## Online Appendix

## Open Access in Scientific Information: Sustainability Model and Business Plan for the Infrastructure and Organisation of OpenAIRE

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## **Figure 1. Methodology for Assessing OpenAIRE’s Sustainability**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Researchers and Non Researchers** | | | | | |
| **Variables** | | **Estimated**  **Coefficient** | **Std.**  **Error** | **t-value** | **Pr(>|t|)** |
| **Alternative Specific Variables** | ALL*\_Low* | 0.86894\*\*\* | 0.13718 | 6.33450 | 2.38E-10 |
| *AccessHigh* | 0.12420\*\*\* | 0.02897 | 4.28720 | 1.81E-05 |
| *MetaDataHigh* | 0.10008\*\* | 0.03057 | 3.27370 | 0.001062 |
| *ServicesHigh* | -0.01916 | 0.02729 | -0.70200 | 0.482658 |
| *Cost* | -0.00049\* | 0.00020 | -2.42200 | 0.015435 |
| *Scale Parameter(sp)* | 0.45289\*\*\* | 0.08175 | 5.53533 | 3.35E-08 |
| **Individual Specific Variables** | *RegionW* | 0.431883\*\* | 0.135782 | 3.1825 | 0.002372 |
| *RegionS* | 0.323817 | 0.205351 | 1.579125 | 0.14098 |
| *RegionG* | 0.655941\*\*\* | 0.130988 | 5.007875 | 1.73E-06 |
| *RegionE* | 1.247548\*\*\* | 0.236628 | 5.275125 | 3.79E-07 |
| *Inc0\_5* | -0.01336 | 0.227016 | -0.0605 | 0.743658 |
| *Inc5\_10* | -0.50713\*\* | 0.161258 | -3.15015 | 0.004759 |
| *Inc10\_20* | 0.118483 | 0.124059 | 0.952875 | 0.349024 |
| Inc20\_40 | 1.008981\*\*\* | 0.180066 | 5.602375 | 4.48E-08 |
| *IncG40* | -0.81732\*\*\* | 0.154751 | -5.2741 | 2.1E-06 |
| *Res* | -0.23773\* | 0.094355 | -2.51693 | 0.016659 |
| Significance codes: \*\*\*=0, \*\*=0.001, \*=0.01, .=0.05  Log-Likelihood: -5433.4  Number of Cards: 1225  Number of Respondents: 192 | | | | | |

Table 1. Econometric results for researchers and non-researchers

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Researchers** | | | | | |
| **Variables** | | **Estimated Coefficient** | **Std. Error** | **t-value** | **Pr(>|t|)** |
| **Alternative Specific Variables** | ALL*\_Low* | 1.36691 \*\*\* | 0.21233 | 6.43770 | 1.21E-10 |
| *AccessHigh* | 0.05264 . | 0.03132 | 1.68070 | 9.28E-02 |
| *MetaDataHigh* | 0.06284 | 0.04081 | 1.53980 | 0.12362 |
| *ServicesHigh* | 0.01612 | 0.03098 | 0.52010 | 0.602977 |
| *Cost* | -0.00112 \* | 0.00046 | -2.42130 | 0.015466 |
| *Scale Parameter(sp)* | 0.32322 \*\* | 0.10623 | 3.02573 | 2.55E-03 |
| **Individual Specific Variables** | *RegionW* | -0.2448 | 0.194369 | -1.24857 | 0.24923 |
| *RegionS* | 2.19101 \* | 0.894469 | 2.445463 | 0.01758 |
| *RegionG* | 0.19844 | 0.212455 | 0.935228 | 0.361462 |
| *RegionE* | 0.44993 | 0.282554 | 1.593694 | 0.122625 |
| *Inc0\_5* | -0.0941 | 0.355366 | -0.2587 | 0.718423 |
| *Inc5\_10* | -0.72409 \*\* | 0.223836 | -3.23458 | 0.001415 |
| *Inc10\_20* | 0.06844 | 0.172507 | 0.396853 | 0.679474 |
| Inc20\_40 | 0.71367 \*\* | 0.237963 | 2.995059 | 0.004337 |
| *IncG40* | -0.58146 \* | 0.214531 | -2.70548 | 0.01413 |
| Significance codes: \*\*\*=0, \*\*=0.001, \*=0.01, .=0.05  Log-Likelihood: -2193.5  Number of Cards: 491  Number of Respondents: 88 | | | | | |

**Table 2.** Econometric Results for researchers only.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Non Researchers** | | | | | |
| **Variables** | | **Estimated Coefficient** | **Std. Error** | **t-value** | **Pr(>|t|)** |
| **Alternative Specific Variables** | ALL*\_Low* | 0.54325 \*\* | 0.19030 | 2.85460 | 4.31E-03 |
| *AccessHigh* | 0.20918 \*\*\* | 0.05003 | 4.18120 | 2.90E-05 |
| *MetaDataHigh* | 0.13357 \*\* | 0.04210 | 3.17270 | 0.00151 |
| *ServicesHigh* | -0.01091 | 0.04039 | -0.27020 | 0.787033 |
| *Cost* | -0.00044 . | 0.00026 | -1.70900 | 0.087447 |
| *Scale Parameter(sp)* | 0.48947 \*\*\* | 0.10637 | 4.59903 | 4.40E-06 |
| **Individual Specific Variables** | *RegionW* | 1.053377 \*\*\* | 0.198982 | 5.294 | 1.78E-07 |
| *RegionS* | 1.391664 \*\*\* | 0.258562 | 5.3839 | 1.61E-07 |
| *RegionG* | 1.220579 \*\*\* | 0.193486 | 6.307925 | 4.51E-10 |
| *RegionE* | -0.31076 | 0.298881 | -1.0414 | 0.317319 |
| *Inc0\_5* | 0.082898 | 0.385044 | 0.214625 | 0.813661 |
| *Inc5\_10* | -0.38991 | 0.238511 | -1.64543 | 0.166557 |
| *Inc10\_20* | 0.018646 | 0.206452 | 0.089325 | 0.796093 |
| Inc20\_40 | 0.820326 \*\*\* | 0.219497 | 3.7378 | 0.000254 |
| *IncG40* | -1.08712 \*\*\* | 0.244683 | -4.4406 | 0.000111 |
| Significance codes: \*\*\*=0, \*\*=0.001, \*=0.01, .=0.05  Log-Likelihood: -3174.4  Number of Cards: 734  Number of Respondents: 104 | | | | | |

Table 3. Econometric Results for non- researchers only.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Researchers and Non Researchers** | **Alt1** | **Alt2** | **Alt3** | **Alt4** | **Alt5** | **Alt6** | **Alt7** | **Alt8** |
| ***Total effect of coefficients*** | 0.86894225 | 0.99314617 | 0.9690205 | 0.849784 | 1.09322438 | 0.973988 | 0.94986204 | 1.07406596 |
| ***Variance of total effect of coefficients*** | 1.88E-02 | 1.73E-02 | 1.70E-02 | 2.04E-02 | 1.64E-02 | 1.93E-02 | 1.93E-02 | 1.92E-02 |
| ***Covariance between the total effect of coefficients and the cost variable*** | 1.22E-06 | -2.59E-06 | -3.21E-06 | -2.39E-06 | -7.02E-06 | -6.19E-06 | -6.82E-06 | -1.06E-05 |

**Table 4.** Researchers and non-researchers

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Covariance matrix of coefficients**  **(Researchers and Non Researchers)** | **Level 1 Attributes** | **Access to Scientific results and Compliance to Open Access mandates (Level 2)** | **Interoperability (Level 2)** | **Misc Services and Open Access Costs (Level 2)** | **Cost** |
| **Level 1 Attributes** | 1.88E-02 | -1.20E-03 | -9.27E-04 | 4.25E-04 | 1.22E-06 |
| **Access to Scientific results and Compliance to Open Access mandates (Level 2)** | -1.20E-03 | 8.39E-04 | 5.14E-04 | 2.22E-04 | -3.81E-06 |
| **Interoperability (Level 2)** | -9.27E-04 | 5.14E-04 | 9.35E-04 | 3.54E-04 | -4.43E-06 |
| **Misc Services and Open Access Costs (Level 2)** | 4.25E-04 | 2.22E-04 | 3.54E-04 | 7.45E-04 | -3.60E-06 |
| **Cost** | 1.22E-06 | -3.81E-06 | -4.43E-06 | -3.60E-06 | 4.14E-08 |

**Table 5.** Covariance matrix of coefficients (Researchers and non-researchers)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Researchers** | **Alt1** | **Alt2** | **Alt3** | **Alt4** | **Alt5** | **Alt6** | **Alt7** | **Alt8** |
| ***Total effect of coefficients*** | 1.36691004 | 1.41954567 | 1.4297482 | 1.383026 | 1.48238386 | 1.435662 | 1.44586416 | 1.49849979 |
| ***Variance of total effect of coefficients*** | 4.51E-02 | 4.73E-02 | 4.72E-02 | 4.84E-02 | 5.11E-02 | 5.17E-02 | 5.22E-02 | 5.71E-02 |
| ***Covariance between the total effect of coefficients and the cost variable*** | -1.66E-05 | -2.72E-05 | -3.08E-05 | -2.56E-05 | -4.15E-05 | -3.63E-05 | -3.99E-05 | -5.05E-05 |

**Table 6.** Researchers’ coefficients

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Covariance matrix of coefficients***  **(Researchers)** | **Level 1 Attributes** | **Access to Scientific results and Compliance to Open Access mandates (Level 2)** | **Interoperability (Level 2)** | **Misc Services and Open Access Costs (Level 2)** | **Cost** |
| ***Level 1 Attributes*** | 4.51E-02 | 6.34E-04 | 1.07E-03 | 1.17E-03 | -1.66E-05 |
| ***Access to Scientific results and Compliance to Open Access mandates (Level 2)*** | 6.34E-04 | 9.81E-04 | 8.06E-04 | 5.62E-04 | -1.07E-05 |
| ***Interoperability (Level 2)*** | 1.07E-03 | 8.06E-04 | 1.67E-03 | 8.24E-04 | -1.43E-05 |
| ***Misc Services and Open Access Costs (Level 2)*** | 1.17E-03 | 5.62E-04 | 8.24E-04 | 9.60E-04 | -9.02E-06 |
| ***Cost*** | -1.66E-05 | -1.07E-05 | -1.43E-05 | -9.02E-06 | 2.13E-07 |

**Table 7.** Covariance matrix of coefficients, researchers.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Non Researchers** | **Alt1** | **Alt2** | **Alt3** | **Alt4** | **Alt5** | **Alt6** | **Alt7** | **Alt8** |
| ***Total effect of coefficients*** | 0.54324966 | 0.75243436 | 0.6768171 | 0.532337 | 0.8860018 | 0.741522 | 0.66590431 | 0.87508901 |
| ***Variance of total effect of coefficients*** | 3.62E-02 | 2.99E-02 | 3.08E-02 | 3.89E-02 | 2.71E-02 | 3.36E-02 | 3.49E-02 | 3.23E-02 |
| ***Covariance between the total effect of coefficients and the cost variable*** | 4.07E-06 | -3.45E-06 | -3.46E-06 | -3.41E-06 | -1.10E-05 | -1.09E-05 | -1.09E-05 | -1.85E-05 |

**Table 8.** Non-researchers coefficients

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Covariance matrix of coefficients***  **(Non Researchers)** | **Level 1 Attributes** | **Access to Scientific results and Compliance to Open Access mandates (Level 2)** | **Interoperability (Level 2)** | **Misc Services and Open Access Costs (Level 2)** | **Cost** |
| **Level 1 Attributes** | 3.62E-02 | -4.42E-03 | -2.72E-03 | 5.41E-04 | 4.07E-06 |
| **Access to Scientific results and Compliance to Open Access mandates (Level 2)** | -4.42E-03 | 2.50E-03 | 1.34E-03 | 5.13E-04 | -7.52E-06 |
| **Interoperability (Level 2)** | -2.72E-03 | 1.34E-03 | 1.77E-03 | 7.06E-04 | -7.54E-06 |
| **Misc Services and Open Access Costs (Level 2)** | 5.41E-04 | 5.13E-04 | 7.06E-04 | 1.63E-03 | -7.49E-06 |
| **Cost** | 4.07E-06 | -7.52E-06 | -7.54E-06 | -7.49E-06 | 6.66E-08 |

**Table 9.** Covariance matrix of coefficients, non-researchers.

|  |  |  |
| --- | --- | --- |
| **Aggregate Cost of the 18 NOADs (truncated p-ms)** | | |
| **Expenses** | **Total Labor Cost** | **Total Materials & Other Costs** |
| 1. Maintaining and Updating OpenAIRE country website | 12170.37 | 3900.00 |
| 2. Helpdesk support | 23350.53 | 2250.00 |
| 3. Outreach & Training: Research Administrators/Funders | 23343.15 | 3875.00 |
| 4. Outreach & Training: Repositories/Data repositories | 23685.11 | 4075.00 |
| 5. Outreach & Training: Project coordinators and Researchers | 52301.98 | 4350.00 |
| 6. Communication with (Regional Coordinator) | 9948.12 | 1400.00 |
| 7. Feedback on the OpenAIRE Gold OA Work Package | 14901.19 | 700.00 |
| 8. Dissemination, planning and communication media | 43406.48 | 12300.00 |
| Other | 3362.00 | 1000.00 |
| 9. Traveling | 30158.05 | 15500.00 |
| 10. Institutional Overhead | 7887.33 | 13649.29 |
| 11. Administration | 4000.00 | 2600.00 |
| Other costs not included above | 2400.00 | 0.00 |
| Total | 250914.31 | 65599.2 |
| **Grand Total** |  | **316513.60** |

**Table 10.** Cost Estimations: Aggregate Cost of the 18 NOADs

|  |  |  |  |
| --- | --- | --- | --- |
| **Estimated OpenAIRE annual cost by cost category** | | | |
|  | **Current Status** | **New Functionalities** | **OpenAIRE with new functionalities** |
| NOADs | 500000.00 | 0.00 | 500000.00 |
| Regional Coordinators | 110193.21 | 0.00 | 110193.21 |
| Financial | 36000.00 | 0.00 | 36000.00 |
| Management | 80000.00 | 0.00 | 80000.00 |
| Marketing & Sales | 95150.00 | 0.00 | 95150.00 |
| Technical | 278963.36 | 151203.32 | 430166.68 |
| **Total** | 1100306.57 | 151203.32 | 1251509.89 |

**Table 11.** Estimated OpenAIRE annual cost by cost category.

**Table 12.** Long Run Effects: Monte Carlo simulation under alternative scenario.

**Table 13.** Long Run Effects: Monte Carlo simulation under alternative scenario.

**Table 14.** Long Run Effects: Monte Carlo simulation under alternative scenario.