

Table 1 Global funding inequality in research among the best fifteen countries in three regions

No.	Europe		East Asia and Pacific		Sub Saharan Africa	
1	Czech Rep.	6933	Macao China	41.4	Mauritius	38.6
2	Denmark	8242.9	Mongolia	74	Burkina Faso	39.7
3	Poland	10248.1	Myanmar	94.5	Botswana	76.7
4	Belgium	12634.8	Philippines	477.9	Mozambique	92.4
5	Austria	13481	Vietnam	789.1	Gabon	131.9
6	Switzerland	13669.9	New Zealand	1857.3	Senegal	149.7
7	Sweden	15299	Indonesia	2135.8	Mali	151.2
8	Turkey	15337.7	Hong Kong	2668.1	Uganda	259.3
9	Netherlands	16923.4	Thailand	3304	Ghana	276.5
10	Spain	19750.5	Malaysia	7334.3	Sudan	300.4
11	Italy	30126.5	Singapore	10066.7	Tanzania	348.7
12	Russia	40522.1	Australia	23133.6	Ethiopia	784.4
13	UK	46297.2	Korea	74217.7	Kenya	788.2
14	France	60867.9	Japan	170081.8	Nigeria	855.5
15	Germany	112808.8	China	408829	South Africa	4975

Notes: Million USD (PPPs) by country across three global regions. Countries are listed from the lowest to the highest funded for each region

Source: Data: OECD (2017) Science Technology and Innovation.

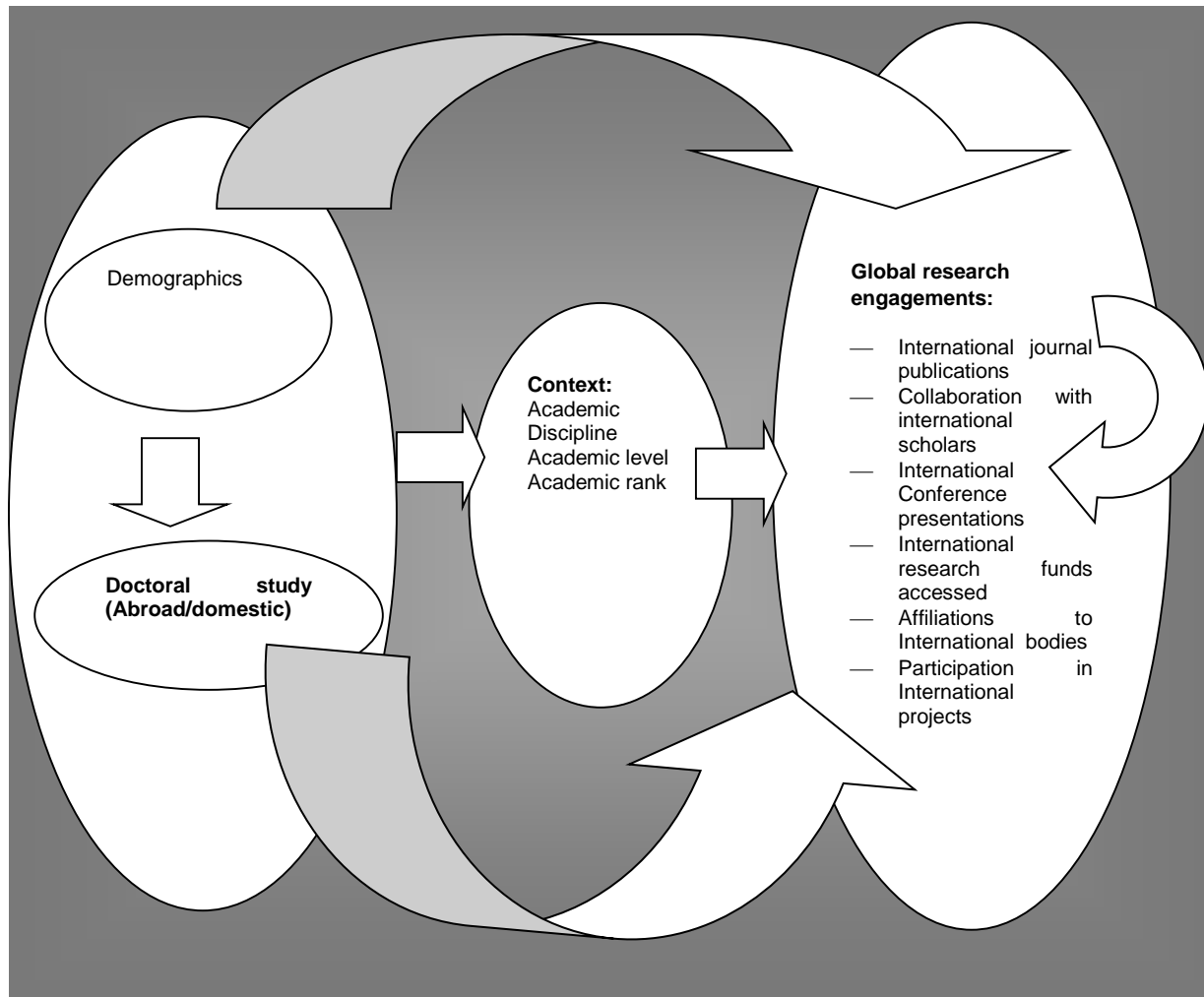


Figure 1. The global engagement in research model

Table 2 Number of CVs by faculty characteristics and degree award (n=170)

Variable	Faculty Category	Domestic	Foreign	Total
Gender	Male	32	99	139
	Female	09	30	39
	Total	41	129	170
Education level	PhD	35	114	149
	Postdoc	06	15	31
	Total	41	129	170
Academic discipline	Soft	27	65	92
	Hard	14	64	78
	Total	41	129	170
Ranks (Merged)	Lecturer	26	87	113
	Professor	15	42	57
	Total	41	129	170
All ranks	Lecturer	18	49	67
	Senior lecturer	08	37	45
	Associate Professor	11	23	34
	Professor	04	20	24
	Total	41	129	170

Table 3 Descriptive outcomes of foreign and domestic doctorates (N=795)

Variables	Foreign Doctorate		Domestic Doctorate		Total	
	Mean	SD	Mean	SD	Mean	SD
Affiliation	2.02	2.62	1.64	2.78	1.92	2.66
Collaborations	0.64	2.22	0.27	0.79	0.55	1.97
Funding	0.53	1.18	0.18	0.54	0.45	1.07
Projects	0.32	0.95	0.42	1.79	0.35	1.21
Publications	1.48	2.75	1.33	2.47	1.44	2.68
Conferences	0.81	2.07	0.65	1.69	0.77	1.99

Notes: SD = standard deviation

Table 4 GEE table for global engagements across research dimensions (N=795)

Notes	Variables	Publications	Collaborations	Affiliations	Funding	Projects	Conferences	
Exponentiated coefficients. Standard errors in parentheses. Starred = * p<0.05; ** p<0.01; *** p<0.001. a = Category for a dummy variable award with domestic as the reference category. b = Category for a dummy variable gender with female as the reference category. c = Category for a dummy variable education with Ph.D. as the reference category. d = Category for a dummy variable Academic rank with lecturer as the reference category. e = Category for a dummy variable discipline with hard discipline as the reference category.	foreign <sup>a</sup>	0.977 (0.219)	1.564 (0.560)	1.497 (0.382)	3.816** (1.646)	0.497 (0.370)	1.176 (0.301)	
	age	1.485*** (0.160)	0.963* (0.018)		0.949** (0.018)		0.996 (0.013)	
	age*age <sup>b</sup>	0.996*** (0.0011)						
	gender (male) <sup>c</sup>					3.170* (1.491)		
	Postdoc <sup>d</sup>				2.257** (0.713)		1.931** (0.475)	
	professor <sup>d</sup>	1.178 (0.267)		1.078 (0.317)	0.498 (0.262)		0.278** (0.423)	
	lecturer	0.415*** (0.105)		0.387** (0.123)	0.427* (0.161)		0.633 (0.193)	
	senior Lecturer	0.585* (0.136)		0.677 (0.191)	0.309** (0.138)		0.737 (0.227)	
	affiliations	1.065* (0.029)			1.084 (0.052)	1.185** (0.068)	1.158*** (0.037)	
	collaborations	1.266*** (0.034)		0.924* (0.029)		1.172** (0.062)	1.122** (0.040)	
	funding	1.105 (0.084)		1.128* (0.0662)		1.509*** (0.144)	1.196** (0.078)	
	projects		1.208*** (0.068)	1.083* (0.0410)	1.202* (0.097)		1.193** (0.074)	
	publications		1.376*** (0.034)	1.080** (0.028)	1.059 (0.040)		1.067 (0.036)	
	conferences		1.117** (0.038)	1.126*** (0.033)	1.069* (0.031)			
	_cons	0.000** (0.001)	0.383 (0.328)	1.287 (0.758)	0.225 (0.335)	0.053* (0.070)	0.200 (0.184)	
	Wald X <sup>2</sup>		146.4***	382***	27.21***	87.43***	98.74***	323.83***
	Observations (N)		798	798	798	799	800	798

Table 5 GEE table for global engagements across education levels (N=795)

Variables	Publications		Collaborations		Funding		Affiliation		Projects		Conferences	
	PhD	Postdoc	PhD	Postdoc	PhD	Postdoc	PhD	Postdoc	PhD	Postdoc	PhD	Postdoc
Foreign <sup>a</sup>	0.999 (0.268)	1.428 (0.330)	1.197 (0.476)	0.566 (0.470)	4.355** (2.420)	1.322 (1.116)	1.435 (0.409)	3.178 (2.023)	0.735 (0.579)	0.0283** (0.0329)	1.264 (0.413)	0.243* (0.170)
Age	1.548*** (0.197)	1.474** (0.220)	0.908 (0.156)	1.145 (0.267)	1.495 (0.347)	1.042 (0.334)	0.834 (0.124)	1.204 (0.237)	1.329 (0.520)	0.286** (0.135)	1.256 (0.178)	1.239 (0.419)
Age*Age	0.995*** (0.001)	0.996** (0.002)	1.001 (0.002)	0.998 (0.002)	0.995* (0.002)	0.999 (0.003)	1.001 (0.002)	0.998 (0.002)	0.996 (0.004)	1.013** (0.005)	0.998 (0.001)	0.997 (0.003)
Male <sup>b</sup>	0.872 (0.186)	0.845 (0.301)	0.941 (0.309)	1.228 (0.532)	0.819 (0.396)	1.188 (0.858)	0.650 (0.186)	2.047 (1.239)	1.842 (0.987)	0.976 (1.356)	0.790 (0.229)	1.212 (1.055)
Soft <sup>c</sup>	1.422 (0.312)	0.490* (0.143)	0.399** (0.120)	1.004 (0.747)	0.675 (0.233)	0.916 (0.449)	0.915 (0.242)	0.640 (0.324)	0.333 (0.214)	0.643 (0.719)	1.596 (0.431)	1.314 (0.692)
Professor <sup>d</sup>	1.785* (0.454)	4.923*** (1.697)	1.165 (0.364)	0.159* (0.131)	2.953** (1.146)	0.772 (0.575)	3.260*** (0.968)	2.826* (1.458)	5.077** (2.898)	0.0373* (0.054)	1.323 (0.433)	0.138* (0.122)
Affiliation	1.068* (0.031)	0.974 (0.052)	0.955 (0.061)	1.424*** (0.120)	1.059 (0.065)	1.111 (0.168)			1.105 (0.071)	1.886*** (0.262)	1.137*** (0.040)	1.770*** (0.254)
Collaboration	1.301*** (0.048)	1.578*** (0.211)			1.013 (0.057)	1.197 (0.219)	0.941 (0.036)	1.025 (0.090)	1.118 (0.089)	0.937 (0.133)	1.183*** (0.056)	0.773 (0.165)
Funding	1.108 (0.070)	0.881 (0.076)	1.155 (0.090)	1.314* (0.175)			1.079 (0.094)	0.961 (0.094)	1.300 (0.186)	1.161 (0.206)	1.241** (0.092)	1.087 (0.098)
Projects	1.048 (0.036)	1.091 (0.125)	1.134* (0.073)	1.242 (0.229)	1.071 (0.093)	1.267 (0.170)	1.054 (0.047)	1.385* (0.194)			1.154* (0.082)	0.952 (0.131)
Conferences	1.026 (0.031)	1.140* (0.070)	1.105** (0.041)	0.888 (0.081)	1.115*** (0.034)	1.086 (0.067)	1.115** (0.038)	1.142** (0.052)	1.130** (0.053)	0.861 (0.115)		
Publications			1.362*** (0.033)	1.432*** (0.147)	1.066 (0.051)	0.968 (0.089)	1.084** (0.027)	0.954 (0.060)	1.001 (0.069)	1.128 (0.157)	1.023 (0.045)	1.201 (0.152)
Observations	705	93	705	93	705	93	705	93	705	93	705	93

Notes: Exponentiated coefficients; Standard errors in parentheses; Starred = \* p<0.05; \*\* p<0.01 \*\*\* p<0.001; Education: Grouping variable composed of Ph.D. and Postdoc categories; a = Category for a dummy variable award with domestic as the reference category; b = Category for a dummy variable gender with female as the reference category; c = . Category for a dummy variable discipline with hard discipline as the reference category; d = Category for a dummy variable Academic rank with lecturer as the reference category.

Table 6 GEE table for global engagements across disciplines (N=795)

Variables	Publications		Collaborations		Funding		Affiliations		Projects		Conferences	
Discipline	hard	soft	hard	soft	hard	soft	hard	soft	hard	soft	hard	soft
Foreign <sup>a</sup>	0.832 (0.257)	1.297 (0.342)	1.421 (0.549)	0.764 (0.451)	2.859 (2.159)	2.916* (1.475)	1.959* (0.659)	1.774 (0.636)	0.312 (0.255)	1.467 (0.725)	0.937 (0.359)	1.187 (0.400)
Age	1.691*** (0.212)	1.432* (0.218)	0.929 (0.110)	1.125 (0.212)	1.481 (0.422)	1.063 (0.286)	1.248 (0.203)	0.780 (0.128)	0.871 (0.375)	1.648 (0.478)	1.169 (0.216)	1.396 (0.258)
Age*Age <sup>b</sup>	0.994*** (0.001)	0.996** (0.002)	1.000 (0.001)	0.999 (0.002)	0.996 (0.003)	0.998 (0.003)	0.998 (0.002)	1.002 (0.002)	1.000 (0.004)	0.995 (0.003)	0.998 (0.002)	0.997 (0.002)
Professor <sup>c</sup>	1.822 (0.620)	2.061* (0.599)	1.076 (0.349)	0.613 (0.376)	2.097 (1.150)	1.844 (1.115)	1.444 (0.428)	5.477*** (1.985)	4.386 (4.387)	2.679 (1.880)	0.817 (0.343)	1.639 (0.567)
Male <sup>d</sup>	0.775 (0.241)	0.896 (0.222)	1.915* (0.608)	0.534 (0.268)	1.794 (1.062)	0.507 (0.240)	0.517 (0.205)	0.974 (0.313)	3.094 (2.935)	1.836 (0.859)	0.845 (0.355)	0.850 (0.312)
Postdoc <sup>e</sup>	1.938** (0.433)	0.618 (0.191)	0.883 (0.230)	0.769 (0.651)	1.710 (0.738)	2.955* (1.631)	1.731* (0.478)	1.197 (0.733)	1.099 (0.740)	2.032 (1.078)	2.226* (0.701)	1.954 (1.054)
Affiliations	0.981 (0.043)	1.096* (0.040)	0.962 (0.076)	1.066 (0.112)	1.158* (0.073)	1.051 (0.091)			1.386*** (0.121)	0.953 (0.068)	1.157* (0.068)	1.124** (0.046)
Collaborations	1.317*** (0.044)	1.571*** (0.167)			1.004 (0.077)	1.183 (0.211)	1.022 (0.051)	1.066 (0.133)	1.138 (0.127)	1.254 (0.282)	1.223** (0.083)	1.162 (0.147)
Funding	1.138* (0.064)	1.061 (0.150)	1.139* (0.063)	1.301 (0.303)			1.140* (0.072)	0.986 (0.120)	1.206 (0.179)	1.716*** (0.155)	1.246** (0.102)	1.149 (0.125)
Projects	1.057 (0.037)	1.054 (0.241)	1.119 (0.075)	1.378 (0.614)	1.032 (0.102)	2.084*** (0.321)	1.147*** (0.046)	0.866 (0.168)			1.078 (0.074)	1.775*** (0.211)
Conferences	0.985 (0.031)	1.091 (0.057)	1.100* (0.042)	1.128 (0.097)	1.113** (0.043)	1.015 (0.036)	1.079* (0.033)	1.134*** (0.039)	0.972 (0.058)	1.231*** (0.074)		
Publications			1.369*** (0.044)	1.377*** (0.050)	1.022 (0.047)	1.002 (0.056)	0.993 (0.038)	1.082** (0.027)	0.969 (0.095)	0.976 (0.078)	0.967 (0.067)	1.087* (0.043)
Observations	352	446	352	446	352	446	352	446	352	446	352	446

Notes: Exponentiated coefficients; Standard errors in parentheses; Starred = \* p<0.05; \*\* p<0.01; \*\*\* p<0.001; Discipline: Grouping variable for academic disciplines and is composed of hard and soft disciplines; a = Category for a binary variable award with domestic as the reference category; b = quadratic for age representing age squared; c = Category for a binary variable academic rank with lecturer as the reference category; d = Category for a binary variable gender with female as reference category; e = category for a binary variable with female as the reference

Table 7 GEE table for global engagements across gender categories (N=795)

Variable	Publications		Collaborations		Funding		Affiliations		Projects		Conferences	
	female	male	female	male	female	male	female	male	female	male	female	male
Foreign <sup>a</sup>	1.438 (0.364)	1.005 (0.289)	0.891 (0.522)	1.300 (0.534)	1.448 (1.181)	4.394** (2.282)	1.065 (0.420)	1.698 (0.587)	1.492 (1.437)	0.600 (0.413)	0.878 (0.481)	1.208 (0.392)
Age	1.971** (0.456)	1.526** (0.197)	1.147 (0.301)	0.805 (0.124)	1.397 (0.599)	1.527* (0.297)	1.997*** (0.382)	0.816 (0.113)	26.98** (27.39)	1.160 (0.423)	1.888 (0.707)	1.145 (0.160)
Age*Age <sup>b</sup>	0.993** (0.002)	0.995*** (0.001)	0.998 (0.003)	1.002 (0.002)	0.995 (0.005)	0.995* (0.002)	0.993*** (0.002)	1.002 (0.002)	0.971*** (0.008)	0.998 (0.003)	0.994 (0.004)	0.998 (0.001)
Professor <sup>c</sup>	2.101 (0.914)	2.083** (0.545)	0.327 (0.208)	1.131 (0.344)	7.354** (4.740)	1.706 (0.657)	11.75*** (5.103)	2.746** (0.887)	0.484 (0.631)	3.187 (1.980)	1.269 (0.654)	1.314 (0.427)
Soft discipline <sup>d</sup>	0.904 (0.343)	1.223 (0.274)	1.373 (0.658)	0.340** (0.132)	1.003 (0.827)	0.546 (0.171)	0.238*** (0.0983)	1.137 (0.296)	0.201 (0.177)	0.302 (0.191)	0.824 (0.451)	1.623 (0.451)
Postdoc <sup>e</sup>	0.741 (0.252)	1.405 (0.320)	1.668 (0.836)	0.874 (0.260)	1.574 (1.351)	1.916* (0.635)	0.484 (0.246)	1.746 (0.510)	32.93** (44.43)	0.984 (0.606)	1.639 (1.041)	2.450** (0.696)
Affiliation	1.006 (0.059)	1.080* (0.035)	1.149 (0.087)	0.944 (0.065)	0.794 (0.119)	1.158** (0.064)			1.243 (0.224)	1.177* (0.078)	1.140 (0.091)	1.125*** (0.039)
Collaboration	1.828*** (0.212)	1.281*** (0.047)			1.606 (0.564)	1.023 (0.063)	1.520* (0.266)	0.918* (0.034)	0.511 (0.349)	1.125 (0.085)	1.579 (0.390)	1.155*** (0.050)
Funding	1.179* (0.079)	1.002 (0.051)	1.132 (0.131)	1.238** (0.094)			0.718 (0.122)	1.161* (0.085)	3.279** (1.275)	1.252 (0.162)	1.090 (0.129)	1.263*** (0.087)
Projects	1.133 (0.306)	1.024 (0.034)	0.391 (0.191)	1.157** (0.065)	2.249** (0.649)	1.095 (0.093)	1.149 (0.216)	1.097 (0.053)			1.341 (0.313)	1.142* (0.077)
Conferences	1.019 (0.047)	1.040 (0.032)	1.114 (0.092)	1.075* (0.034)	1.081 (0.104)	1.126*** (0.036)	1.069 (0.047)	1.101** (0.040)	1.028 (0.115)	1.094 (0.051)		
Publications			1.365*** (0.096)	1.378*** (0.035)	1.041 (0.048)	0.989 (0.034)	0.967 (0.039)	1.108*** (0.028)	1.037 (0.103)	0.960 (0.063)	0.990 (0.059)	1.045 (0.043)
Observations	186	612	186	612	186	612	186	612	186	612	186	612

Notes: Exponentiated coefficients; Standard errors in parentheses; Starred = \* p<0.05; \*\* p<0.01; \*\*\* p<0.001; Gender: Grouping variable consisting of female and male categories; a = Category for a dummy variable award with domestic as the reference category; b = quadratic (age squared) for the age variable; c = Category for a dummy variable Academic rank with lecturer as the reference category; d = Category for a dummy variable academic discipline with hard discipline as the reference category; e = Category for a dummy variable education with Ph.D. as the reference category.

