

Supplementary Material

2017-08-25

All prices were converted in EUR before the analysis.

The most comprehensive longitudinal per publisher data sets are available from Canada (2014-2016), Chile (2008-2015), Finland (2010-2016), France (2009-2015), Netherlands (2011-2015), and UK (2010-2016). Data for Argentina (2008-2016) is also available but we could not verify the source. In most countries, the data is available only for some of the largest publishers and/or institutions.

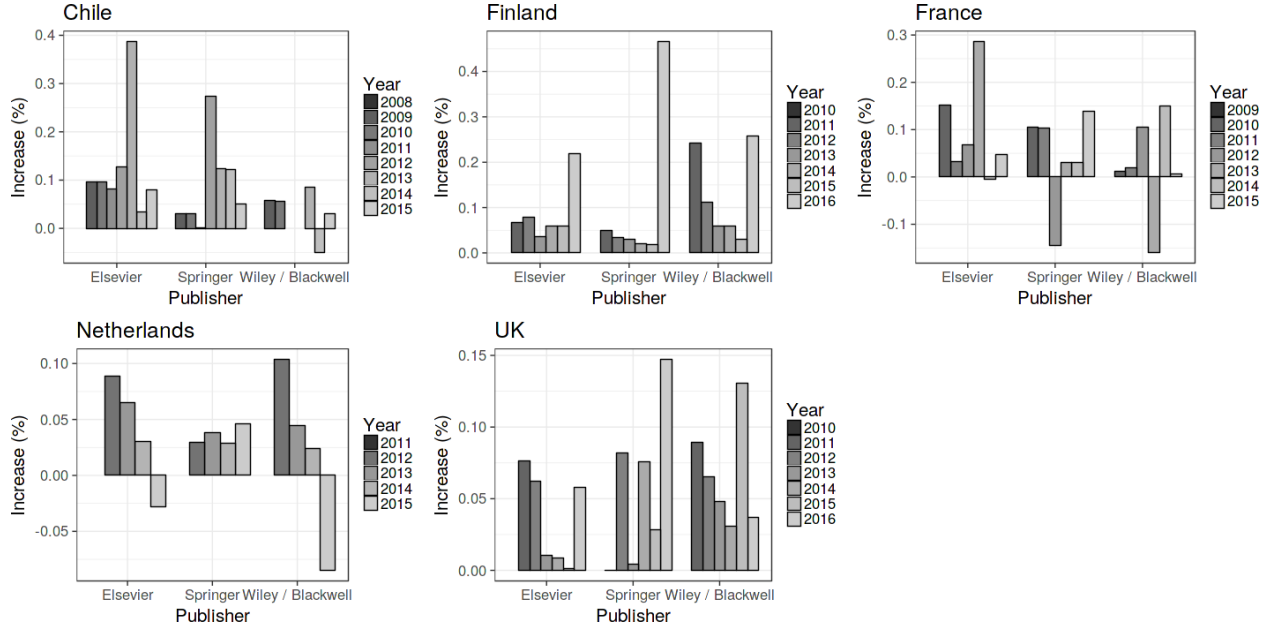
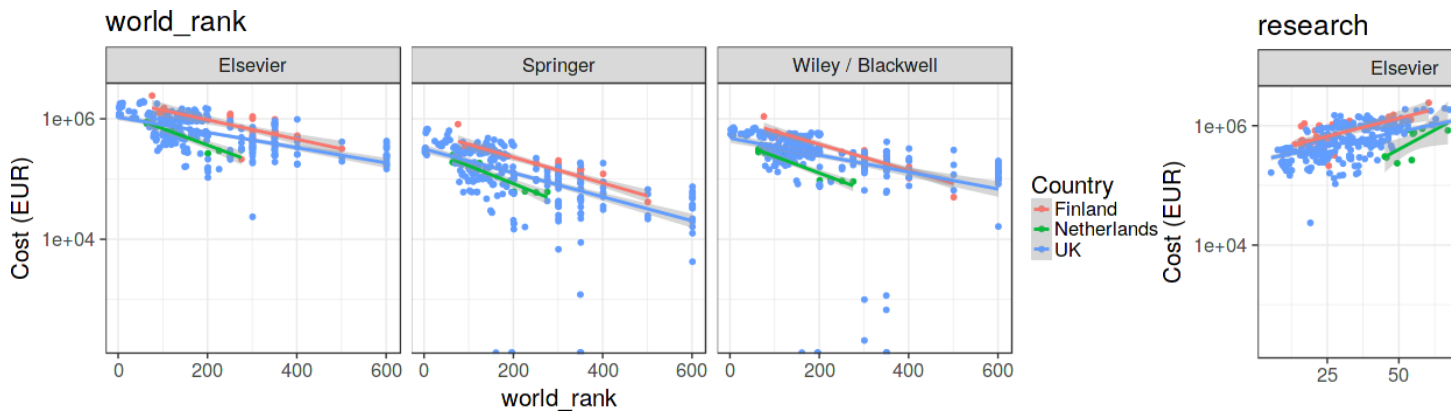


Figure 1: Annual cost increase for Elsevier, Wiley/Blackwell and Springer. In some data sets, the number of included institutions varies notably by year (for instance in Finland 2016 there is notable increase of listed publishers and organizations in the data set 57 vs. 71 organizations 2015-2016; and 200 vs. 258 publishers). However, the observations remain qualitatively similar also when the analysis is limited only to those publishers that have data available for the complete time span..



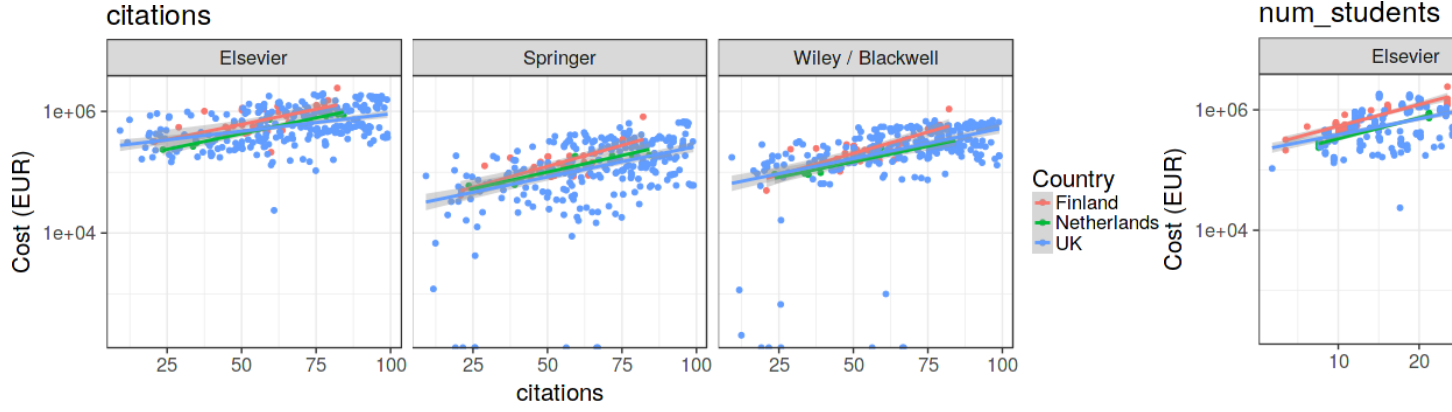


Figure 2: University ranking (Times ranking) variables versus subscription costs with selected publishers.

Variable	Country	Publisher	correlation	slope	padj
world_rank	Finland	Elsevier	-0.57738167673964	-0.001609	0.000095
world_rank	Finland	Springer	-0.676083594544069	-0.002136	0.000000
world_rank	Finland	Wiley / Blackwell	-0.732960138880905	-0.002167	0.000000
world_rank	Netherlands	Elsevier	-0.853563956930838	-0.002737	0.002651
world_rank	Netherlands	Springer	-0.93724669780641	-0.002970	0.001762
world_rank	Netherlands	Wiley / Blackwell	-0.953983245981524	-0.002775	0.000565
world_rank	UK	Elsevier	-0.649698649094827	-0.001263	0.000000
world_rank	UK	Springer	-0.694414181556696	-0.002403	0.000000
world_rank	UK	Wiley / Blackwell	-0.681633965832394	-0.001736	0.000171
research	Finland	Elsevier	0.499129052170934	0.012098	0.000423
research	Finland	Springer	0.507059339358995	0.015341	0.000003
research	Finland	Wiley / Blackwell	0.541347361511353	0.014348	0.000033
research	Netherlands	Elsevier	0.616666666666667	0.025946	1.430788
research	Netherlands	Springer	0.7	0.028828	1.151568
research	Netherlands	Wiley / Blackwell	0.733333333333333	0.026795	1.087939
research	UK	Elsevier	0.713702645074882	0.009695	0.000000
research	UK	Springer	0.745387165396528	0.018261	0.000000
research	UK	Wiley / Blackwell	0.719647412299567	0.012474	0.000150
citations	Finland	Elsevier	0.55338649302164	0.009939	0.005815
citations	Finland	Springer	0.640588772284605	0.013800	0.000008
citations	Finland	Wiley / Blackwell	0.614779718821454	0.014042	0.000002
citations	Netherlands	Elsevier	0.966666666666667	0.010344	0.000343
citations	Netherlands	Springer	0.966666666666667	0.010933	0.002410
citations	Netherlands	Wiley / Blackwell	0.933333333333333	0.010203	0.000964
citations	UK	Elsevier	0.445538903109112	0.005704	0.000000
citations	UK	Springer	0.46928077452499	0.016845	0.000000
citations	UK	Wiley / Blackwell	0.557883905867982	0.015539	0.000000
num_students	Finland	Elsevier	0.852293775812234	0.035868	0.000000
num_students	Finland	Springer	0.909443551060583	0.041662	0.000000
num_students	Finland	Wiley / Blackwell	0.914540186069889	0.041007	0.000000
num_students	Netherlands	Elsevier	0.866025403784439	0.034706	0.000024
num_students	Netherlands	Springer	0.866025403784439	0.037510	0.000014
num_students	Netherlands	Wiley / Blackwell	0.866025403784439	0.034774	0.000002
num_students	UK	Elsevier	0.575650490865022	0.026420	0.000000
num_students	UK	Springer	0.559381945742138	0.043785	0.000060
num_students	UK	Wiley / Blackwell	0.613790580087192	0.035133	0.003024

Table 1: University ranking (Times ranking) variables versus subscription costs with selected publishers. Linear model slope and Bonferroni-adjusted p-value.

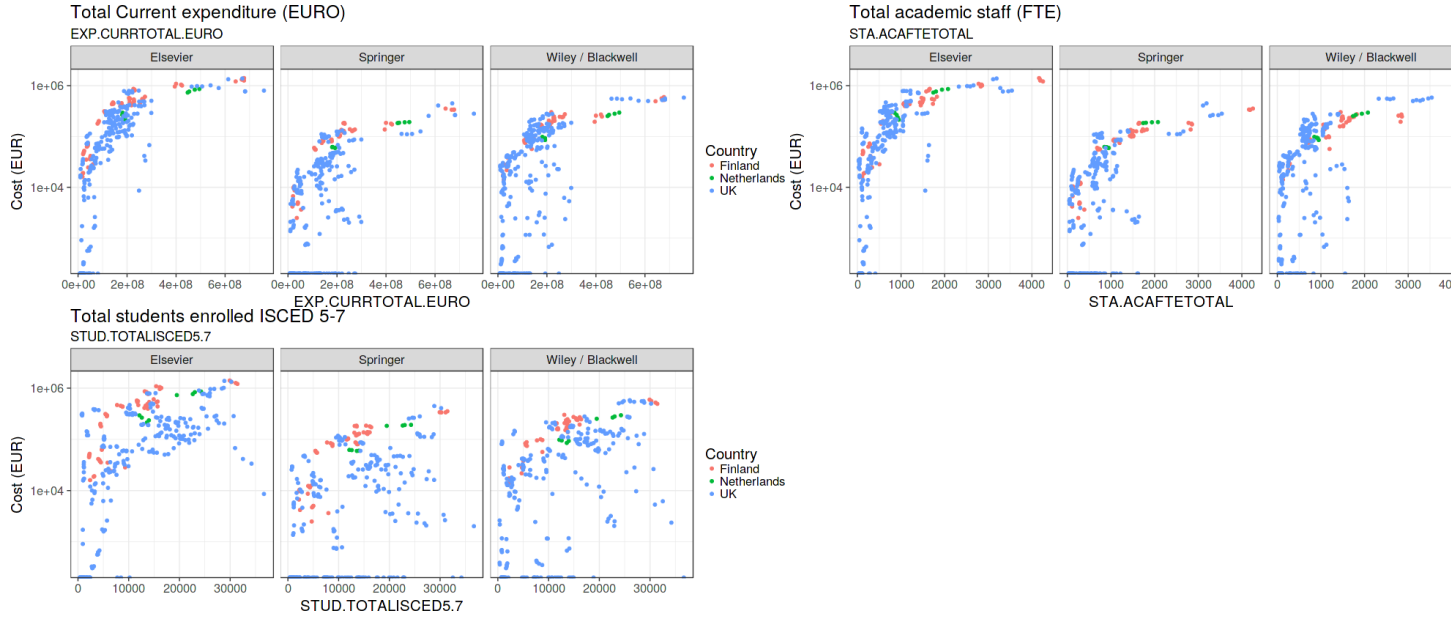


Figure 3: University scoring (ETER) variables versus subscription costs with selected publishers.

Variable	Country	Publisher	correlation	slope	padj
EXP.CURRTOTAL.EURO	Finland	Elsevier	0.940562613430127	0.000000	0.000000
EXP.CURRTOTAL.EURO	Finland	Springer	0.959185520361991	0.000000	0.000000
EXP.CURRTOTAL.EURO	Finland	Wiley / Blackwell	0.955461592670895	0.000000	0.000000
EXP.CURRTOTAL.EURO	Netherlands	Elsevier	0.785714285714286	0.000000	0.000228
EXP.CURRTOTAL.EURO	Netherlands	Springer	0.785714285714286	0.000000	0.000004
EXP.CURRTOTAL.EURO	Netherlands	Wiley / Blackwell	0.785714285714286	0.000000	0.000006
EXP.CURRTOTAL.EURO	UK	Elsevier	0.871831225946571	0.000000	0.000000
EXP.CURRTOTAL.EURO	UK	Springer	0.619782971827035	0.000000	0.000000
EXP.CURRTOTAL.EURO	UK	Wiley / Blackwell	0.65773442079522	0.000000	0.000000
STA.ACAFTETOTAL	Finland	Elsevier	0.941145968369199	0.000426	0.000000
STA.ACAFTETOTAL	Finland	Springer	0.955384615384615	0.000442	0.000000
STA.ACAFTETOTAL	Finland	Wiley / Blackwell	0.912473572938689	0.000319	0.000000
STA.ACAFTETOTAL	Netherlands	Elsevier	0.761904761904762	0.000496	0.001123
STA.ACAFTETOTAL	Netherlands	Springer	0.761904761904762	0.000482	0.000285
STA.ACAFTETOTAL	Netherlands	Wiley / Blackwell	0.761904761904762	0.000465	0.000149
STA.ACAFTETOTAL	UK	Elsevier	0.839241977703113	0.001826	0.000000
STA.ACAFTETOTAL	UK	Springer	0.619281405529376	0.001601	0.000000
STA.ACAFTETOTAL	UK	Wiley / Blackwell	0.66029297353798	0.001393	0.000000
STUD.TOTALISCED5.7	Finland	Elsevier	0.866995073891626	0.000062	0.000000
STUD.TOTALISCED5.7	Finland	Springer	0.88868778280543	0.000066	0.000000
STUD.TOTALISCED5.7	Finland	Wiley / Blackwell	0.90754052149401	0.000050	0.000000
STUD.TOTALISCED5.7	Netherlands	Elsevier	0.785714285714286	0.000050	0.007715
STUD.TOTALISCED5.7	Netherlands	Springer	0.785714285714286	0.000049	0.003476
STUD.TOTALISCED5.7	Netherlands	Wiley / Blackwell	0.785714285714286	0.000047	0.002050
STUD.TOTALISCED5.7	UK	Elsevier	0.713491810667543	0.000149	0.000000
STUD.TOTALISCED5.7	UK	Springer	0.485279415488167	0.000101	0.000000
STUD.TOTALISCED5.7	UK	Wiley / Blackwell	0.583995155715809	0.000100	0.000000

Table 2: ETER variables versus subscription costs with selected publishers. Spearman correlation, linear model slope and Bonferroni-adjusted p-value.

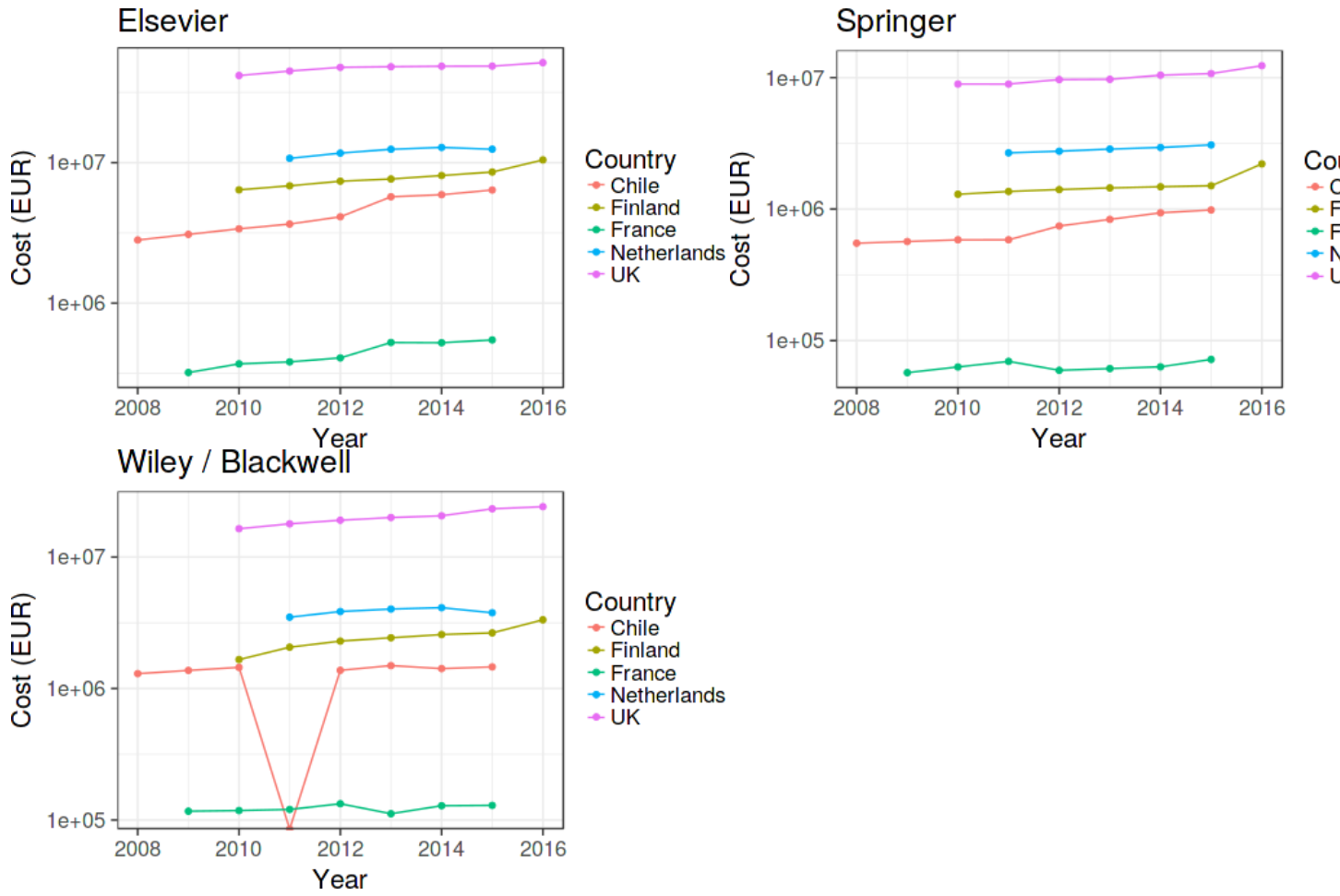


Figure 4: Cost timelines for selected publishers.

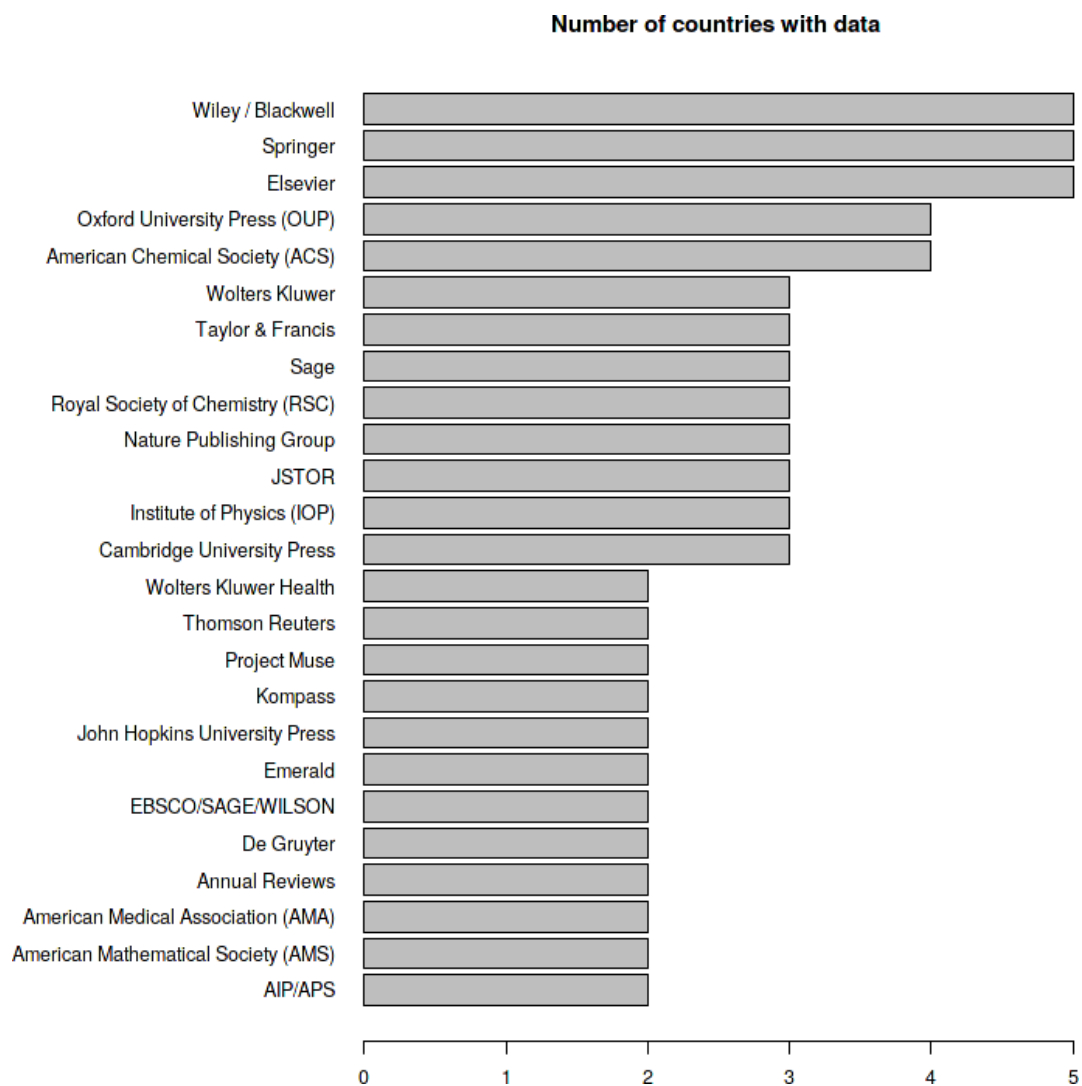


Figure 5: Number of countries with data for at least one year. Publishers with more than one country are shown.