 | -8.70 | 0.707 |
| mesh_F | (2.59) | (8.33) | (2.84) | (7.01) | (19.2) | (2.84) | (3.35) | (11.7) | (2.84) |
| mesh_G | -3.30* | -10.7*** | -4.30** | 0.454 | -5.04 | -4.30** | -7.71 | -42.1** | -4.30** |
| mesh_H | (1.72) | (3.50) | (1.65) | (2.80) | (5.15) | (1.65) | (8.43) | (20.2) | (1.65) |
| mesh_I | -1.89*** | -0.930 | -1.88** | -3.22*** | -5.49** | -1.88** | -5.66** | -24.7*** | -1.88** |
| mesh_J | (0.609) | (1.80) | (0.706) | (0.990) | (2.35) | (0.706) | (2.18) | (7.76) | (0.706) |
| mesh_K | -1.06* | 0.079 | -0.858 | 0.294 | 0.202 | -0.858 | -3.87 | -8.18 | -0.858 |
| mesh_L | (0.564) | (1.34) | (0.591) | (1.35) | (2.53) | (0.591) | (2.40) | (7.94) | (0.591) |
| mesh_M | -5.65*** | -12.6 | -5.67** | -3.64 | 3.59 | -5.67** | -11.0*** | -56.8*** | -5.67** |
| mesh_N | (1.99) | (17.4) | (2.25) | (4.96) | (14.8) | (2.25) | (2.30) | (20.5) | (2.25) |
| mesh_O | -2.63*** | -4.65*** | -2.20*** | 1.01 | -1.09 | -2.20*** | -3.93*** | -3.41 | -2.20*** |
| mesh_P | (0.536) | (1.30) | (0.658) | (0.717) | (2.28) | (0.658) | (1.22) | (3.27) | (0.658) |
| mesh_Q | 0.189 | -0.104 | -0.093 | -1.18 | -5.39** | -0.093 | -0.818 | 5.27 | -0.093 |
| mesh_R | (0.348) | (0.925) | (0.382) | (0.893) | (2.09) | (0.382) | (2.15) | (6.66) | (0.382) |
| mesh_S | 8.11*** | 30.3** | 8.66*** | 2.93 | 10.6 | 8.66*** | 12.3** | 26.7 | 8.66*** |
| mesh_T | (2.20) | (11.6) | (2.37) | (6.01) | (18.5) | (2.37) | (3.37) | (20.7) | (2.37) |
| mesh_U | -0.132 | 2.47*** | 0.026 | -0.666* | 0.497 | 0.026 | -1.95* | 0.485 | 0.026 |
| mesh_V | (0.279) | (0.489) | (0.312) | (0.382) | (0.914) | (0.312) | (0.433) | (0.946) | (0.312) |
| mesh_W | -1.28*** | 1.35 | -2.21*** | -0.106 | -2.24*** | -0.106 | -5.32** | -7.81 | -2.24*** |
| mesh_X | (0.751) | (1.91) | (0.771) | (0.998) | (2.04) | (0.771) | (1.81) | (6.78) | (0.771) |
| mesh_Y | -1.79* | 2.96 | -2.56** | -2.06 | 4.36 | -2.56** | -8.13** | -1.92 | -2.56** |
| mesh_Z | (0.974) | (2.97) | (1.07) | (2.13) | (3.72) | (1.07) | (3.06) | (18.3) | (1.07) |
| mesh_aa | 0.151 | 1.64 | -0.076 | 1.49 | 5.82 | -0.076 | -5.36** | -5.69 | -0.076 |
| mesh_ab | (1.21) | (3.40) | (1.34) | (1.78) | (4.69) | (1.34) | (2.48) | (15.3) | (1.34) |
| mesh_ac | -2.49 | 1.62 | -2.33 | -4.25 | 8.46 | -2.33 | -9.23* | 9.52 | -2.33 |
| mesh_ad | (1.65) | (4.15) | (1.57) | (3.84) | (9.04) | (1.57) | (4.89) | (17.0) | (1.57) |
| mesh_ae | 3.43* | -0.533 | 3.83* | -3.73 | -11.1 | 3.83* | 3.51 | 12.0 | 3.83* |
| mesh_af | (1.88) | (7.06) | (2.17) | (4.69) | (12.7) | (2.17) | (3.39) | (18.8) | (2.17) |
| mesh_ag | -0.217 | 1.08 | -1.23 | -7.13** | 2.03 | -1.23 | -3.51 | -2.11 | -1.23 |
| mesh_ah | (1.67) | (5.51) | (1.84) | (2.75) | (8.13) | (1.84) | (4.06) | (24.9) | (1.84) |
| mesh_ai | 1.23 | 1.71 | 1.25 | -9.49 | -5.96 | 1.25 | -2.76 | -2.07 | 1.25 |
| mesh_aj | (2.70) | (9.58) | (2.93) | (6.27) | (14.4) | (2.93) | (4.38) | (18.8) | (2.93) |
| mesh_ak | 34.2*** | 74.1*** | 38.0*** | 42.3*** | 44.8 | 38.0*** | 32.8*** | 105.1*** | 38.0*** |
| mesh_al | (6.30) | (17.9) | (5.75) | (8.43) | (29.6) | (5.75) | (10.7) | (33.1) | (5.75) |
| mesh_am | 4.20*** | 7.21*** | 4.07*** | 5.66*** | 7.75*** | 4.07*** | 5.52*** | 10.7*** | 4.07*** |
| mesh_an | (0.370) | (1.77) | (0.410) | (0.532) | (2.18) | (0.410) | (1.01) | (2.50) | (0.410) |
| mesh_ao | 3.62*** | 2.54** | 3.58*** | 4.18 | 0.839 | 3.58*** | 7.50*** | 3.45 | 3.58*** |
| mesh_ap | (0.316) | (1.09) | (0.363) | (0.815) | (1.49) | (0.363) | (1.15) | (3.50) | (0.363) |
| mesh_aq | 1.68** | 4.99*** | 1.59*** | 1.29* | 3.49* | 1.59*** | 1.22* | 7.77 | 1.59*** |
| mesh_ar | (0.451) | (1.70) | (0.490) | (0.636) | (1.79) | (0.490) | (0.689) | (4.58) | (0.490) |
| mesh_as | 0.854*** | 1.60*** | 0.925*** | 0.470* | 1.44** | 0.925*** | 2.47*** | 2.55* | 0.925*** |
| mesh_at | (0.143) | (0.383) | (0.151) | (0.246) | (0.560) | (0.151) | (0.335) | (1.30) | (0.151) |
| mesh_au | -0.484 | 1.03 | -0.240 | -0.211 | 2.09 | -0.240 | -1.09 | 2.74 | -0.240 |
| mesh_av | (0.406) | (1.72) | (0.407) | (0.818) | (2.06) | (0.407) | (0.925) | (4.76) | (0.407) |
| mesh_ay | 1.06 | -1.17 | 1.27 | 2.50 | 7.47* | 1.27 | 3.78* | -0.170 | 1.27 |
| mesh_az | (0.947) | (4.64) | (1.01) | (1.63) | (4.35) | (1.01) | (2.06) | (10.4) | (1.01) |
| mesh_ba | 3.42*** | 1.62 | 3.08*** | 3.72*** | 1.98 | 3.08*** | 4.41*** | -0.879 | 3.08*** |
| mesh_bb | (0.323) | (1.09) | (0.353) | (0.527) | (1.19) | (0.353) | (0.896) | (3.39) | (0.353) |
| mesh_bc | 6.08*** | 15.2** | 3.88*** | 6.71** | 20.0* | 3.88*** | 2.36 | 16.3 | 3.88*** |
| mesh_bd | (1.42) | (6.67) | (1.39) | (3.04) | (10.6) | (1.39) | (3.76) | (27.4) | (1.39) |
| mesh_be | -0.0002 | 12.3 | -1.15 | 3.39 | -5.49 | -1.15 | -5.47 | -20.5 | -1.15 |
| mesh_bf | (2.95) | (25.3) | (2.70) | (10.1) | (35.5) | (2.70) | (4.73) | (29.4) | (2.70) |
| mesh_bg | 1.07** | 2.00 | 1.00** | 1.20 | 5.88* | 1.00** | 8.60*** | -7.66 | 1.00** |
| mesh_bh | (0.442) | (2.40) | (0.487) | (1.01) | (3.46) | (0.487) | (2.22) | (12.6) | (0.487) |
| mesh_bi | -5.89 | -35.0 | -13.8 | 3.26 | -21.4 | -13.8 | -33.0 | -93.5 | -13.8 |
| mesh_bj | (4.13) | (21.9) | (9.07) | (14.9) | (32.5) | (9.07) | (19.6) | (144.3) | (9.07) |
| mesh_bk | 6.90*** | 13.9*** | 5.75*** | 7.93*** | 13.8** | 5.75*** | 12.6*** | -7.48 | 5.75*** |
| mesh_bl | (0.867) | (3.77) | (0.927) | (1.65) | (5.16) | (0.927) | (2.19) | (7.39) | (0.927) |
| mesh_bm | 7.37*** | 20.2** | 7.32*** | 7.81*** | 1.31 | 7.32*** | 9.50*** | 26.2** | 7.32*** |
| mesh_bn | (0.928) | (7.53) | (1.07) | (1.91) | (10.8) | (1.07) | (1.46) | (12.8) | (1.07) |
| mesh_bo | 5.47*** | 4.64 | 5.12*** | 10.3*** | 9.91 | 5.12*** | 8.57*** | 4.02 | 5.12*** |
| mesh_bp | (0.540) | (3.92) | (0.599) | (1.54) | (5.91) | (0.599) | (1.44) | (14.0) | (0.599) |
| mesh_bq | 0.995 | -11.3 | 0.906 | 1.83 | 22.6 | 0.906 | -1.04 | -6.74 | 0.906 |
| mesh_br | (1.47) | (11.4) | (1.53) | (4.77) | (17.6) | (1.53) | (2.82) | (21.0) | (1.53) |
| mesh_bs | 9.24*** | 10.1 | 9.19*** | 12.4*** | 21.8** | 9.19*** | 11.5*** | 0.495 | 9.19*** |
| mesh_bt | (2.14) | (7.40) | (2.03) | (3.24) | (9.34) | (2.03) | (3.11) | (15.6) | (2.03) |
| AlphaFold x Counterfactual AI | 0.030 | -0.143* | -0.003 | -0.025 | -0.167* | -0.003 | -0.012 | -0.008 | -0.003 |
| AlphaFold x Counterfactual No AI | (0.026) | (0.072) | (0.029) | (0.054) | (0.085) | (0.029) | (0.038) | (0.175) | (0.029) |
| AlphaFold - Method x Counterfactual AI - Method | 0.040 | 0.072 | 0.025 | 0.059 | 0.072 | 0.025 | 0.026 | 0.087 | 0.025 |
| AlphaFold - Method x Counterfactual No AI - Method | (0.031) | (0.055) | (0.034) | (0.035) | (0.085) | (0.034) | (0.037) | (0.081) | (0.034) |
| Fixed-effects | 0.004 | -0.015 | 0.003 | -0.018 | -0.043* | 0.003 | -0.003 | -0.027 | 0.003 |
| pl_id | (0.026) | (0.019) | (0.036) | (0.029) | (0.025) | (0.036) | (0.027) | (0.051) | (0.036) |
| quarter_year | -0.002*** | 0.0003 | -0.006** | -0.0007 | -0.0009 | -0.006** | -0.0009 | 0.002 | -0.006** |
| institution_type | (0.0006) | (0.0003) | (0.003) | (0.0005) | (0.0009) | (0.003) | (0.0008) | (0.002) | (0.003) |
| institution_cited_by_count | | | | | | | | | |
| institution_2yrr_mean_citedness | | | | | | | | | |

| Dependent Variable: | All |
|--|----------|
| AlphaFold | -0.011 |
| Counterfactual AI | -0.007 |
| Counterfactual No AI | 0.041*** |
| AlphaFold - Method | 0.008 |
| Counterfactual AI - Method | 0.018 |
| Counterfactual No AI - Method | 0.010 |
| field_agricultural_and_biological_sciences | 0.500 |
| field_arts_and_humanities | -1.30 |
| field_biochemistry_genetics_and_molecular_biology | -2.19*** |
| field_business_management_and_accounting | 0.496 |
| field_chemical_engineering | 1.66 |
| field_chemistry | -2.30*** |
| field_computer_science | 0.010 |
| field_decision_sciences | -6.85*** |
| field_dentistry | 4.25** |
| field_earth_and_planetary_sciences | -1.38 |
| field_economics_econometrics_and_finance | 0.707 |
| field_energy | -4.30** |
| field_engineering | 0.706 |
| field_environmental_science | -0.858 |
| field_health_professions | -5.67** |
| field_immunology_and_microbiology | -2.20*** |
| field_materials_science | -0.093 |
| field_mathematics | 8.66*** |
| field_medicine | 0.026 |
| field_neuroscience | -7.81 |
| field_nursing | 0.771 |
| field_pharmacology_toxicology_and_pharmaceutics | -0.076 |
| field_physics_and_astronomy | 0.157 |
| field_psychology | 12.0 |
| field_social_sciences | -1.23 |
| field_veterinary | 1.25 |
| mesh | 38.0*** |
| mesh_A | 5.75 |
| mesh_B | 3.45 |
| mesh_C | 7.77 |
| mesh_D | 2.55* |
| mesh_E | -0.240 |
| mesh_F | 1.27 |
| mesh_G | -0.879 |
| mesh_H | 16.3 |
| mesh_I | -20.5 |
| mesh_J | -7.66 |
| mesh_K | -93.5 |
| mesh_L | -7.48 |
| mesh_M | 26.2** |
| mesh_N | 4.02 |
| mesh_Z | -6.74 |
| mesh_n | 0.495 |
| AlphaFold x Counterfactual AI | -0.008 |
| AlphaFold x Counterfactual No AI | 0.175 |
| AlphaFold - Method x Counterfactual AI - Method | -0.027 |
| AlphaFold - Method x Counterfactual No AI - Method | 0.002 |
| Fixed-effects | |
| pl_id | Y |
| quarter_year | Y |
| institution_type | Y |

| Dependent Variable: | ln1p_patent_citation | | | | | | | | |
|--|----------------------|-----------|-----------|-------------------|----------|-----------|-----------|-----------|-----------|
| | All Fields | | | Molecular Biology | | | Medicine | | |
| | All PDB | High PDB | CEM | All PDB | High PDB | CEM | All PDB | High PDB | CEM |
| AlphaFold | -0.014 | 0.023 | 0.0004 | -0.029*** | -0.016 | 0.0004 | -0.022 | -0.022 | 0.0004 |
| | (0.009) | (0.024) | (0.008) | (0.008) | (0.016) | (0.008) | (0.020) | (0.072) | (0.008) |
| Counterfactual AI | -0.023** | -0.011 | -0.012 | -0.017** | -0.003 | -0.012 | -0.069** | -0.170 | -0.012 |
| | (0.009) | (0.027) | (0.008) | (0.009) | (0.019) | (0.008) | (0.033) | (0.101) | (0.008) |
| Counterfactual No AI | -0.011 | -0.078 | -0.005 | -0.029*** | -0.023 | -0.005 | 0.012 | -0.094 | -0.005 |
| | (0.019) | (0.055) | (0.017) | (0.008) | (0.023) | (0.017) | (0.035) | (0.104) | (0.017) |
| AlphaFold - Method | -0.031*** | -0.058*** | -0.030*** | -0.016*** | -0.015** | -0.030*** | -0.037*** | -0.050*** | -0.030*** |
| | (0.008) | (0.015) | (0.008) | (0.005) | (0.007) | (0.008) | (0.010) | (0.021) | (0.008) |
| Counterfactual AI - Method | 0.009 | 0.035* | 0.013* | 0.002 | 0.027 | 0.013* | 0.045** | 0.137** | 0.013* |
| | (0.008) | (0.020) | (0.007) | (0.011) | (0.020) | (0.007) | (0.017) | (0.063) | (0.007) |
| Counterfactual No AI - Method | -0.029** | -0.046 | -0.016 | -0.029*** | -0.019* | -0.016 | -0.038** | -0.060** | -0.016 |
| | (0.014) | (0.028) | (0.010) | (0.010) | (0.011) | (0.010) | (0.017) | (0.023) | (0.010) |
| field_agricultural_and_biological_sciences | 0.840*** | 2.78 | 0.825*** | 0.794 | 2.81 | 0.825*** | 7.98** | 23.9* | 0.825*** |
| | (0.264) | (1.65) | (0.259) | (0.484) | (1.99) | (0.259) | (3.12) | (13.2) | (0.259) |
| field_arts_and_humanities | -0.076 | -0.836 | 0.153 | 9.16 | 29.5 | 0.153 | -10.1* | -16.7 | 0.153 |
| | (0.549) | (4.70) | (0.465) | (7.76) | (32.2) | (0.465) | (5.29) | (38.8) | (0.465) |
| field_biochemistry_genetics_and_molecular_biology | 0.301 | 0.058 | 0.202 | 0.549*** | 0.584 | 0.202 | -0.968 | -2.77 | 0.202 |
| | (0.240) | (0.441) | (0.206) | (0.157) | (0.390) | (0.206) | (0.598) | (2.78) | (0.206) |
| field_business_management_and_accounting | 5.65 | 19.4* | 2.39 | 26.8 | 27.5 | 2.39 | 0.242 | 133.2 | 2.39 |
| | (3.45) | (10.1) | (2.07) | (18.6) | (19.6) | (2.07) | (2.81) | (119.6) | (2.07) |
| field_chemical_engineering | 2.21 | -1.97 | 2.26 | 3.35 | -0.665 | 2.26 | -87.8** | 2.26 | 2.26 |
| | (1.43) | (5.79) | (1.49) | (3.25) | (11.0) | (1.49) | (11.9) | (38.8) | (1.49) |
| field_chemistry | 0.214 | -0.458 | 0.512 | -0.029 | -0.063 | 0.512 | 1.49 | 3.62 | 0.512 |
| | (0.380) | (1.13) | (0.440) | (0.593) | (1.65) | (0.440) | (1.71) | (7.82) | (0.440) |
| field_computer_science | 0.506 | 0.027 | 0.858 | 0.909 | -0.570 | 0.858 | 0.005 | -8.38 | 0.858 |
| | (0.507) | (1.90) | (0.515) | (0.961) | (3.43) | (0.515) | (1.69) | (6.59) | (0.515) |
| field_decision_sciences | -1.21 | 0.255 | -0.509 | -1.21 | 6.82 | -0.509 | -5.70 | -68.7 | -0.509 |
| | (0.944) | (9.60) | (0.844) | (4.84) | (15.7) | (0.844) | (3.79) | (70.6) | (0.844) |
| field_dentistry | 0.236 | -5.64* | 0.428 | 1.57 | 1.46 | 0.428 | -2.37 | -32.3* | 0.428 |
| | (0.847) | (3.33) | (0.955) | (2.18) | (5.88) | (0.955) | (1.85) | (18.6) | (0.955) |
| field_earth_and_planetary_sciences | -0.412 | 0.139 | -0.535 | 0.483 | 5.51 | -0.535 | -10.4** | -34.9* | -0.535 |
| | (0.354) | (1.03) | (0.368) | (2.17) | (6.43) | (0.368) | (4.45) | (19.3) | (0.368) |
| field_economics_econometrics_and_finance | 0.511 | -9.56* | 0.077 | -2.92 | -18.7 | 0.077 | -3.28 | -21.3 | 0.077 |
| | (1.96) | (5.43) | (1.86) | (3.36) | (13.8) | (1.86) | (2.13) | (14.6) | (1.86) |
| field_energy | 0.494 | -0.0006 | 0.275 | 2.99* | 5.17 | 0.275 | -3.64 | -34.4 | 0.275 |
| | (0.653) | (1.98) | (0.649) | (1.75) | (3.24) | (0.649) | (5.27) | (24.0) | (0.649) |
| field_engineering | 0.693** | -0.909 | 0.534** | 0.544 | 1.73 | 0.534** | -0.759 | -22.8* | 0.534** |
| | (0.264) | (0.964) | (0.262) | (0.554) | (1.50) | (0.262) | (1.13) | (12.7) | (0.262) |
| field_environmental_science | 0.469 | -0.338 | 0.292 | 1.11 | 2.64 | 0.292 | 0.771 | -2.38 | 0.292 |
| | (0.295) | (1.17) | (0.312) | (0.819) | (2.10) | (0.312) | (1.89) | (9.97) | (0.312) |
| field_health_professions | 0.285 | -8.44 | 0.859 | 1.56 | -0.086 | 0.859 | -1.32 | -31.5* | 0.859 |
| | (0.610) | (8.38) | (0.600) | (2.62) | (8.50) | (0.600) | (1.32) | (18.6) | (0.600) |
| field_immunology_and_microbiology | 0.426 | 1.26 | 0.568 | 1.04* | 0.822 | 0.568 | -0.023 | 5.49 | 0.568 |
| | (0.565) | (1.77) | (0.521) | (0.611) | (1.94) | (0.521) | (0.887) | (5.07) | (0.521) |
| field_materials_science | 0.271 | -0.248 | 0.117 | -0.520 | -1.80 | 0.117 | 0.845 | 8.46 | 0.117 |
| | (0.187) | (0.460) | (0.192) | (0.575) | (1.26) | (0.192) | (1.95) | (10.5) | (0.192) |
| field_mathematics | 8.28** | 9.60 | 9.71*** | 3.41 | 43.3 | 9.71*** | 11.7*** | -8.03 | 9.71*** |
| | (3.09) | (16.4) | (3.33) | (5.27) | (45.0) | (3.33) | (4.00) | (23.2) | (3.33) |
| field_medicine | 1.46** | 4.48*** | 1.32** | 0.425* | 1.14 | 1.32** | 1.62*** | 1.26 | 1.32** |
| | (0.538) | (1.61) | (0.503) | (0.245) | (1.08) | (0.503) | (0.486) | (1.46) | (0.503) |
| field_neuroscience | 0.080 | -0.447 | 0.0005 | -0.381 | 1.34 | 0.0005 | -0.892 | -5.84 | 0.0005 |
| | (0.293) | (1.31) | (0.290) | (0.569) | (1.87) | (0.290) | (0.964) | (10.4) | (0.290) |
| field_nursing | 0.341 | -2.85 | 0.258 | 1.09 | -1.69 | 0.258 | -0.676 | -17.1* | 0.258 |
| | (0.457) | (2.37) | (0.458) | (0.978) | (2.69) | (0.458) | (1.43) | (9.68) | (0.458) |
| field_pharmacology_toxicology_and_pharmaceutics | -0.331 | -0.837 | -0.095 | -0.255 | -1.76 | -0.095 | -1.66 | -8.00 | -0.095 |
| | (0.679) | (3.39) | (0.791) | (0.966) | (2.42) | (0.791) | (2.40) | (18.5) | (0.791) |
| field_physics_and_astronomy | 0.473 | -0.585 | 0.563 | -0.534 | -2.03 | 0.563 | -3.19 | -13.7 | 0.563 |
| | (0.428) | (1.21) | (0.447) | (1.58) | (2.67) | (0.447) | (2.74) | (17.8) | (0.447) |
| field_psychology | 0.788 | 1.13 | 0.628 | -1.53 | -6.06 | 0.628 | 0.542 | -13.8 | 0.628 |
| | (0.646) | (6.91) | (0.583) | (2.17) | (8.36) | (0.583) | (1.12) | (25.9) | (0.583) |
| field_social_sciences | 0.125 | -1.02 | 0.007 | -3.79 | 1.30 | 0.007 | -0.604 | -17.6 | 0.007 |
| | (0.975) | (5.48) | (0.953) | (2.51) | (7.26) | (0.953) | (2.64) | (22.4) | (0.953) |
| field_veterinary | -0.843 | -3.45 | -0.115 | 2.12 | -2.50 | -0.115 | -5.27 | -12.4 | -0.115 |
| | (1.48) | (6.47) | (1.49) | (2.65) | (5.99) | (1.49) | (4.25) | (26.6) | (1.49) |
| mesh_ | 17.2*** | 53.1* | 16.7** | 28.1** | 34.4 | 16.7** | 18.1* | 98.7* | 16.7** |
| | (6.24) | (27.2) | (6.40) | (10.9) | (31.0) | (6.40) | (9.30) | (52.5) | (6.40) |
| mesh_A | 0.448* | -0.076 | 0.328 | 0.606* | 0.878 | 0.328 | 0.063 | -1.77 | 0.328 |
| | (0.233) | (1.26) | (0.253) | (0.348) | (1.14) | (0.253) | (0.620) | (3.78) | (0.253) |
| mesh_B | 1.00*** | 1.38 | 0.878*** | 1.23*** | 0.428 | 0.878*** | 4.47*** | 2.87 | 0.878*** |
| | (0.255) | (1.00) | (0.251) | (0.369) | (1.05) | (0.251) | (1.12) | (4.71) | (0.251) |
| mesh_C | 0.850** | 5.05** | 0.746** | 0.967*** | 3.01* | 0.746** | -0.093 | 7.06 | 0.746** |
| | (0.340) | (1.96) | (0.336) | (0.318) | (1.76) | (0.336) | (0.444) | (5.15) | (0.336) |
| mesh_D | 0.538*** | 2.16*** | 0.552*** | 0.003 | 0.877** | 0.552*** | 1.85*** | 5.57*** | 0.552*** |
| | (0.116) | (0.424) | (0.122) | (0.179) | (0.399) | (0.122) | (0.328) | (1.85) | (0.122) |
| mesh_E | 1.60*** | 5.21*** | 1.47*** | 3.46*** | 6.85*** | 1.47*** | 2.40*** | 11.6* | 1.47*** |
| | (0.291) | (1.58) | (0.302) | (0.620) | (1.81) | (0.302) | (0.729) | (6.60) | (0.302) |
| mesh_F | 0.035 | -6.27 | -0.005 | 0.518 | -1.38 | -0.005 | 0.908 | -11.0 | -0.005 |
| | (0.593) | (5.29) | (0.593) | (0.935) | (3.67) | (0.593) | (1.16) | (14.2) | (0.593) |
| mesh_G | 0.451** | -1.34 | 0.349* | 0.730** | 0.171 | 0.349* | 0.579 | -5.45 | 0.349* |
| | (0.167) | (0.837) | (0.188) | (0.304) | (0.771) | (0.188) | (0.574) | (3.96) | (0.188) |
| mesh_H | 0.809 | -2.40 | 0.919 | 1.77 | -7.55* | 0.919 | 0.121 | -13.5 | 0.919 |
| | (0.774) | (2.95) | (0.692) | (1.65) | (3.92) | (0.692) | (2.19) | (21.9) | (0.692) |
| mesh_I | 0.211 | -3.34 | 0.679 | 6.91 | 1.92 | 0.679 | -0.863 | -46.3 | 0.679 |
| | (0.865) | (18.0) | (0.892) | (5.35) | (29.1) | (0.892) | (2.11) | (57.3) | (0.892) |
| mesh_J | 0.123 | 2.10 | 0.230 | 0.160 | 3.68 | 0.230 | -3.39* | -4.55 | 0.230 |
| | (0.274) | (2.05) | (0.305) | (0.737) | (2.77) | (0.305) | (1.83) | (16.0) | (0.305) |
| mesh_K | -2.22* | 0.347 | -2.28 | -6.38 | 8.88 | -2.28 | 0.787 | -27.2 | -2.28 |
| | (1.28) | (17.5) | (2.69) | (6.31) | (29.8) | (2.69) | (10.3) | (87.6) | (2.69) |
| mesh_L | 1.36*** | 0.857 | 1.38** | 1.08 | 1.57 | 1.38** | 1.35 | -15.0 | 1.38** |
| | (0.496) | (1.38) | (0.529) | (0.764) | (1.99) | (0.529) | (1.41) | (9.09) | (0.529) |
| mesh_M | -0.485 | -0.092 | -0.474 | -0.652 | -4.35 | -0.474 | -0.689 | -5.08 | -0.474 |
| | (0.552) | (6.40) | (0.600) | (1.11) | (4.38) | (0.600) | (0.878) | (12.1) | (0.600) |
| mesh_N | -0.092 | 9.81 | -0.152 | -1.23 | 2.28 | -0.152 | 0.312 | 31.9 | -0.152 |
| | (0.353) | (6.96) | (0.330) | (0.909) | (5.28) | (0.330) | (0.897) | (20.7) | (0.330) |
| mesh_Z | -0.962 | -23.0* | -0.865 | -1.54 | -28.2*** | -0.865 | -3.16 | -58.8** | -0.865 |
| | (0.884) | (13.1) | (0.913) | (2.08) | (10.2) | (0.913) | (2.00) | (28.6) | (0.913) |
| mesh_n | 1.93** | 18.3** | 1.54* | 0.922 | 6.70 | 1.54* | 1.73 | 24.4 | 1.54* |
| | (0.832) | (7.76) | (0.840) | (1.69) | (5.78) | (0.840) | (1.64) | (21.9) | (0.840) |
| AlphaFold × Counterfactual AI | -0.010 | -0.024 | -0.014 | -0.033 | -0.068 | -0.014 | -0.002 | 0.071 | -0.014 |
| | (0.017) | (0.053) | (0.013) | (0.029) | (0.067) | (0.013) | (0.048) | (0.185) | (0.013) |
| AlphaFold × Counterfactual No AI | -0.055** | -0.097* | -0.061** | -0.019 | -0.026 | -0.061** | -0.073* | -0.101 | -0.061** |
| | (0.025) | (0.050) | (0.026) | (0.014) | (0.039) | (0.026) | (0.043) | (0.097) | (0.026) |
| AlphaFold - Method × Counterfactual AI - Method | 0.011 | 0.035*** | 0.013* | 0.010 | 0.010 | 0.013* | 0.006 | 0.029 | 0.013* |
| | (0.010) | (0.012) | (0.007) | (0.009) | (0.012) | (0.007) | (0.019) | (0.025) | (0.007) |
| AlphaFold - Method × Counterfactual No AI - Method | 0.002** | 0.005*** | 0.001 | 0.002*** | 0.002** | 0.001 | 0.003** | 0.007** | 0.001 |
| | (0.0009) | (0.002) | (0.002) | (0.0006) | (0.0007) | (0.002) | (0.001) | (0.003) | (0.002) |
| Fixed-effects | | | | | | | | | |
| pl_id | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| quarter_year | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| institution_type | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| institution_cited_by_count | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| institution_2yr_mean_citedness | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| institution_h_index | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

| Dependent Variable: | InIP.ca.count | | | | | | | | |
|--|----------------------|----------------------|----------------------|---------------------|----------------------|----------------------|---------------------|---------------------|----------------------|
| | All Fields | | | Molecular Biology | | | Medicine | | |
| | All PDB | High PDB | CEM | All PDB | High PDB | CEM | All PDB | High PDB | CEM |
| AlphaFold | 0.072*** (0.016) | 0.083*** (0.022) | 0.054*** (0.014) | 0.006 (0.006) | 0.024** (0.011) | 0.054*** (0.014) | 0.152*** (0.031) | 0.157*** (0.059) | 0.054*** (0.014) |
| Counterfactual AI | -0.028** (0.012) | -0.009 (0.021) | -0.031** (0.011) | -0.014* (0.007) | 0.021 (0.015) | -0.031** (0.011) | -0.013 (0.026) | -0.039 (0.073) | -0.031** (0.011) |
| Counterfactual No AI | 0.177*** (0.042) | 0.254*** (0.055) | 0.145*** (0.036) | 0.022* (0.011) | 0.037** (0.017) | 0.145*** (0.036) | 0.230*** (0.051) | 0.320*** (0.075) | 0.145*** (0.036) |
| AlphaFold - Method | -0.018 (0.011) | -0.020** (0.009) | -0.015 (0.011) | -0.002 (0.002) | 0.0006 (0.002) | -0.015 (0.011) | -0.027** (0.012) | -0.024** (0.009) | -0.015 (0.011) |
| Counterfactual AI - Method | -0.00009 (0.009) | 0.008 (0.025) | -0.0007 (0.009) | -0.0010 (0.005) | -0.008 (0.014) | -0.0007 (0.009) | -0.002 (0.035) | 0.059 (0.110) | -0.007 (0.009) |
| Counterfactual No AI - Method | 0.046** (0.021) | 0.067** (0.030) | 0.038** (0.019) | 0.019 (0.012) | 0.023 (0.019) | 0.038** (0.019) | 0.034* (0.018) | 0.052* (0.030) | 0.038** (0.019) |
| field_agricultural_and_biological_sciences | -0.029 (0.192) | 1.87 (0.959) | -0.006 (0.171) | -0.435 (0.286) | -0.684** (0.273) | -0.006 (0.171) | 3.00* (1.52) | 10.4* (5.92) | -0.006 (0.171) |
| field_arts_and_humanities | -1.71 (1.22) | -10.5** (3.49) | -1.27 (1.08) | -1.91 (2.44) | -1.27 (2.07) | -1.17 (1.08) | -13.1* (6.77) | -12.6 (27.0) | -0.460* (1.08) |
| field_biochemistry_genetics_and_molecular_biology | -0.643*** (0.187) | -0.597*** (0.211) | -0.384*** (0.189) | -0.286** (0.115) | -0.597*** (0.130) | -0.391*** (0.189) | -3.09*** (0.847) | -3.69*** (1.49) | -0.597*** (0.189) |
| field_business_management_and_accounting | -0.22** (1.89) | -2.14 (4.87) | -3.33* (1.85) | 2.24 (3.34) | -4.31* (2.20) | -3.33* (1.85) | -11.3*** (4.09) | -20.9 (46.2) | -3.33* (1.85) |
| field_chemical_engineering | -0.148 (0.775) | -4.59 (4.01) | -0.215 (0.797) | -2.02 (1.32) | -3.28 (3.47) | -0.215 (0.797) | 3.85 (7.80) | -35.9 (69.7) | -0.215 (0.797) |
| field_chemistry | -0.401 (0.259) | -0.465 (0.290) | -0.148 (0.199) | -0.628** (0.249) | -0.383 (0.302) | -0.148 (0.199) | -2.67** (1.23) | -2.43 (2.77) | -0.148 (0.199) |
| field_computer_science | -1.42*** (0.772) | -1.76 (4.82) | -0.975** (0.660) | -0.665 (1.29) | 0.607 (3.18) | -0.975** (0.660) | -6.60*** (8.70) | -9.27** (46.7) | -0.975** (0.660) |
| field_decision_sciences | 0.526 (0.772) | -11.4** (4.82) | -0.168 (0.660) | -0.516 (1.29) | -5.07 (3.18) | -0.168 (0.660) | 9.37 (8.70) | -44.5 (46.7) | -0.168 (0.660) |
| field_dentistry | 1.78 (1.45) | 2.54 (2.89) | 1.88 (1.61) | 2.46 (1.91) | 1.53 (1.99) | 1.88 (1.61) | -2.98 (3.79) | -5.71 (42.7) | 1.78 (1.45) |
| field_earth_and_planetary_sciences | -0.583* (0.266) | -0.965 (0.685) | -0.460* (0.236) | -1.52* (0.836) | -1.96 (1.75) | -0.460* (0.236) | -4.40* (4.94) | -42.7 (24.2) | -0.460* (0.236) |
| field_economics_econometrics_and_finance | 1.24 (3.39) | -11.8 (7.21) | 2.01 (4.07) | 4.18 (3.26) | -4.89 (3.40) | 2.01 (4.07) | -4.08 (2.64) | -9.48 (11.6) | 2.01 (4.07) |
| field_energy | -1.50** (0.634) | -0.777 (0.595) | -1.35** (0.603) | -0.795 (0.483) | -0.354 (0.513) | -1.35** (0.603) | -6.14 (4.33) | -43.7* (24.0) | -1.35** (0.603) |
| field_engineering | -0.068 (0.204) | -0.572 (0.424) | 0.031 (0.205) | -0.318 (0.222) | -0.194 (0.616) | 0.031 (0.205) | -0.255 (1.30) | -4.95 (8.45) | 0.031 (0.205) |
| field_environmental_science | -0.768** (0.290) | -0.761 (0.640) | -0.605** (0.292) | -0.443 (0.379) | -0.672 (0.438) | -0.605** (0.292) | -4.44** (2.18) | -6.18 (9.76) | -0.605** (0.292) |
| field_health_professions | -0.667 (1.41) | -11.1** (5.40) | -0.638 (1.48) | 5.32** (2.60) | 9.84 (6.25) | -0.638 (1.48) | -4.19* (2.14) | -13.0 (9.89) | -0.638 (1.48) |
| field_immunology_and_microbiology | -0.780** (0.342) | -0.584 (0.840) | -0.749* (0.376) | 0.003 (0.253) | 0.902 (0.702) | -0.749* (0.376) | -2.84*** (0.952) | -0.503 (3.34) | -0.780** (0.376) |
| field_materials_science | -0.242 (0.334) | 0.184 (0.160) | -0.182 (0.284) | -0.015 (0.169) | -0.052 (0.237) | -0.182 (0.284) | -2.41 (2.08) | -5.07 (5.07) | -0.182 (0.284) |
| field_mathematics | 14.6*** (4.89) | 55.5*** (13.9) | 15.2*** (5.08) | 6.04 (3.58) | 12.9*** (5.74) | 15.2 (5.08) | 18*** (6.17) | 15*** (20.6) | 15.2*** (5.08) |
| field_medicine | 2.79*** (0.635) | 3.88*** (1.14) | 2.64*** (0.622) | 0.757*** (0.233) | 0.707* (0.374) | 2.64*** (0.622) | 1.76*** (0.444) | 2.86* (1.43) | 2.64*** (0.622) |
| field_neuroscience | -0.239 (0.209) | -0.617 (0.599) | -0.197 (0.234) | -0.102 (0.207) | 0.643 (1.01) | -0.197 (0.234) | -2.15** (0.870) | -6.28 (3.73) | -0.197 (0.234) |
| field_nursing | 0.709 (0.607) | -0.951 (1.48) | 0.814 (0.604) | 0.910 (0.604) | 1.33 (1.37) | 0.814 (0.604) | -0.143 (1.62) | -7.77 (9.18) | 0.709 (0.604) |
| field_pharmacology_toxicology_and_pharmaceutics | -0.992* (0.513) | -0.518 (0.994) | -1.04** (0.490) | -0.291 (0.701) | 0.266 (0.784) | -1.04** (0.490) | -4.30*** (1.69) | -8.20 (6.72) | -1.04** (0.701) |
| field_physics_and_astronomy | -0.101 (0.419) | -0.255 (0.473) | -0.052 (0.366) | -0.471 (0.330) | 0.155 (0.615) | -0.052 (0.366) | -5.20* (2.79) | -11.8 (10.2) | -0.052 (0.366) |
| field_psychology | 5.89** (1.54) | 10.3** (4.32) | 4.64** (1.45) | 2.52 (1.46) | 12.4 (8.39) | 4.64** (1.45) | 9.24*** (3.19) | 15.8 (27.9) | 4.64** (1.45) |
| field_social_sciences | 8.74** (2.29) | 25.5*** (10.6) | 7.40** (1.85) | 1.17 (0.92) | 0.469 (2.99) | 7.40** (1.85) | 16.4*** (2.10) | 82.8** (29.7) | 7.40** (1.85) |
| field_veterinary | -2.94** (1.18) | -2.41 (2.48) | -2.61** (1.07) | -1.96 (1.69) | -0.652 (1.94) | -2.61** (1.07) | -9.08** (3.97) | -14.7** (6.13) | -2.61** (1.07) |
| mesh_ | 13.8*** (4.27) | 36.8*** (11.4) | 14.1*** (5.06) | 3.92** (1.61) | 11.6** (5.66) | 14.1*** (5.06) | 23.2** (10.6) | 33.5 (14.6) | 14.1*** (5.06) |
| mesh_A | 0.195 (0.125) | 0.143 (0.450) | 0.214 (0.130) | 0.051 (0.092) | 0.003 (0.177) | 0.214 (0.130) | 0.771 (0.525) | 1.56 (1.90) | 0.214 (0.130) |
| mesh_B | 0.792*** (0.202) | 0.938 (0.644) | 0.720*** (0.190) | 0.627 (0.397) | 0.251 (0.284) | 0.720*** (0.190) | 2.66*** (0.725) | -1.40 (2.62) | 0.720*** (0.190) |
| mesh_C | 0.620** (0.305) | -1.56 (1.06) | 0.681** (0.291) | 0.673** (0.247) | 0.562 (0.437) | 0.681** (0.291) | 0.267 (0.497) | -1.18 (2.79) | 0.681** (0.291) |
| mesh_D | 0.480*** (0.141) | 0.504** (0.217) | 0.415*** (0.132) | 0.127** (0.062) | 0.051 (0.080) | 0.415*** (0.132) | 2.04*** (0.560) | 2.10** (1.02) | 0.415*** (0.132) |
| mesh_E | 0.760*** (0.196) | 1.58* (0.808) | 0.607*** (0.175) | 0.324** (0.142) | 0.298 (0.256) | 0.607*** (0.175) | 1.94** (0.738) | 7.48 (4.88) | 0.607*** (0.175) |
| mesh_F | -0.500 (0.485) | -3.75 (2.23) | -0.402 (0.495) | -0.933* (0.532) | -1.82 (2.99) | -0.402 (0.495) | 0.216 (0.537) | 2.84 (5.94) | -0.402 (0.495) |
| mesh_G | 0.509*** (0.178) | 0.032 (0.297) | 0.426** (0.159) | 0.054 (0.144) | 0.427 (0.121) | 0.426** (0.159) | 1.19* (0.619) | 5.46* (1.85) | 0.509*** (0.159) |
| mesh_H | 0.540 (0.518) | -1.85 (1.58) | 0.325 (0.436) | 0.663 (0.672) | 1.97 (2.22) | 0.325 (0.436) | 3.22 (2.46) | -8.31 (12.7) | 0.325 (0.436) |
| mesh_I | -2.35* (1.33) | -13.2 (10.6) | -2.17* (1.26) | -1.54 (2.07) | 8.61 (7.19) | -2.17* (1.26) | -5.30 (4.03) | -10.5 (28.1) | -2.17* (1.26) |
| mesh_J | -0.037 (0.115) | 1.36 (1.22) | 0.001 (0.114) | 0.169 (0.199) | 0.382 (0.508) | 0.001 (0.114) | -1.11 (1.22) | 6.01 (10.5) | 0.001 (0.114) |
| mesh_K | -2.80** (1.32) | -22.3 (13.9) | -4.05* (2.12) | -3.63 (4.06) | -12.8* (6.77) | -4.05* (2.12) | -13.2 (11.6) | -37.9 (59.5) | -4.05* (2.12) |
| mesh_L | 0.705*** (0.232) | 0.271 (0.512) | 0.507** (0.221) | 0.767* (0.442) | 0.791 (0.701) | 0.507** (0.221) | -0.288 (1.63) | -7.03 (6.86) | 0.507*** (0.221) |
| mesh_M | 3.86*** (1.37) | 28.1*** (8.34) | 3.64*** (1.48) | 2.07* (1.05) | 2.38 (1.51) | 3.64*** (1.48) | 5.71*** (1.73) | 35.3** (12.9) | 3.64*** (1.48) |
| mesh_N | 1.58*** (0.571) | 3.10 (2.86) | 1.47** (0.549) | 1.73** (0.724) | 3.65* (2.02) | 1.47** (0.549) | 3.14** (0.87) | 3.23 (5.49) | 1.47** (0.549) |
| mesh_Z | 2.05** (0.818) | 14.2 (13.2) | 2.75*** (0.951) | 0.203 (1.23) | 5.28 (5.09) | 2.75*** (0.951) | 5.46** (2.68) | 20.0 (21.2) | 2.75*** (0.951) |
| mesh_n | -0.222 (1.34) | 5.08 (6.55) | -0.408 (1.27) | -0.686 (0.891) | 1.26 (2.36) | -0.408 (1.27) | 1.70 (2.19) | 14.4 (14.2) | -0.408 (1.27) |
| AlphaFold × Counterfactual AI | -0.006 (0.019) | -0.009 (0.052) | -0.004 (0.020) | 0.004 (0.015) | -0.004 (0.041) | -0.004 (0.020) | -0.056 (0.044) | -0.093 (0.148) | -0.004 (0.020) |
| AlphaFold × Counterfactual No AI | -0.015 (0.091) | -0.033 (0.111) | 0.003 (0.079) | -0.011 (0.013) | -0.002 (0.037) | 0.003 (0.079) | -0.035 (0.100) | -0.059 (0.102) | 0.003 (0.079) |
| AlphaFold - Method × Counterfactual AI - Method | 0.022 (0.015) | 0.030 (0.025) | -0.0006 (0.013) | 0.011 (0.011) | -0.001 (0.010) | -0.0006 (0.013) | 0.023 (0.027) | 0.024 (0.056) | -0.006 (0.013) |
| AlphaFold - Method × Counterfactual No AI - Method | -0.004** (0.002) | -0.004** (0.002) | -0.008** (0.004) | -0.0008 (0.0006) | -0.001 (0.0009) | -0.008** (0.004) | -0.004** (0.002) | -0.005** (0.002) | -0.008** (0.004) |

| Dependent Variable: | pdb.submission | | | | | | | | |
|---|----------------|-----------|----------|-------------------|-----------|----------|----------|----------|----------|
| | All Fields | | | Molecular Biology | | | Medicine | | |
| | All PDB | High PDB | CEM | All PDB | High PDB | CEM | All PDB | High PDB | CEM |
| AlphaFold | 0.031*** | 0.100*** | 0.034*** | 0.038*** | 0.118** | 0.034*** | 0.021*** | 0.032 | 0.034*** |
| Counterfactual AI | (0.007) | (0.035) | (0.007) | (0.013) | (0.051) | (0.007) | (0.007) | (0.049) | (0.007) |
| Counterfactual No AI | 0.017** | 0.018 | 0.014 | 0.025 | 0.011 | 0.014 | 0.024 | 0.014 | 0.014 |
| AlphaFold - Method | (0.007) | (0.026) | (0.009) | (0.015) | (0.047) | (0.009) | (0.017) | (0.074) | (0.009) |
| Counterfactual AI - Method | 0.008 | 0.023 | 0.007 | 0.013 | 0.046 | 0.007 | 0.005 | -0.008 | 0.007 |
| Counterfactual No AI - Method | (0.007) | (0.042) | (0.008) | (0.015) | (0.073) | (0.008) | (0.007) | (0.042) | (0.008) |
| field_agricultural_and_biological_sciences | 0.002 | -0.013 | 0.002 | 0.011* | 0.005 | 0.002 | 0.002 | -0.004 | 0.002 |
| field_arts_and_humanities | (0.003) | (0.008) | (0.004) | (0.006) | (0.017) | (0.004) | (0.004) | (0.010) | (0.004) |
| field_biochemistry_genetics_and_molecular_biology | 0.005 | -0.002 | 0.009 | -0.001 | -0.021 | 0.009 | 0.005 | -0.044 | 0.009 |
| field_business_management_and_accounting | (0.007) | (0.033) | (0.010) | (0.013) | (0.052) | (0.010) | (0.017) | (0.064) | (0.010) |
| field_chemical_engineering | 0.021** | 0.033 | 0.023** | 0.039 | 0.063** | 0.023** | 0.017** | 0.024 | 0.023** |
| field_computer_science | (0.008) | (0.020) | (0.009) | (0.025) | (0.028) | (0.009) | (0.007) | (0.015) | (0.009) |
| field_decision_sciences | 0.122 | 4.73** | 0.099 | -0.204 | 3.32 | 0.099 | 4.52*** | 18.8*** | 0.099 |
| field_dentistry | (0.190) | (2.04) | (0.208) | (0.627) | (2.84) | (0.208) | (1.22) | (6.22) | (0.208) |
| field_earth_and_planetary_sciences | 0.926* | 5.32 | 0.922 | 5.08 | 18.7 | 0.922 | -1.61 | 6.39 | 0.922 |
| field_economics_econometrics_and_finance | (0.532) | (5.81) | (0.583) | (5.36) | (32.1) | (0.583) | (1.78) | (54.0) | (0.583) |
| field_environmental_sciences | 1.74*** | 5.62*** | 1.84*** | 1.30*** | 3.33*** | 1.84*** | 0.517* | 1.74 | 1.84*** |
| field_health_professions | (0.377) | (0.996) | (0.393) | (0.276) | (0.846) | (0.393) | (0.289) | (2.44) | (0.393) |
| field_immunology_and_microbiology | 0.139 | 17.1 | -0.005 | 1.99 | 12.9 | -0.005 | -1.91 | -9.13 | -0.005 |
| field_materials_science | (1.51) | (12.0) | (1.85) | (3.06) | (18.8) | (1.85) | (1.84) | (63.8) | (1.85) |
| field_mathematics | -1.44 | 7.05 | -2.10 | 2.24 | 27.7 | -2.10 | -4.74 | 29.7 | -2.10 |
| field_medicine | (1.92) | (15.5) | (1.98) | (3.98) | (23.3) | (1.98) | (7.55) | (105.0) | (1.98) |
| field_neuroscience | 1.90*** | 5.25*** | 2.30*** | 3.18*** | 4.12 | 2.30*** | 3.32** | 0.962 | 2.30*** |
| field_physics_and_astronomy | (0.498) | (1.62) | (0.579) | (0.958) | (2.81) | (0.579) | (1.49) | (5.33) | (0.579) |
| field_psychology | -0.248 | -4.37 | -0.117 | -0.525 | -4.38 | -0.117 | 0.871 | -0.081 | -0.117 |
| field_social_sciences | (0.514) | (4.32) | (0.601) | (1.02) | (6.69) | (0.601) | (2.49) | (18.3) | (0.601) |
| field_veterinary | 0.320 | 18.2 | 0.316 | 2.47 | 29.5 | 0.316 | -3.95** | -49.7 | 0.316 |
| field_zoo | (0.557) | (13.7) | (0.626) | (3.11) | (21.1) | (0.626) | (1.76) | (50.5) | (0.626) |
| field_zoo | 0.584 | 5.60 | 0.834 | 1.38 | 9.87 | 0.834 | 0.575 | 32.5 | 0.834 |
| field_zoo | (0.727) | (8.24) | (0.857) | (2.03) | (9.19) | (0.857) | (2.26) | (26.3) | (0.857) |
| field_zoo | -1.21* | -5.51*** | -1.22 | -0.579 | -0.733 | -1.22 | -11.2 | -70.6 | -1.22 |
| field_zoo | (0.631) | (2.00) | (0.740) | (2.74) | (15.6) | (0.740) | (6.79) | (50.4) | (0.740) |
| field_zoo | 0.402 | 9.59 | 0.823 | -0.182 | 43.5 | 0.823 | -1.14 | -9.52 | 0.823 |
| field_zoo | (0.547) | (12.3) | (0.658) | (3.09) | (37.3) | (0.658) | (0.959) | (25.5) | (0.658) |
| field_zoo | 2.81* | 3.38 | 3.10* | 7.97** | 13.1 | 3.10* | -0.871 | -37.3* | 3.10* |
| field_zoo | (1.52) | (6.08) | (1.65) | (3.57) | (9.08) | (1.65) | (4.57) | (21.0) | (1.65) |
| field_zoo | -0.555* | -1.14 | -0.674** | -0.940 | 2.92 | -0.674** | -1.07 | -13.3 | -0.674** |
| field_zoo | (0.289) | (1.75) | (0.312) | (0.827) | (3.30) | (0.312) | (0.942) | (8.62) | (0.312) |
| field_zoo | 1.58*** | 7.13*** | 1.66*** | 2.82*** | 10.9*** | 1.66*** | 6.00*** | 24.1* | 1.66*** |
| field_zoo | (0.376) | (1.71) | (0.421) | (0.943) | (3.75) | (0.421) | (1.94) | (13.6) | (0.421) |
| field_zoo | -0.382 | -1.25 | -0.309 | -1.65 | -1.43 | -0.309 | -1.02* | -12.6 | -0.309 |
| field_zoo | (0.412) | (6.90) | (0.494) | (2.03) | (19.5) | (0.494) | (0.592) | (11.7) | (0.494) |
| field_zoo | 1.17* | 6.93** | 0.910* | -0.485 | -0.076 | 0.910* | 0.892 | 6.00 | 0.910* |
| field_zoo | (0.600) | (3.02) | (0.463) | (0.636) | (3.09) | (0.463) | (0.706) | (5.34) | (0.463) |
| field_zoo | 1.50*** | 3.02** | 1.65*** | 5.66*** | 10.7*** | 1.65*** | 8.67*** | 36.7*** | 1.65*** |
| field_zoo | (0.443) | (1.26) | (0.499) | (1.17) | (3.19) | (0.499) | (2.43) | (11.8) | (0.499) |
| field_zoo | -0.352 | -7.54 | -0.307 | -3.62* | -35.0 | -0.307 | 0.334 | -3.93 | -0.307 |
| field_zoo | (0.612) | (10.5) | (0.840) | (1.88) | (29.7) | (0.840) | (1.25) | (15.3) | (0.840) |
| field_zoo | 0.594** | 4.41*** | 0.577** | 0.245 | 2.76* | 0.577** | 0.190 | -1.56 | 0.577** |
| field_zoo | (0.235) | (1.05) | (0.246) | (0.275) | (1.20) | (0.246) | (0.165) | (1.39) | (0.246) |
| field_zoo | 1.27*** | 2.01*** | 1.30** | 3.15*** | 20.1*** | 1.30** | -0.676 | -1.30** | 1.30** |
| field_zoo | (0.448) | (3.92) | (0.507) | (1.11) | (6.49) | (0.507) | (0.520) | (7.60) | (0.507) |
| field_zoo | 1.02 | 10.7** | 1.45** | 3.48** | 9.99 | 1.45** | 0.286 | 16.7 | 1.45** |
| field_zoo | (0.615) | (5.05) | (0.656) | (1.66) | (7.05) | (0.656) | (0.998) | (17.3) | (0.656) |
| field_zoo | 0.500 | 5.69 | 0.781 | 2.52 | 11.5* | 0.781 | -2.23* | -31.7*** | 0.781 |
| field_zoo | (0.633) | (4.21) | (0.788) | (1.69) | (5.73) | (0.788) | (1.22) | (9.58) | (0.788) |
| field_zoo | 0.183 | -2.36 | 0.039 | -0.349 | -6.63 | 0.039 | 2.07 | -2.72 | 0.039 |
| field_zoo | (0.411) | (2.55) | (0.466) | (1.87) | (4.98) | (0.466) | (3.01) | (20.8) | (0.466) |
| field_zoo | -0.057 | 7.47 | 0.150 | 1.23 | 16.5 | 0.150 | -0.178 | -6.79 | 0.150 |
| field_zoo | (0.354) | (7.96) | (0.400) | (2.27) | (22.6) | (0.400) | (0.491) | (15.6) | (0.400) |
| field_zoo | -0.894* | -6.36 | -1.29** | -0.533 | -5.54 | -1.29** | -2.40*** | -15.7 | -1.29** |
| field_zoo | (0.465) | (3.88) | (0.592) | (1.75) | (10.6) | (0.592) | (0.794) | (15.0) | (0.592) |
| field_zoo | -1.86** | 0.778 | -1.96** | -5.75 | 4.49 | -1.96** | -3.07** | -17.8 | -1.96** |
| field_zoo | (0.724) | (6.90) | (0.801) | (3.52) | (18.5) | (0.801) | (1.43) | (18.4) | (0.801) |
| field_zoo | 0.571 | 4.21 | -0.303 | 1.77 | 8.53 | -0.303 | 3.08 | -10.1 | -0.303 |
| field_zoo | (2.88) | (23.3) | (2.48) | (7.02) | (34.3) | (2.48) | (4.30) | (59.2) | (2.48) |
| field_zoo | -1.86*** | -10.6*** | -2.02*** | -2.49*** | -8.47*** | -2.02*** | -2.25*** | -11.5*** | -2.02*** |
| field_zoo | (0.190) | (1.56) | (0.192) | (0.321) | (2.23) | (0.192) | (0.406) | (3.29) | (0.192) |
| field_zoo | 1.07*** | 7.14*** | 1.06*** | 1.38*** | 5.45*** | 1.06*** | 3.23** | 12.8*** | 1.06*** |
| field_zoo | (0.175) | (1.48) | (0.195) | (0.356) | (1.79) | (0.195) | (0.761) | (4.63) | (0.195) |
| field_zoo | -1.28*** | -7.61*** | -1.31*** | -1.91*** | -6.68*** | -1.31*** | -1.36*** | -7.18*** | -1.31*** |
| field_zoo | (0.163) | (1.59) | (0.171) | (0.300) | (2.21) | (0.171) | (0.186) | (3.30) | (0.171) |
| field_zoo | 1.83*** | 6.92*** | 1.93*** | 2.75*** | 6.93*** | 1.93*** | 1.83*** | 6.63*** | 1.93*** |
| field_zoo | (0.131) | (0.703) | (0.154) | (0.236) | (0.869) | (0.154) | (0.154) | (1.60) | (0.154) |
| field_zoo | 2.92*** | 19.4*** | 3.17*** | 5.53*** | 20.6*** | 3.17*** | 3.01*** | 32.0*** | 3.17*** |
| field_zoo | (0.293) | (2.01) | (0.327) | (0.623) | (2.83) | (0.327) | (0.524) | (7.53) | (0.327) |
| field_zoo | -0.700** | -5.07 | -0.687* | -1.17 | -0.657 | -0.687* | -1.15** | -9.97 | -0.687* |
| field_zoo | (0.302) | (5.49) | (0.357) | (0.872) | (8.76) | (0.357) | (0.439) | (13.9) | (0.357) |
| field_zoo | 1.58*** | 5.64*** | 1.65*** | 1.98*** | 5.22*** | 1.65*** | 1.75*** | 8.64*** | 1.65*** |
| field_zoo | (0.141) | (0.928) | (0.154) | (0.238) | (1.21) | (0.154) | (0.443) | (3.03) | (0.154) |
| field_zoo | -2.22*** | -8.61 | -2.17*** | -3.17*** | -8.77 | -2.17*** | -2.97** | -35.5* | -2.17*** |
| field_zoo | (0.554) | (5.62) | (0.621) | (0.947) | (9.54) | (0.621) | (1.26) | (20.0) | (0.621) |
| field_zoo | 0.340 | -29.9** | 0.401 | -0.482 | -115.4*** | 0.401 | -1.19 | -63.3* | 0.401 |
| field_zoo | (0.474) | (14.3) | (0.533) | (2.15) | (29.7) | (0.533) | (1.04) | (34.3) | (0.533) |
| field_zoo | -1.74*** | -10.3*** | -1.82*** | -4.20*** | -13.6*** | -1.82*** | -3.59*** | 0.761 | -1.82*** |
| field_zoo | (0.244) | (2.89) | (0.268) | (0.604) | (3.60) | (0.268) | (0.967) | (17.4) | (0.268) |
| field_zoo | 0.619 | -5.79 | 0.197 | -5.00 | -25.3 | 0.197 | 1.42 | 141.9* | 0.197 |
| field_zoo | (1.22) | (30.2) | (3.07) | (5.73) | (40.3) | (3.07) | (6.31) | (81.4) | (3.07) |
| field_zoo | -0.472* | -0.343 | -0.482 | -1.49*** | -0.585 | -0.482 | 2.29* | 7.19 | -0.482 |
| field_zoo | (0.264) | (2.73) | (0.320) | (0.490) | (3.43) | (0.320) | (1.18) | (12.7) | (0.320) |
| field_zoo | 0.394 | -1.14 | 0.418 | 1.43** | -6.704 | 0.418 | 0.228 | 4.67 | 0.418 |
| field_zoo | (0.297) | (6.79) | (0.323) | (0.606) | (0.78) | (0.323) | (0.534) | (14.9) | (0.323) |
| field_zoo | -0.957*** | -17.9*** | -1.01*** | -3.17*** | -28.1*** | -1.01*** | -0.704** | -11.3 | -1.01*** |
| field_zoo | (0.166) | (3.58) | (0.167) | (0.610) | (7.03) | (0.167) | (0.282) | (7.95) | (0.167) |
| field_zoo | -0.126 | -6.91 | -0.003 | 1.31 | 13.9 | -0.003 | -1.95** | -39.0** | -0.003 |
| field_zoo | (0.440) | (7.85) | (0.563) | (1.06) | (17.9) | (0.563) | (0.714) | (19.1) | (0.563) |
| field_zoo | -1.98*** | -7.86 | -2.18*** | -5.28*** | -16.5* | -2.18*** | -1.82** | -17.1 | -2.18*** |
| field_zoo | (0.474) | (5.97) | (0.534) | (1.17) | (9.25) | (0.534) | (0.806) | (16.3) | (0.534) |
| field_zoo | 0.020 | 0.089 | 0.025 | 0.002 | 0.066 | 0.025 | -0.008 | -0.302 | 0.025 |
| field_zoo | (0.033) | (0.106) | (0.039) | (0.049) | (0.140) | (0.039) | (0.058) | (0.219) | (0.039) |
| field_zoo | -0.026* | -0.076 | -0.028* | 0.0004 | 0.039 | -0.028* | -0.025* | -0.090* | -0.028* |
| field_zoo | (0.014) | (0.061) | (0.015) | (0.036) | (0.120) | (0.015) | (0.013) | (0.052) | (0.015) |
| field_zoo | -0.024 | -0.096*** | -0.046** | -0.038 | -0.108** | -0.046** | 0.026 | 0.047 | -0.046** |
| field_zoo | (0.019) | (0.024) | (0.022) | (0.041) | (0.026) | (0.022) | (0.025) | (0.070) | (0.022) |
| field_zoo | -0.001 | -0.001 | -0.0002 | -0.002 | -0.003 | -0.0002 | -0.001 | -0.001 | -0.0002 |
| field_zoo | (0.0007) | (0.001) | (0.002) | (0.002) | (0.002) | (0.002) | (0.001) | (0.003) | (0.002) |

| Dependent Variable: | All |
|--|---------|
| AlphaFold | -0.007 |
| Counterfactual AI | (0.007) |
| Counterfactual No AI | -1.009 |
| AlphaFold - Method | (0.008) |
| Counterfactual AI - Method | (0.007) |
| Counterfactual No AI - Method | (0.009) |
| field_agricultural_and_biological_sciences | 0.007 |
| field_arts_and_humanities | 0.004 |
| field_biochemistry_genetics_and_molecular_biology | 0.009 |
| field_business_management_and_accounting | 0.007 |
| field_chemical_engineering | 0.002 |
| field_computer_science | 0.002 |
| field_decision_sciences | 0.009 |
| field_dentistry | 0.004 |
| field_earth_and_planetary_sciences | 0.005 |
| field_economics_econometrics_and_finance | 0.009 |
| field_energy | 0.007 |
| field_engineering | 0.009 |
| field_environmental_sciences | 0.004 |
| field_health_professions | 0.009 |
| field_immunology_and_microbiology | 0.007 |
| field_materials_science | 0.009 |
| field_mathematics | 0.007 |
| field_medicine | 0.009 |
| field_neuroscience | 0.007 |
| field_nursing | 0.009 |
| field_pharmacology_toxicology_and_pharmaceutics | 0.007 |
| field_physics_and_astronomy | 0.009 |
| field_psychology | 0.007 |
| field_social_sciences | 0.009 |
| field_veterinary | 0.007 |
| mesh_ | 0.007 |
| mesh_A | 0.009 |
| mesh_B | 0.007 |
| mesh_C | 0.009 |
| mesh_D | 0.007 |
| mesh_E | 0.009 |
| mesh_F | 0.007 |
| mesh_G | 0.009 |
| mesh_H | 0.007 |
| mesh_I | 0.009 |
| mesh_J | 0.007 |
| mesh_K | 0.009 |
| mesh_L | 0.007 |
| mesh_M | 0.009 |
| mesh_N | 0.007 |
| mesh_Z | 0.009 |
| mesh_n | 0.007 |
| AlphaFold × Counterfactual AI | 0.007 |
| AlphaFold × Counterfactual No AI | 0.009 |
| AlphaFold - Method × Counterfactual AI - Method | 0.007 |
| AlphaFold - Method × Counterfactual No AI - Method | 0.009 |

