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“THE MEASUREMENT OF SCIENTIFIC EXCELLENCE AROUND THE WORLD”

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Abstract

This paper reviews scientific excellence in 38 countries and eight geographical areas using two sets of novel indicators of citation impact: a family of high-impact indicators imported from the poverty literature in Economics, and a set of indicators within the percentile rank approach. Among the main findings with a dataset of about 4.4 million from Thomson Scientific we emphasize the following three. (i) The proportion of articles of a research unit in the set formed by the 10% of the most cited papers in the world, and two important percentile rank indicators bring no novelty relative to a traditional average-based indicator. (ii) A high-impact indicator very sensitive to citation inequality is seen to be useful to detect success at a local level, but not for a global ranking that includes small research units. (iii) A monotonic high-impact indicator sensitive to any increase in citations is used to rank the partition of the world into 46 units in the 22 broad fields distinguished by Thomson Scientific, as well as the all-sciences case.

Keywords: citation analysis, world rankings, high-impact indicators, percentile rank indicators

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INTRODUCTION

We believe it is time to review scientific excellence in the periodical literature around the world. Some time has elapsed since the last influential review by King (2004). Not much has surely changed in the positions occupied by the different countries. However, a dramatic change has taken place in the way scientific research should be assessed.

Firstly, the number of publications does no longer occupy the limelight. What matters is citation impact. As an example, recall for a moment the so-called “*European Paradox*” according to which Europe plays a leading world role in terms of scientific excellence but lacks the entrepreneurial capacity of the U.S. to transform this excellent performance into innovation, growth, and jobs. This paradox, popularized by the European Commission around 1995 (see EC 1994, and Delange *et al.*, 2011), is exclusively based on a mere counting of the number of publications. It is true that, since the mid 1990s, the European Union has more publications than the U.S. However, judging from citation impact, the European Paradox hides a truly *European Drama*: the dominance of the U.S. over the European Union (EU hereafter) in the basic and applied research published in the periodical literature is almost universal at all aggregation levels. Forces explaining publication efforts are different from the ones explaining relative success measured by citation impact (see *inter alia* Dosi *et al.*, 2006, 2009, as well as Albarrán *et al.*, 2010, 2011a, b, and Herranz and Ruiz-Castillo, 2011a, b, 2012a).¹

Secondly, it is well known that citation distributions are highly skewed in the sense that a large proportion of articles get none or few citations while a small percentage of them account for a disproportionate amount of all citations.² In this situation, the mean –or any central-tendency statistic– is not a good representation of the citation distribution. Consequently, “*colleagues have begun a search to find other indicators that do not depend on averages*” (Rousseau, 2011). For example, Tijssen *et al.* (2002) and

¹ King’s (2004) contribution is also very much affected by the emphasis in quantity of publications rather than citation impact. His statement “*the EU now matches the United States in the physical sciences, engineering and mathematics, although still lags in the life sciences*” does refer to the share of total citations, which is a mere consequence of the European superiority in the volume of publications.

² See *inter alia* Seglen (1992), Shubert *et al.* (1987) for evidence concerning scientific articles published in 1981-85 in 114 sub-fields, Glänzel (2007) for articles published in 1980 in 12 broad fields and 60 middle-sized disciplines, Albarrán and Ruiz-Castillo (2011) for articles published in 1998-2002 in the 22 fields distinguished by Thomson Scientific, and Albarrán *et al.* (2011c) for these same articles classified in 219 Web of Science categories and a number of intermediate disciplines and broad scientific fields according to three aggregation schemes.

Tijssen and van Leeuwen (2006) argue that the top-10% of papers with the highest citation counts in a publication set can be considered highly cited. Consequently, well established institutions, such as the Centre for Science and Technology Studies (CWTS) of Leiden University in The Netherlands, and SCImago, a research group from the *Consejo Superior de Investigaciones Científicas* (CSIC), University of Granada, Extremadura, Carlos III (Madrid) and Alcalá de Henares in Spain, have recently started to rank research units in terms of scientific excellence using what they call the *Proportion top 10%* (CWTS) or the *Excellence Rate* (SCImago), defined as the percentage of an institution's scientific output included into the set formed by the 10% of the most cited papers in their respective scientific fields.³ We will refer to this indicator in the sequel as the $PP_{top\ 10\%}$.

In this paper, where we evaluate the citation impact of a partition of the world into 39 countries and eight geographical areas, we take two methodological steps forward beyond the $PP_{top\ 10\%}$ that can be easily understood by means of the following two examples. Assume that the 10% of the most cited papers in a scientific field include those with 10 or more citations. In the first example, unit A has two publications in that set with 10 and 12 citations, while unit B has also two publications with citations 100 and 120. The CWTS and SCImago excellence indicator will rank them equally, while our indicators will rank unit B above unit A. In the second example, unit C has two publications with 15 citations each, while unit D has also two publications with citations 10 and 20. The CWTS and SCImago excellence indicator will rank them equally, while our indicators will rank unit D above unit C.

Specifically, we use two different families of indicators. Firstly, Albarrán *et al.* (2011d) introduced a novel methodology for the evaluation of research units of a certain size that begins with the observation that, due to their skewness, the upper and lower parts of citation distributions are typically very different. Consequently, it seems useful to describe a citation distribution by means of two real valued functions defined over the subsets of articles with citations above or below a *critical citation line*

³ The *Leiden Ranking 2011/2012* (<http://www.leidenranking.com/methodology.aspx>) is based on publications in the sciences and the social sciences in Thomson Reuters' Web of Science database in the period 2005-2009, while the *SCImago Institutions Rankings* (SIR) 2011 World Report (http://www.scimagoir.com/pdf/sir_2011_world_report.pdf) is based on the Scopus® database (Elsevier B.V.).

(CCL hereafter). These are referred to as a *high-* and a *low-impact indicator*, respectively.⁴ In this paper, we use three members of a certain family of high-impact indicators, the first of which is seen to coincide with $PP_{top\ 10\%}$. The second would rank unit B above unit A, while the third would rank unit D above unit C in the above examples.

Secondly, an important alternative is what Bornmann and Mutz (2011) call the *percentile rank approach* (see also the Integrated Impact, or the *I3* indicator in Leydesdorff *et al.*, 2011, Leydesdorff and Bormann, 2011, and Rousseau, 2011). In this paper, we use four percentile rank scores indicators, one of which also coincides with the $PP_{top\ 10\%}$, while another is the indicator already in use by the U.S. National Science Foundation (National Science Board, 2010). Three of the four indicators would typically rank unit B above unit A, and unit D above unit C in the above examples.

The dataset consists of the 4.4 million articles published in 1998-2003 and indexed by Thomson Scientific, as well as the citations they receive during a five-year citation window for each year in that period. Articles are classified into the 20 natural sciences and the two social sciences distinguished by this firm. The paper discusses the following five issues. (i) What is the impact of going from an average-based indicator to the $PP_{top\ 10\%}$ and the remaining novel indicators already mentioned? (ii) Which are the consequences of allowing citation inequality to influence the ranking of research units? (iii) Which are the substantive results in each field about the ranking of the countries and geographical areas distinguished in this paper? In particular, how can we explain the European Drama in terms of the specific behavior of the 15 member countries of the EU? (iv) Which changes do we observe when we focus on the all-sciences case after an appropriate normalization? (v) Which major extensions might be attempted in future research? The rest of the paper is organized in three Sections. Section II present the methods, the data, some descriptive statistics, and the empirical results. Section III discusses the five issues just presented.

⁴ Economists will surely recognize that the key to this approach is the identification of a citation distribution with an income distribution. Once this step is taken, the measurement of low-impact coincides with the measurement of economic poverty, which starts with the definition of the poor as those individuals with income below the poverty line (see *inter alia* Sen, 1976, and Zheng, 1997). In turn, it is equally natural to identify the measurement of high-impact with the measurement of a certain notion of economic affluence.

II. METHODS, DATA, AND DESCRIPTIVE STATISTICS

II. 1. The FGT Family of High-impact Indicators

Consider a discrete citation distribution of papers, that is, consider an ordered, non-negative vector $\mathbf{c} = (c_1, \dots, c_p, \dots, c_n)$ where $c_1 \leq c_2 \leq \dots \leq c_n$, and $c_i \geq 0$ is the number of citations received by the i -th article. Given a distribution \mathbf{c} and a positive CCL, classify as low- or high-impact articles all papers with citation $c_i \leq \text{CCL}$, or $c_i > \text{CCL}$. To simplify the notation, we will omit in the sequel a reference for such fixed CCL. Denote by $n(\mathbf{c})$ be the total number of articles in the distribution, by $l(\mathbf{c})$ be the number of low-impact articles, and by $h(\mathbf{c}) = n(\mathbf{c}) - l(\mathbf{c})$ the number of high-impact articles. A *low-impact index* is a real valued function L defined over low-impact articles whose typical value $L(\mathbf{c})$ indicates the low-impact level associated with distribution \mathbf{c} , while a *high-impact index* is a real valued function H defined over high-impact articles whose typical value $H(\mathbf{c})$ indicates the high-impact level associated with that distribution. Given a citation distribution \mathbf{c} and a CCL, the Foster, Greer, and Thorbeke (FGT hereafter) family of low-impact indicators, originally introduced in Foster *et al.* (1984) for the measurement of economic poverty, is defined by:

$$L_n(\mathbf{c}) = [1/n(\mathbf{c})] \sum_{i=1}^{l(\mathbf{c})} (\Gamma_i)^\beta, 0 \leq \beta,$$

where β is a parameter identifying the members of the family, and $\Gamma_i = \max \{(\text{CCL} - c_i)/\text{CCL}, 0\}$ is the *normalized low-impact gap* for any article with c_i citations. Note that $\Gamma_i \geq 0$ for low-impact articles, while $\Gamma_i = 0$ for high-impact articles. The class of FGT high-impact indicators is defined by

$$H_n(\mathbf{c}) = [1/n(\mathbf{c})] \sum_{i=l(\mathbf{c})+1}^{n(\mathbf{c})} (\Gamma_i^*)^\beta, 0 \leq \beta,$$

where β is again a parameter identifying the members of the family, and $\Gamma_i^* = \max \{(c_i - \text{CCL})/\text{CCL}, 0\}$ is the *normalized high-impact gap*. Now $\Gamma_i^* > 0$ for high-impact articles, while $\Gamma_i^* = 0$ for low-impact articles.

In this paper only high-impact indicators for parameter values $\beta = 0, 1, 2$ will be computed. Firstly, note that the high-impact indices obtained when $\beta = 0$ coincide with the proportion of high-impact papers:

$$H_0(\mathfrak{c}) = b(\mathfrak{c})/n(\mathfrak{c}). \quad (1)$$

Secondly, denote by $\mu_H(\mathfrak{c})$ the MCR of high-impact articles. It can be shown that

$$H_I(\mathfrak{c}) = H_0(\mathfrak{c})H_I(\mathfrak{c}), \quad (2)$$

where

$$H_I(\mathfrak{c}) = [1/b(\mathfrak{c})] \sum_{i=l(\mathfrak{c})+1}^{n(\mathfrak{c})} \Gamma_i^* = [\mu_H(\mathfrak{c}) - CCL]/CCL.$$

The index H_I is said to be monotonic in the sense that one more citation among high-impact articles increases H_I . Therefore, while H_0 only captures what we call the incidence of the high-impact aspect of any citation distribution, H_I captures both the incidence and the intensity of these phenomena. Thirdly, the high-impact member of the FGT families obtained when $\beta = 2$ can be expressed as:

$$H_2(\mathfrak{c}) = H_0(\mathfrak{c})\{[(H_I(\mathfrak{c}))^2 + [1 + H_I(\mathfrak{c})]^2 (C_H)^2]\}, \quad (3)$$

where $(C_H)^2$ is the squared coefficient of variation (that is, the ratio of the standard deviation over the mean) among the high-impact articles. Therefore, H_2 simultaneously covers the incidence, the intensity, and the citation inequality aspects of the high-impact phenomenon it measures (see Albarrán *et al.*, 2011d, for a full discussion of other properties).

II.2. The Choice of the CCL

In economics, there is a general agreement that the measurement of economic poverty involves an irreducible, absolute core that should be addressed by fixing an *absolute* poverty line common to all countries in the world. For example, at present the World Bank establishes that absolute poverty line at two dollars per day of equivalent purchasing power in any country of the world. However, after World War II it was observed that, at any reasonable absolute poverty line, there would be no absolute poverty in the developed part of the world. Therefore, a notion of *relative* poverty was introduced where the poverty line is fixed at a certain percentage –typically 50% or 60%– of mean or median income.

As explained in Albarrán *et al.* (2011d), in citation space there are also two alternatives in every scientific field. Firstly, a relative approach in which a CCL for each geographical area is fixed, for

instance, as a multiple of the mean or the median, or at a given percentile of the field's citation distribution. Secondly, an absolute approach in which a CCL for the entire field is fixed as a function of some characteristic of the world citation distribution. In our experience, it is generally agreed that what happens at the world level in any scientific field constitutes a natural reference for the evaluation of the performance of any type of research unit in that field. Therefore, we suggest fixing the CCL at some percentile of the original world distribution in every science. Taking into account that the mean citation at all aggregate levels are approximately located at the 70th percentile of citation distributions (see Glänzel, 2007, 2010, and Albarrán *et al.*, 2011a), previous work has mainly studied the case where the CCL is fixed at the 80th percentile (see Albarrán *et al.*, 2011a, b, and Herranz and Ruiz-Castillo, 2011a, b). However, given the importance acquired by the $PP_{top\ 10\%}$ indicator, in this paper we fix the CCL at the 90th percentile so that H_0 becomes the $PP_{top\ 10\%}$.

II.3. The Percentile Rank Scores Indicators

Consider a reference set \mathcal{S} of articles and a partition of it into Π disjoint classes indexed by $\pi = 1, \dots, \Pi$. If an article belongs to class π , then it receives a score x_π . Let \mathcal{c} be a set of $n(\mathcal{c})$ articles contained in \mathcal{S} , and let $n_\pi(\mathcal{c})$ be the number of articles in that belong to class π , so that $\sum_\pi n_\pi(\mathcal{c}) = n(\mathcal{c})$. Then, the *percentile rank score* of set \mathcal{c} is defined as

$$R(\mathcal{c}) = \sum_\pi x_\pi [n_\pi(\mathcal{c})/n(\mathcal{c})]. \quad (4)$$

Note that the value of R depends not only on \mathcal{c} but also on the reference set \mathcal{S} , the Π classes, and their scores. Thus, formula (4) allows a lot of subjectivity, as one can adapt the reference set, the classes, and the scores.

In a convenient type of applications, the set \mathcal{S} can be taken to be the world ordered citation distribution of a certain scientific field, the Π classes the 100 percentiles, and the x_π scores may increase from $x_1 = 1$ up to $x_{100} = 100$. We denote this index by R_j . Next, assume that the world ordered citation

distribution in a certain field is partitioned into two classes –so that $\mathbf{II} = 2$ – consisting of the bottom 90% and the top 10% of all articles. Assume that $x_1 = 0$ and $x_2 = 1$. For any citation distribution \mathbf{c} in that field

$$R(\mathbf{c}) = \sum_{\pi} x_{\pi} [n_{\pi}(\mathbf{c})/n(\mathbf{c})] = n_2(\mathbf{c})/n(\mathbf{c}),$$

that is, $R(\mathbf{c})$ is equal to the percentage of articles in distribution \mathbf{c} that belongs to the top 10% of the world. In other words, in this case $R(\mathbf{c}) = PP_{top\ 10\%}(\mathbf{c})$.

In this paper, we will use two more percentile rank score indicators. In the first one, originally suggested by the National Scientific Board (2010) and denoted by R_2 , the world ordered citation distribution in each field is partitioned into six classes –so that $\mathbf{II} = 6$ – with the following scores: $x_1 = 1$ for all articles in the interval $[0, 50^{\text{th}})$; $x_2 = 2$ for all articles in the interval $[50^{\text{th}}, 75^{\text{th}})$; $x_3 = 3$ for all articles in the interval $[75^{\text{th}}, 90^{\text{th}})$; $x_4 = 4$ for all articles in the interval $[90^{\text{th}}, 95^{\text{th}})$; $x_5 = 5$ for all articles in the interval $[95^{\text{th}}, 99^{\text{th}})$, and $x_6 = 6$ for all articles in the interval $[99^{\text{th}}, 100^{\text{th}}]$. In the final indicator, denoted by R_3 , $\mathbf{II} = 5$ with the following scores: $x_0 = 0$ for all articles in the interval $[0, 90^{\text{th}})$; $x_1 = 1$ for all articles in the interval $[90^{\text{th}}, 95^{\text{th}})$; $x_2 = 2$ for all articles in the interval $[95^{\text{th}}, 97^{\text{th}})$; $x_3 = 3$ for all articles in the interval $[97^{\text{th}}, 99^{\text{th}})$; $x_4 = 4$ for all articles in the interval $[99^{\text{th}}, 100^{\text{th}}]$.

This non-parametric approach that uses percentiles completely overcomes the difficulties posed to average-based indicators by the high skewness that characterize citation distributions. Moreover, its differential treatment of highly versus poorly cited publications takes into account in a convenient way the intensity and the citation inequality of the high-impact phenomenon (see Rousseau, 2012, for a discussion of other properties of percentile rank indicators). In any case, we believe that the sensitivity of the indicators H_2 , R_2 and R_3 to citation inequality is an interesting property to experiment with. It contrasts with the $PP_{top\ 10\%}$ and the average-based indicators that are silent in this respect, with the axiom of Equal Impact of Additional Citations in Bouyssou and Marchant (2011), and even more with the measure suggested by Ravallion and Wagstaff (2011) that displays aversion to citation inequality.

II.4. The Original Dataset and the Geographical Extended Count

Since we wish to address a homogeneous population, in this paper only research articles or, simply, articles are studied. As indicated in the Introduction, we begin with a large sample, consisting of more than 4.4 million articles published in 1998-2003, as well as the citations these articles receive using a five-year citation window for each one. Thus, the original dataset is a citation distribution $c = \{c_l\}$ consisting of N distinct articles, *indexed by* $l = 1, \dots, N$, where c_l is the number of citations received by article l . We consider 38 countries that have about 10,000 articles published in all sciences in 1998-2003, plus Luxembourg that is included in order to cover the 15 countries in the EU. In addition, there are eight residual geographical areas that will be described below.

Articles are assigned to countries and geographical areas according to the institutional affiliation of their authors on the basis of what had been indicated in the by-line of the publications. We must confront the possibility of international cooperation, namely, of articles written by authors belonging to two or more geographical areas. The problem, of course, is that international articles as opposed to, say, domestic articles tend to be highly cited. Aksnes *et al.* (2012) have recently provided strong arguments in favor of using fractionalised rather than whole counts. However, if we fraction international articles, we would tend to depress the ranking of relatively small countries for whom some internationally co-authored articles are very important. Although this old problem admits different solutions (see *inter alia* Anderson *et al.*, 1988, for a discussion), in this paper we side with many other authors in adopting a multiplicative strategy according to which in every internationally co-authored article a whole count is credited to each contributing country (see the contributions by May, 1997, and King, 2004, as well as the references in Section II in Albarrán *et al.*, 2010).

For every article l , let g^l be the number of countries or geographical areas with authors in the byline of the publication. Only domestic articles, or articles exclusively authored by one or more scientists affiliated to research centers in a single country or geographical area are counted once, in which case $g^l = 1$. Otherwise, $g^l \in [2, 46]$. In this way we arrive at what we call the *geographical extended*

count, whose total number of articles is equal to $G = \sum_l g^l$. As long as $g^l > 1$ for some l , we have that $G > N$. In our dataset, the number of distinct articles in the original dataset is $N = 4,472,332$, while the number of articles in the geographically extended count is $G = 5,450,309$, a total which is 21.9% larger than N . Table A in the Appendix compares the distribution of articles by field in the original and the geographically extended count, and includes the mean citation rate (MCR hereafter) in each of the 22 fields. The two distributions are very similar. In the geographical extended count there are 1.5% more articles in the Physical Sciences, and slightly less in the Life and the Social Sciences. As expected, the MCRs are always greater in the geographical extended count reflecting the fact that internationally co-authored articles tend to be more cited than the domestic ones. In any case, in view of the large differences in size and MCR exhibited by the 22 fields, it is very convenient that all our indicators are size and scale-independent.

Table B in the Appendix describes the geographical areas, and includes the number of articles in each of the countries and areas, as well as its distribution over the four large scientific areas. The U.S. publishes about 27% of the total, while the EU is responsible for approximately one third. The rest of the world, grouped into 23 countries and the eight geographical areas publish almost 39% of the total.

II.5. Results

The high-impact indicators H_β are additively decomposable in the following sense. Given any partition of a world citation distribution \mathcal{S} into K sub-groups, \mathcal{c}^k , indexed by $k = 1, \dots, K$, the overall high-impact level, $H_\beta(\mathcal{S})$, for example, can be expressed as the sum of the sub-groups high-impact levels, $H(\mathcal{c}^k)$, weighted by the corresponding publication shares, $w^k = n(\mathcal{c}^k)/n(\mathcal{S})$, equal to the ratio of the number of articles in distribution \mathcal{c}^k over the number of articles in distribution \mathcal{c} :

$$H_\beta(\mathcal{S}) = \sum_k w^k H_\beta(\mathcal{c}^k).$$

Consequently, the ratio $H_\beta(\mathcal{C}^k)/H_\beta(\mathcal{S})$ is greater than, equal to, or smaller than one whenever the observed relative contribution of sub-group k to the worldwide high-impact level, $w^k H_\beta(\mathcal{C}^k)/H_\beta(\mathcal{S})$, is greater than, equal to, or smaller than its expected contribution measured by its publication share, w^k .

Similarly, it can be shown that R_α indicators are equally decomposable. Let p_π be the percentage of articles in the world citation distribution \mathcal{S} in quantile $\pi = 1, \dots, II$. Then $R_\alpha(\mathcal{S}) = \sum_\pi x_\pi p_\pi$ on the other hand, consider the partition of \mathcal{S} into K sub-groups, \mathcal{C}^k , indexed by $k = 1, \dots, K$. We have that

$$\sum_k w^k R_\alpha(\mathcal{C}^k) = \sum_k [n(\mathcal{C}^k)/n(\mathcal{S})] \sum_\pi x_\pi [n_\pi(\mathcal{C}^k)/n(\mathcal{C}^k)] = \sum_\pi x_\pi [\sum_k n_\pi(\mathcal{C}^k)/n(\mathcal{S})] = \sum_\pi x_\pi p_\pi = R_\alpha(\mathcal{S}).$$

Therefore, the ratio $R_\alpha(\mathcal{C}^k)/R_\alpha(\mathcal{S})$ is greater than, equal to, or smaller than one whenever the observed relative contribution of sub-group k to the worldwide high-impact level, $w^k R_\alpha(\mathcal{C}^k)/R_\alpha(\mathcal{S})$, is greater than, equal to, or smaller than its expected contribution measured by its publication share, w^k . Finally, the world MCR can be also expressed as the weighted mean of the countries MCR:

$$MCR(\mathcal{S}) = \sum_k w^k MCR(\mathcal{C}^k).$$

For each field, Tables C1 to C.22 in the Appendix present the ratios $H_\beta(\mathcal{C}^k)/H_\beta(\mathcal{S})$ for $\beta = 0, 1, 2$, as well as the ratios $R_\alpha(\mathcal{C}^k)/R_\alpha(\mathcal{S})$ for $\alpha = 1, 2, 3$. In addition, we include the corresponding ratios for the MCR, namely, $MCR(\mathcal{C}^k)/MCR(\mathcal{S})$.

III. DISCUSSION

III.1. The Indicators In Contention: A Preliminary Review

The first question we pose is about the impact of going from a traditional average-based ranking to another one based on the 10% of most cited papers. Surprisingly enough, the correlation coefficient between MCR and H_0 taking together the results for the 22 fields is 0.933. As a matter of fact, the correlation between the MCR and the first two percentile rank indicators is also very high: 0.934 and

0.928, respectively. In turn, the correlation between R_1 and R_2 is 0.955. Thus, to a first approximation, the four indicators MCR, H_0 , R_1 and R_2 lead to rather similar results.

The indicator H_1 shows some differences with this set. The coefficient of correlation of H_1 with MCR and H_0 is 0.873 in both cases, while with R_1 and R_2 is 0.686 and 0.729. On the other hand, as soon as citation inequality plays a clear role in H_2 (see equation 3), things drastically change. The coefficient of correlation of H_2 with MCR, H_0 , R_1 and R_2 is 0.457, 0.392, 0.297, and 0.321, respectively, while with H_1 is 0.639.

III.2. What Role For Citation Inequality?

In order to understand the consequences of allowing citation inequality to influence country ranking, we will compare H_0 and H_2 . For every field, column 1 in Table 1 includes the top five countries according to H_2 , while column 2 records the ranking that these countries have according to H_0 (Table D in the Appendix includes all countries in all fields). Two features are apparent. Firstly, H_2 causes radical ranking changes. In the first three fields, for example, Ireland and Singapore win 15 and 12 positions in Biology & Biochemistry, Norway wins 10 in Clinical Medicine, and Japan and Israel win 12 and 18 in Immunology. Except in four fields (Microbiology, Agricultural Science, Engineering, and Space Science), in all remaining instances great re-rankings take place. Secondly, top countries very often have a $H_2(c^k)/H_2(\mathcal{S})$ ratio well above one. This is the case for as many as four countries in two fields (Physics, and Social Sciences, General), for two countries in three other fields (Biology & Biochemistry, Agricultural Science, and Space Science), and for one country in the 13 remaining fields. Not surprisingly, the majority of these instances take place in small countries. The conclusion is inescapable: H_2 is very sensitive to extreme observations of articles with a very large number of citations.

Table 1 around here

We have checked that this is a local phenomenon. For example, if we eliminate successively the top one, two, or three articles in every country in Biology & Biochemistry –where Ireland has 87 articles– the Irish ratio falls from the original extraordinary value of 13.93 to 3.83, 1.40, and 0.72, respectively. It should be noted that these three articles are highly cited but not among the most cited in the field in question. Therefore, H_2 is a useful instrument to detect the role of a handful of highly cited articles giving rise to a large citation inequality within any specific country. However, precisely for its local sensitivity to citation inequality, H_2 is not a good global indicator of high-citation impact when small research units are involved.

What alternatives are there to take into account citation inequality in a robust way to extreme observations? In principle, a possibility is to use a percentile rank indicator such as R_3 . However, to our surprise, the correlation coefficient of R_3 with MCR and H_0 is 0.934 and 0.979, respectively. Perhaps other more radical alternatives should be explored in future research.

III.3. Top Countries According To H_1

As we saw in Section III.2, the world rankings according to H_0 , MCR, R_1 , and R_2 seem to be rather similar. Therefore, it is natural to focus on the ranking according to H_1 . Detailed information for every field and every country can be found in columns 5 and 6 in Table C in the Appendix. To construct a summary of these massive results, we grade all countries as follows: an A means that the country contributes to the world H_1 level above its publication share, while a B means that its contribution is between 0 and 20% below its publication share. Contributing above what is expected is indeed an excellent result. However, judging from the few countries capable of such performance, the B grade should be considered a relatively good one.⁵ Top countries getting at least some good grades are listed in Table 2. According to H_1 , and in agreement with previous findings in the literature, the world can be partitioned into the following groups. Firstly, the U.S. and Switzerland appear to belong to a different league. Secondly, the UK, Denmark, Sweden and the Netherlands form, say, the first

⁵ Six or fewer countries receive an A grade in twelve fields, and from eight to thirteen countries in the remaining ten fields.

division. Thirdly, from Austria to Canada nine countries form the second division, while from Italy to Japan nine other countries form the third division. The rest do not ever get a single good grade in 22 opportunities.

Table 2 around here

As indicated in the Introduction, a number of recent contributions have put to rest the so-called European Paradox and have provided ample evidence about a European Drama: the almost complete dominance of the U.S. over the EU in the basic and applied research at all aggregation levels. Consequently, we find interesting to study the possible causes within the EU with information for individual member countries. For that purpose, we have introduced two more grades in the results according to H_j : a C means that the country contributes to the world level between 20% and 40% below its publication share, and a D means that the country does worse than that. As we know, the U.S. gets an A in every field. Grades for the 15 countries in the EU appear in Table E in the Appendix, while a summary of results is in Table 3.

Table 3 around here

As it is well known in the literature, there is a lot of heterogeneity within the EU. For our purpose, it is useful to distinguish between four groups: *I*-the UK; *II*-Six Small Relatively Successful Countries (Austria, Belgium, Denmark, Finland, Netherlands, and Sweden); *III*-Four Large Continental Countries (Germany, France, Italy, and Spain), and *IV*-Four Remaining Countries (Greece, Portugal, Ireland, and Luxembourg). Judging from the distribution of good (A, B) and bad (C, D) grades in Table 3, we can conclude that both the UK and the Six Small Countries exhibit a reasonably good citation impact performance. Therefore, the cause of the European Drama is the relatively poor performance of the Four Large Continental Countries. As a matter of fact, it is possible to isolate the special poor performance of Italy and Spain (together with the remaining Latin countries, Greece and Portugal), since Germany and France that do somewhat better.⁶

⁶ Interestingly enough, this is exactly the same conclusion reached in Drèze and Estevan (2007) in a detailed analysis of the U.S./EU academic gap in Economics.

III.4. The All-sciences Case

Naturally, quite apart from the interest in separate rankings by field, it is important to know how countries fare in the all-sciences case. For this paper, we have followed a normalization procedure that takes into account the 219 sub-fields identified with the Web of Science categories distinguished by Thomson Scientific. Approximately 40% of all articles are assigned, via the journals where they have been published, to two or more –up to a maximum of six– sub-fields. We handle this difficulty by a fractional approach according to which each publication is fractioned into as many equal pieces as necessary, with each piece assigned to a corresponding sub-field. Differences in citation practices across sub-fields are taken into account normalizing each fractional article by the corresponding fractional sub-field mean. Table 4 presents the ranking results according to H_0 and H_1 .

Table 4 around here

This information deserves the following four comments. Firstly, differences between the two rankings, particularly in the top positions, are minor. For example, Belgium and Sweden, Canada and Finland, Norway and Germany interchange their positions. Secondly, from a cardinal point of view differences from Luxembourg to the bottom are important. For the eleven countries placed from Israel to Japan average differences are about 20%, while for the eight countries from the UK to Ireland differences are around 10%. However, for the top four countries differences are well below 10%. Thirdly, when we compare the H_1 rankings in Tables 2 and 5 we observe some differences. Perhaps the more important is the relative improvement shown by the Netherlands, Belgium, France, Hungary and above all, Canada, as well as the relative decline of the UK, Austria, Singapore, and Luxembourg. Fourthly, a possible grouping into equivalent classes would be: Switzerland, U.S., Denmark, and Netherlands on top, from the UK to Italy in a second class, from Singapore to Greece in a third class, plus the remaining countries at the bottom.

III.5. Major Extensions

There are different ways of improving, completing, and extending the work presented in this paper. Nevertheless, in this final Sub-section we will comment on what we see as two major extensions.

Firstly, we must address the international cooperation issue. As explained in Section II.4, in this paper we have followed a multiplicative approach according to which every internationally co-authored publication is wholly credited to all participating countries. We should now check in what measure articles in the original dataset and, what is more important, in the world top 10%, are internationally co-authored. The answer is in Table 5. In the world top 10%, besides the U.S., internationally co-authored articles represent less than 50% only in five countries: China, India, Iran, Japan, and South Korea. On the other hand, in the six small European countries we treated separately in Table 3, as well as in comparable successful small countries such as Norway and Switzerland, international articles represent more than 60% of the total. In contrast, this percentage decreases for the four large European countries, Canada and, above all, the UK. In all top countries in Table 4, the cooperation with the U.S. varies, approximately, from 25% to 40%. Therefore, as Aksness *et al.* (2012) recommend, switching to a fractional approach is a very important step that we should take in further research.

Table 5 around here

Secondly, it has been thought for long that two countries with the same citation impact – independently of the indicator used to assess impact– can be considered to have the same merit only if they also have the same size. Otherwise, the intuition is that it is more likely for a small country to reach a certain citation impact. These ideas, that have been recently implemented by Crespo *et al.* (2012), need to be applied in a world in which a giant like the U.S. and a relatively large country like the UK compete at the top with a set of relatively small countries.

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Table 1. First Five Countries According to H_2 versus Ranking Occupied According to H_0

Biology & Biochemistry				Clinical Medicine				Immunology				Microbiology			
		(1)	(2)		(1)	(2)		(1)	(2)		(1)	(2)		(1)	(2)
1	Ireland	13.93	16	Denmark	1.62	2	Japan	1.55	13	Switzerland	2.13	1			
2	Switzerland	2.84	2	Norway	1.58	11	USA	1.33	2	USA	1.41	2			
3	Singapore	1.68	15	Finland	1.56	7	Switzerland	1.30	1	Denmark	1.33	10			
4	USA	1.24	1	Belgium	1.46	4	Israel	1.07	22	Austria	1.16	5			
5	Germany	1.15	8	Canada	1.40	5	Germany	0.96	4	Belgium	1.12	8			
Molecular Biology & Genetics				Neuroscience & Behavioral				Phar. & Toxicology				Psychiatry & Psychology			
		(1)	(2)		(1)	(2)		(1)	(2)		(1)	(2)		(1)	(2)
1	Ireland	2.75	4	Austria	2.06	8	Switzerland	2.44	2	Argentina	6.42	20			
2	Denmark	1.68	9	USA	1.26	2	UK	1.64	4	Italy	1.19	2			
3	Sweden	1.40	15	Sweden	1.21	13	Sweden	1.51	6	USA	1.18	6			
4	USA	1.27	3	UK	1.16	1	Singapore	1.44	18	Canada	1.14	8			
5	Switzerland	0.97	2	Norway	1.07	6	Ireland	1.36	22	New Zealand	1.05	12			
Agricultural Sciences				Engineering				Environment & Ecology				Geoscience			
		(1)	(2)		(1)	(2)		(1)	(2)		(1)	(2)		(1)	(2)
1	Finland	3.42	2	Norway	2.23	9	France	3.49	14	Netherlands	3.81	8			
2	Sweden	2.76	8	Switzerland	1.63	1	Sweden	1.61	5	UK	1.60	10			
3	Netherlands	1.70	4	Denmark	1.47	2	New Zealand	1.38	16	France	1.43	14			
4	Singapore	1.56	3	USA	1.36	8	Belgium	1.29	9	Germany	1.43	5			
5	Norway	1.54	7	Finland	1.28	10	Switzerland	1.18	2	SAS	1.32	45			
Materials Science				Multidisciplinary				Plant & Animal Science							
		(1)	(2)		(1)	(2)		(1)	(2)		(1)	(2)			
1	Austria	4.71	20	USA	1.63	2	Switzerland	2.04	3						
2	Netherlands	2.65	2	Italy	0.91	4	Singapore	1.56	24						
3	USA	1.95	4	Japan	0.82	17	UK	1.48	2						
4	Sweden	1.66	19	Sweden	0.82	3	USA	1.29	9						
5	Switzerland	1.22	1	Ireland	0.81	11	Belgium	1.19	11						
Chemistry				Computer Science				Mathematics				Physics			
		(1)	(2)		(1)	(2)		(1)	(2)		(1)	(2)		(1)	(2)
1	Netherlands	12.14	4	Sweden	11.99	7	Australia	10.04	14	Finland	6.07	15			
2	Canada	2.41	8	Japan	3.44	41	USA	1.72	4	Sweden	2.91	14			
3	France	1.14	15	USA	1.52	2	Sweden	0.94	10	Switzerland	2.54	2			
4	UK	1.03	9	Spain	1.06	31	UK	0.83	7	Canada	2.51	9			
5	USA	1.01	1	South Africa	0.87	38	Israel	0.74	13	Spain	1.87	13			
Space Science				Economics & Business				Social Sciences, General							
		(1)	(2)		(1)	(2)		(1)	(2)		(1)	(2)			
1	Hungary	5.46	2				Switzerland	1.93	2	Greece	3.94	15			
2	Canada	4.12	5				USA	1.33	1	Denmark	2.81	1			
3	AM	1.35	9				Mexico	1.10	29	Italy	2.39	2			
4	UK	1.29	8				AM	0.86	22	Norway	2.01	8			
5	Portugal	1.24	15				Singapore	0.74	11	Spain	1.70	14			

Table 2. Top Countries According to H_1 : Good Marks Across the 22 Fields

		<i>A</i>	<i>B</i>
1	US	22	0
2	SWITZERLAND	20	2
3	UK	12	8
4	DENMARK	12	5
5	SWEDEN	11	5
6	NETHERLANDS	10	8
7	AUSTRIA	7	3
8	NORWAY	7	3
9	FINLAND	6	3
10	GERMANY	5	10
11	ISRAEL	5	7
12	BELGIUM	5	5
13	SINGAPORE	5	1
14	IRELAND	4	4
15	CANADA	3	14
16	ITALY	2	6
17	AUSTRALIA	2	5
18	LUXEMBOURG	2	0
19	FRANCE	1	10
20	NEW ZEELAND	1	5
21	SPAIN	1	2
22	PORTUGAL	1	2
23	GREECE	1	0
24	JAPAN	1	0

A = Above what is expected from the country's publication share

B = 0%- 20% below what is expected

Table 3. Ranking In the EU According to H₁. Summary of Marks In All Sciences

COUNTRIES	A	B	A + B	C	D	C + D
I. United Kingdom	12	8	20	2	0	2
II. Six Small Countries*	51	31	82	30	20	50
<hr/>						
Germany, France	6	20	26	16	2	18
Italy, Spain	3	8	11	12	21	33
III. Four Large Cont. Countries	9	28	37	28	23	51
IV. Remaining Countries						
Greece, Portugal	2	2	4	11	29	40
Ireland	5	4	9	11	3	14
Luxembourg	2	1	3	0	19	19

A = Above what is expected from the country's publication share

B = 0%- 20% below what is expected

C = 20%- 40% below what is expected

D = More than 40% below what is expected

* Austria, Belgium, Denmark, Finland, Netherlands, and Sweden

Table 4. Normalization Results for the All-sciences Case According to H_0 and H_1

	H_0		H_1
SWITZERLAND	1.46	SWITZERLAND	1.44
USA	1.36	USA	1.29
DENMARK	1.34	DENMARK	1.22
NETHERLANDS	1.30	NETHERLANDS	1.20
UK	1.16	UK	1.03
BELGIUM	1.14	SWEDEN	1.02
SWEDEN	1.13	BELGIUM	1.00
CANADA	1.11	FINLAND	0.99
FINLAND	1.08	CANADA	0.99
NORWAY	1.07	GERMANY	0.91
GERMANY	1.06	NORWAY	0.91
AUSTRALIA	1.01	IRELAND	0.88
AUSTRIA	1.00	ISRAEL	0.88
ISRAEL	0.99	AUSTRIA	0.87
IRELAND	0.98	FRANCE	0.84
FRANCE	0.98	AUSTRALIA	0.83
SINGAPORE	0.93	ITALY	0.80
ITALY	0.93	SINGAPORE	0.76
NEW ZEALAND	0.91	NEW ZEALAND	0.71
LUXEMBOURG	0.89	SPAIN	0.66
PORTUGAL	0.85	PORTUGAL	0.61
SPAIN	0.84	HUNGARY	0.60
JAPAN	0.72	JAPAN	0.58
SOUTH KOREA	0.70	LUXEMBOURG	0.57
OC	0.68	SOUTH KOREA	0.56
GREECE	0.68	CHINA	0.52
HUNGARY	0.66	GREECE	0.50
CHINA	0.65	CZECH REPUBLIC	0.48
TAIWAN	0.64	TAIWAN	0.47
CZECH REPUBLIC	0.64	POLAND	0.47
AM	0.58	AM	0.45
SOUTH AFRICA	0.57	SOUTH AFRICA	0.43
RAS	0.56	ARGENTINA	0.39
AFSB	0.52	BRAZIL	0.39
IRAN	0.52	RAS	0.38
ARGENTINA	0.51	EU	0.37
POLAND	0.51	AFSB	0.36
BRAZIL	0.50	MEXICO	0.35
EU	0.47	SAS	0.34
MEXICO	0.47	IRAN	0.31
TURKEY	0.41	RUSSIA	0.29
INDIA	0.37	TURKEY	0.29
SAS	0.36	INDIA	0.28

RUSSIA	0.33	OC	0.28
ISLAM	0.29	UKRAINE	0.19
UKRAINE	0.26	ISLAM	0.18

Table 5. Internationally Co-authored Articles With and Without the U.S. In Every Country In the Geographically Extended Count and In the Top 10% Most Highly Cited Articles

Countries	Percentage of International Articles Co-authored			Number of Top 10% Articles	Percentage of International Articles Co-authored		
	With U.S. (1)	Without (2)	Total 1 + 2 (3)		With U.S. (5)	Without (6)	Total 1 + 2 (7)
ARGENTINA	12.6	25.1	37.7	1,328	42.3	31.3	73.6
AUSTRALIA	12.3	24.2	36.5	12,570	27.7	26.3	54.0
AUSTRIA	11.7	36.2	47.9	4,855	22.2	43.1	65.3
BELGIUM	11.7	40.1	51.8	7,378	24.7	44.5	69.2
BRAZIL	12.6	21.0	33.6	2,959	40.1	28.8	68.9
CANADA	19.8	19.2	39.0	23,527	36.6	18.4	55.1
CHINA	8.5	15.5	24.0	8,983	22.9	20.6	43.5
CZECH REPUBLIC	9.5	37.2	46.7	1,446	28.1	50.7	78.8
DENMARK	14.0	36.0	50.0	6,772	24.4	38.8	63.2
FINLAND	11.7	30.6	42.3	5,488	25.4	36.8	62.2
FRANCE	9.9	30.7	40.6	30,277	22.7	35.1	57.8
GERMANY	11.5	27.8	39.3	46,690	23.7	31.1	54.7
GREECE	10.7	27.4	38.1	1,805	28.3	38.7	67.0
HUNGARY	14.8	36.5	51.3	1,674	39.2	44.3	83.5
INDIA	6.5	11.4	17.9	2,962	24.3	22.5	46.8
IRAN	6.3	19.8	26.1	355	9.3	18.0	27.3
IRELAND	10.3	36.8	47.1	1,601	24.5	41.6	66.1
ISRAEL	21.5	19.1	40.6	5,696	38.0	23.3	61.4
ITALY	11.4	25.6	37.0	20,042	26.7	33.1	59.8
JAPAN	7.7	11.2	18.9	36,017	20.1	12.9	33.0
LUXEMBOURG	7.5	66.1	73.6	62	9.7	83.9	93.5
MEXICO	18.9	24.9	43.8	1,300	50.5	28.2	78.7
NETHERLANDS	12.8	31.6	44.4	16,625	24.0	34.1	58.1
NEW ZEALAND	13.9	28.5	42.4	1,948	29.5	33.1	62.5
NORWAY	12.7	33.7	46.4	3,095	25.9	41.3	67.3
POLAND	10.3	30.4	40.7	2,858	38.9	41.7	80.6
PORTUGAL	10.0	40.4	50.4	1,463	27.5	50.0	77.6
RUSSIA	7.8	24.2	32.0	4,412	38.7	50.2	89.0
SINGAPORE	10.9	24.7	35.6	1,375	25.7	26.5	52.2
SOUTH AFRICA	12.0	26.9	38.9	1,100	36.4	41.1	77.5
SOUTH KOREA	14.1	10.9	25.0	5,252	31.0	12.0	43.0
SPAIN	9.0	26.1	35.1	11,541	23.3	33.8	57.0
SWEDEN	12.3	33.1	45.4	11,683	23.7	37.7	61.4

SWITZERLAND	16.7	37.9	54.6	13,726	26.4	40.0	66.4
TAIWAN	10.8	7.8	18.6	2,974	26.4	11.2	37.6
TURKEY	7.9	11.6	19.5	1,118	27.1	23.8	50.9
UK	10.6	26.3	36.9	51,094	21.9	28.9	50.9
UKRAINE	7.0	34.4	41.4	476	33.8	58.8	92.6
USA	-	23.4	23.4	222,562	28.7	0.0	28.7
ZAFSB	15.3	45.7	61.0	1,113	45.9	50.7	96.6
ZAM	20.8	34.8	55.6	2,004	55.8	31.5	87.3
ZANTARCTICA	50.0	50.0	100.0				
ZEU	8.5	35.5	44.0	2,760	29.9	55.7	85.5
ZISLAM	8.8	28.6	37.4	1,069	36.5	46.8	83.3
ZOC	17.4	59.6	77.0	73	42.5	47.9	90.4
ZRAS	15.5	44.7	60.2	969	38.8	50.7	89.5
ZSAS	9.0	35.1	44.1	263	41.4	53.2	94.7
TOTAL GENERAL	14.5	18.0	32.5	585,340	26.9	18.6	45.5

APPENDIX

Table A. Number of Articles and Mean Citation Rate of the Original Dataset and the Geographically Extended Count

		Original Dataset			Geographically Extended Count		
		Number of Articles (1)	% (2)	MCR (3)	Number of Articles (4)	% (5)	MCR (6)
A.	LIFE SCIENCES	1,806,398	40.4		2,156,080	39.6	
(1)	Biology & Biochemistry	275,568	6.2	12.5	338,858	6.2	13.1
(2)	Clinical Medicine	947,261	21.2	9.7	1,102,367	20.2	11.1
(3)	Immunology	60,875	1.4	16.0	78,715	1.4	16.8
(4)	Microbiology	73,039	1.6	11.4	91,874	1.7	12.0
(5)	Molecular Biology & Genetics	122,233	2.7	20.4	159,038	2.9	22.0
(6)	Neuroscience & Behav. Science	140,686	3.1	13.7	171,280	3.1	14.5
(7)	Pharmacology & Toxicology	76,728	1.7	8.0	89,933	1.7	8.3
(8)	Psychiatry & Psychology	110,008	2.5	7.0	124,015	2.3	7.4
B.	PHYSICAL SCIENCES	1,282,919	28.7		1,644,936	30.2	
(9)	Chemistry	550,147	12.3	7.6	651,956	12.0	7.9
(10)	Computer Science	98,727	2.2	3.0	117,843	2.2	3.2
(11)	Mathematics	117,496	2.6	2.4	149,174	2.7	2.6
(12)	Physics	456,144	10.2	6.9	626,304	11.5	7.8
(13)	Space Science	60,405	1.4	11.0	99,659	1.8	12.8
C.	OTHER NATURAL SCIENCES	1,150,428	25.7		1,390,734	25.5	
(14)	Agricultural Sciences	82,837	1.9	4.9	94,141	1.7	5.1
(15)	Engineering	356,269	8.0	3.2	421,332	7.7	3.4
(16)	Environment & Ecology	109,826	2.5	7.1	134,942	2.5	7.6
(17)	Geoscience	120,059	2.7	6.7	162,952	3.0	7.5
(18)	Materials Science	199,364	4.5	4.5	236,156	4.3	4.7
(19)	Multidisciplinary	20,672	0.5	3.2	23,563	0.4	3.3
(20)	Plant & Animal Science	261,401	5.8	5.1	317,648	5.8	5.5
D.	SOCIAL SCIENCES	232,587	5.2		258,559	4.7	
(21)	Economics & Business	63,380	1.4	3.9	75,687	1.4	4.1
(22)	Social Sciences, General	169,207	3.8	3.3	182,872	3.4	3.5
ALL SCIENCES		4,472,332	100.0		5,450,309	100.0	
Average Values		203,288		11.1	247,741		12.1
Standard Deviation		214,385		4.7	254,804		5.1

Table B. Number of Articles, and Distribution Over Grand-fields In Every Country and Geographical Area

Countries	Number of		Percentage of Articles In:				Total
	Articles	%	Life	Ph.	Other	Social	
	(1)	(2)	Scs.	Scs.	Nat. Scs.	Scs.	(7)
ARGENTINA	25,939	0.5	34.7	32.9	31.0	1.4	100.0
AUSTRALIA	126,072	2.3	40.7	19.9	31.8	7.6	100.0
AUSTRIA	43,009	0.8	48.6	27.6	21.2	2.6	100.0
BELGIUM	60,038	1.1	44.5	27.8	24.3	3.4	100.0
BRAZIL	66,556	1.2	34.2	33.6	30.1	2.1	100.0
CANADA	195,938	3.6	42.7	20.7	29.8	6.9	100.0
CHINA	197,462	3.6	15.4	50.0	32.8	1.8	100.0
CZECH REPUBLIC	26,542	0.5	25.2	42.3	29.0	3.5	100.0
DENMARK	45,908	0.8	46.7	23.5	26.2	3.5	100.0
FINLAND	43,769	0.8	48.0	22.2	25.7	4.1	100.0
FRANCE	282,729	5.2	39.2	35.6	23.4	1.8	100.0
GERMANY	390,873	7.2	41.2	34.7	22.0	2.0	100.0
GREECE	30,917	0.6	35.4	31.4	30.5	2.7	100.0
HUNGARY	24,398	0.4	31.9	43.0	23.6	1.5	100.0
INDIA	107,025	2.0	20.2	40.7	37.8	1.3	100.0
IRAN	9,717	0.2	19.4	48.2	31.6	0.9	100.0
IRELAND	16,005	0.3	42.2	23.3	29.0	5.6	100.0
ISRAEL	55,837	1.0	43.2	31.7	19.5	5.6	100.0
ITALY	190,078	3.5	43.7	33.7	21.1	1.5	100.0
JAPAN	431,828	7.9	41.2	34.2	23.9	0.6	100.0
LUXEMBOURG	584	0.0	57.2	11.3	25.2	6.3	100.0
MEXICO	29,858	0.5	28.4	34.6	34.0	3.0	100.0
NETHERLANDS	111,959	2.1	48.5	23.7	22.1	5.7	100.0
NEW ZEALAND	25,437	0.5	34.8	15.5	42.1	7.6	100.0
NORWAY	29,511	0.5	43.6	16.9	33.3	6.2	100.0
POLAND	61,172	1.1	22.0	51.8	25.5	0.6	100.0
PORTUGAL	20,173	0.4	25.5	37.2	35.4	1.9	100.0
RUSSIA	157,349	2.9	12.8	58.3	27.6	1.3	100.0
SINGAPORE	22,834	0.4	22.4	33.6	39.2	4.8	100.0
SOUTH AFRICA	21,994	0.4	31.9	19.0	42.8	6.3	100.0
SOUTH KOREA	89,445	1.6	27.0	41.3	30.1	1.6	100.0

SPAIN	135,317	2.5	36.7	35.1	26.1	2.0	100.0
SWEDEN	89,902	1.6	50.1	22.3	23.5	4.2	100.0
SWITZERLAND	80,669	1.5	45.3	30.9	21.4	2.3	100.0
TAIWAN	62,928	1.2	29.0	34.1	34.6	2.3	100.0
TURKEY	40,018	0.7	49.1	21.0	28.0	2.0	100.0
UK	397,488	7.3	44.6	23.6	23.5	8.3	100.0
UKRAINE	24,631	0.5	7.3	58.5	33.8	0.4	100.0
USA	1,463,587	26.9	46.8	22.0	22.4	8.8	100.0
1. AM	34,231	0.6	35.6	28.3	33.4	2.7	100.0
2. AS	22,789	0.4	33.2	21.4	41.0	4.4	100.0
3. OC	1,429	0.0	30.0	5.9	58.6	5.5	100.0
4. ANTARCTICA	2	0.0	50.0	0.0	50.0	0.0	100.0
5. EU	74,445	1.4	22.5	45.1	29.5	3.0	100.0
6. SAS	7,945	0.1	9.9	67.5	21.5	1.1	100.0
7. ISLAM	54,059	1.0	30.4	32.5	35.3	1.9	100.0
8. AF	19,913	0.4	46.6	7.3	38.5	7.6	100.0
ALL	5,450,309	100.0	39.6	30.2	25.5	4.7	100.0

1. **AM** = Central America, and all of South America except Argentina, and Brazil

2. **AS** = Asia, except China, India, Japan, Singapore, South Korea, and Taiwan

3. **OC** = Oceania except Australia

5. **EU** = Remaining European countries except Israel, Norway, Switzerland, Czech Republic, Hungary, Poland, Russia, Turkey, Ukraine, and the following:

6. **SAS** = Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Republic of Georgia, Tajikistan, Turkmenistan, and Uzbekistan

7. **ISLAM** = Remaining Islamic countries except Iran

8. **AF** = Remaining African countries except South Africa and New Zealand

Table C. 1. All Indicators: Biology & Biochemistry

	MCR	Rank	H ₁	Rank	H ₂	Rank	H ₃	Rank	R ₁	Rank	R ₂	Rank	R ₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.468	33	0.242	34	0.111	40	0.029	41	0.651	32	1.135	33	0.201	35
AUSTRALIA	1.004	14	0.955	14	0.712	14	0.558	11	1.039	11	1.611	13	0.905	14
AUSTRIA	0.964	15	0.874	17	0.661	16	0.356	15	1.016	14	1.579	15	0.872	15
BELGIUM	1.030	13	1.047	10	0.813	7	0.356	16	1.034	12	1.631	12	1.070	6
BRAZIL	0.462	35	0.177	40	0.089	42	0.024	42	0.649	33	1.137	32	0.157	41
CANADA	1.100	5	1.128	5	0.801	8	0.364	14	1.106	4	1.711	4	1.107	4
CHINA	0.463	34	0.238	35	0.174	33	0.124	24	0.608	37	1.135	34	0.220	33
CZECH REPUBLIC	0.530	30	0.311	30	0.186	32	0.061	33	0.699	30	1.186	31	0.288	31
DENMARK	1.064	9	1.051	9	0.686	15	0.278	18	1.105	5	1.682	5	0.998	9
FINLAND	1.054	11	0.955	13	0.613	18	0.215	19	1.117	3	1.678	7	0.940	12
FRANCE	0.941	16	0.858	18	0.715	13	1.026	7	0.974	15	1.544	16	0.849	17
GERMANY	1.084	6	1.068	8	0.893	6	1.150	5	1.072	9	1.668	9	1.043	8
GREECE	0.621	27	0.466	27	0.277	27	0.082	29	0.774	28	1.266	28	0.430	27
HUNGARY	0.684	25	0.555	24	0.328	25	0.117	25	0.814	24	1.324	25	0.487	25
INDIA	0.383	42	0.124	44	0.072	43	0.023	43	0.571	39	1.053	44	0.114	44
IRAN	0.321	45	0.044	46	0.025	46	0.000	46	0.520	44	0.983	46	0.039	46
IRELAND	1.120	4	0.927	16	1.809	1	13.934	1	0.891	22	1.489	19	0.837	18
ISRAEL	1.031	12	1.095	6	0.738	11	0.348	17	1.053	10	1.643	11	1.045	7
ITALY	0.775	22	0.609	22	0.409	24	0.157	22	0.892	21	1.413	22	0.590	22
JAPAN	0.845	20	0.750	19	0.596	19	0.379	13	0.914	19	1.456	20	0.754	19
LUXEMBOURG	0.922	17	1.337	3	0.437	21	0.056	35	0.973	16	1.680	6	0.983	10
MEXICO	0.456	36	0.226	37	0.122	37	0.053	37	0.630	35	1.132	35	0.184	38
NETHERLANDS	1.077	7	1.086	7	0.795	9	0.449	12	1.089	7	1.677	8	1.074	5
NEW ZEALAND	0.892	19	0.735	20	0.635	17	0.560	10	0.957	18	1.499	18	0.732	21
NORWAY	0.913	18	0.731	21	0.716	12	0.577	9	0.968	17	1.500	17	0.747	20
POLAND	0.472	32	0.237	36	0.143	35	0.062	32	0.649	34	1.128	36	0.209	34
PORTUGAL	0.757	23	0.529	25	0.436	22	0.193	21	0.883	23	1.387	24	0.560	24
RUSSIA	0.407	40	0.255	32	0.204	29	0.136	23	0.524	42	1.096	39	0.241	32
SINGAPORE	1.075	8	0.952	15	1.042	5	1.683	3	1.033	13	1.608	14	0.909	13
SOUTH AFRICA	0.610	28	0.328	29	0.216	28	0.072	30	0.776	27	1.270	27	0.333	28
SOUTH KOREA	0.664	26	0.485	26	0.296	26	0.089	28	0.810	25	1.307	26	0.471	26
SPAIN	0.781	21	0.599	23	0.414	23	0.197	20	0.904	20	1.413	21	0.579	23
SWEDEN	1.055	10	0.989	11	0.766	10	0.926	8	1.085	8	1.655	10	0.960	11
SWITZERLAND	1.355	1	1.455	2	1.496	2	2.841	2	1.189	1	1.853	2	1.488	2
TAIWAN	0.608	29	0.328	28	0.174	34	0.051	38	0.803	26	1.260	29	0.297	29
TURKEY	0.445	37	0.245	33	0.131	36	0.055	36	0.614	36	1.108	38	0.188	37
UK	1.153	3	1.219	4	1.058	4	1.115	6	1.090	6	1.717	3	1.227	3
UKRAINE	0.409	39	0.219	38	0.055	45	0.006	45	0.564	40	1.115	37	0.154	43
USA	1.309	2	1.515	1	1.292	3	1.238	4	1.179	2	1.855	1	1.546	1
1. AFSB	0.393	41	0.195	39	0.101	41	0.031	40	0.539	41	1.083	40	0.165	40
2. AM	0.528	31	0.282	31	0.194	31	0.060	34	0.679	31	1.194	30	0.295	30
3. ANTARCTICA	0.000	47	0.000	47	0.000	47	0.000	47	0.000	47	0.000	47	0.000	47
4. EU	0.370	43	0.168	42	0.116	39	0.067	31	0.515	45	1.058	42	0.155	42
5. ISLAM	0.346	44	0.145	43	0.071	44	0.020	44	0.520	43	1.058	42	0.114	45
6. OC	0.742	24	0.986	12	0.506	20	0.097	26	0.772	29	1.019	45	0.870	16
7. RAS	0.413	38	0.175	41	0.119	38	0.039	39	0.589	38	1.407	23	0.169	39
8. SAS	0.298	46	0.114	45	0.202	30	0.095	27	0.401	46	1.080	41	0.201	36

Table C. 2. All Indicators: Clinical Medicine

	MCR	Rank	H ₁	Rank	H ₂	Rank	H ₃	Rank	R ₁	Rank	R ₂	Rank	R ₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.755	27	0.584	27	0.760	20	1.120	11	0.806	36	1.201	32	0.591	27
AUSTRALIA	1.035	11	1.003	13	0.941	12	1.130	9	1.035	11	1.453	13	0.999	13
AUSTRIA	0.916	16	0.862	17	0.695	22	0.486	31	0.991	16	1.401	15	0.846	17
BELGIUM	1.215	5	1.284	4	1.327	2	1.456	4	1.069	8	1.539	7	1.318	3
BRAZIL	0.660	34	0.450	36	0.486	31	0.773	22	0.827	34	1.172	36	0.440	36
CANADA	1.235	4	1.265	5	1.273	5	1.401	5	1.121	6	1.575	4	1.291	6
CHINA	0.764	26	0.636	25	0.538	28	0.574	26	0.893	24	1.283	22	0.611	25
CZECH REPUBLIC	0.815	22	0.708	22	0.761	19	0.649	24	0.859	30	1.281	23	0.726	22
DENMARK	1.275	2	1.318	2	1.279	4	1.615	1	1.160	2	1.609	2	1.297	5
FINLAND	1.258	3	1.231	7	1.257	6	1.556	3	1.158	3	1.596	3	1.246	7
FRANCE	0.888	19	0.899	14	0.875	15	0.927	18	0.864	27	1.333	19	0.911	14
GERMANY	0.893	18	0.892	15	0.771	18	0.700	23	0.920	19	1.363	18	0.881	16
GREECE	0.682	30	0.526	32	0.403	35	0.220	35	0.869	26	1.230	29	0.504	32
HUNGARY	0.870	20	0.731	21	0.814	17	1.007	16	0.920	20	1.302	20	0.731	21
INDIA	0.402	42	0.179	43	0.125	42	0.083	41	0.663	42	1.018	42	0.165	43
IRAN	0.414	41	0.168	44	0.086	44	0.026	45	0.692	41	1.039	41	0.135	44
IRELAND	0.932	15	0.856	18	0.835	16	1.021	15	0.962	18	1.373	17	0.840	18
ISRAEL	0.787	23	0.659	23	0.647	25	0.611	25	0.888	25	1.275	24	0.665	24
ITALY	1.026	13	1.013	12	0.923	14	0.829	21	1.027	12	1.454	12	1.011	12
JAPAN	0.720	29	0.605	26	0.407	34	0.214	36	0.899	22	1.268	25	0.568	28
LUXEMBOURG	0.894	17	0.830	19	0.465	32	0.096	39	1.035	10	1.438	14	0.808	19
MEXICO	0.666	33	0.487	35	0.558	27	1.208	7	0.781	39	1.165	39	0.471	34
NETHERLANDS	1.304	1	1.394	1	1.289	3	1.183	8	1.182	1	1.644	1	1.404	1
NEW ZEALAND	0.973	14	0.867	16	0.929	13	1.101	12	0.982	17	1.392	16	0.901	15
NORWAY	1.159	8	1.038	11	1.108	8	1.576	2	1.123	5	1.529	9	1.075	10
POLAND	0.767	25	0.641	24	0.680	23	0.547	27	0.850	31	1.240	28	0.671	23
PORTUGAL	1.027	12	1.040	10	0.951	11	0.475	32	1.005	15	1.459	11	1.106	8
RUSSIA	0.240	47	0.218	41	0.192	40	0.115	38	0.296	47	0.910	46	0.223	41
SINGAPORE	0.774	24	0.548	31	0.630	26	1.066	13	0.896	23	1.250	26	0.550	30
SOUTH AFRICA	0.744	28	0.564	28	0.670	24	0.836	20	0.827	33	1.221	30	0.592	26
SOUTH KOREA	0.670	32	0.562	29	0.276	39	0.093	40	0.903	21	1.245	27	0.461	35
SPAIN	0.820	21	0.764	20	0.740	21	0.908	19	0.860	28	1.288	21	0.753	20
SWEDEN	1.149	9	1.101	8	1.023	9	1.058	14	1.135	4	1.543	6	1.084	9
SWITZERLAND	1.206	6	1.261	6	1.341	1	1.350	6	1.053	9	1.533	8	1.341	2
TAIWAN	0.635	37	0.419	38	0.323	38	0.344	33	0.860	29	1.193	35	0.388	38
TURKEY	0.358	45	0.128	45	0.075	45	0.035	43	0.645	43	0.977	44	0.112	45
UK	1.040	10	1.050	9	0.952	10	0.932	17	1.024	13	1.460	10	1.047	11
UKRAINE	0.242	46	0.126	46	0.039	46	0.004	46	0.417	46	0.926	45	0.084	46
USA	1.195	7	1.297	3	1.143	7	1.128	10	1.112	7	1.574	5	1.307	4
1. AFSB	0.649	35	0.496	34	0.436	33	0.286	34	0.795	37	1.200	33	0.503	33
2. AM	0.677	31	0.561	30	0.519	29	0.520	28	0.794	38	1.207	31	0.560	29
3. ANTARCTICA	0.451	40	0.000	47	0.000	47	0.000	47	1.011	14	0.756	47	0.000	47
4. EU	0.647	36	0.521	33	0.498	30	0.511	29	0.776	40	1.172	37	0.520	31
5. ISLAM	0.359	44	0.184	42	0.117	43	0.048	42	0.582	44	1.172	37	0.171	42
6. OC	0.544	39	0.306	39	0.136	41	0.026	44	0.816	35	0.986	43	0.251	40
7. RAS	0.633	38	0.444	37	0.325	37	0.497	30	0.843	32	1.161	40	0.390	37
8. SAS	0.394	43	0.253	40	0.378	36	0.188	37	0.440	45	1.198	34	0.350	39

Table C. 3. All Indicators: Immunology

	MCR	Rank	H₁	Rank	H₂	Rank	H₃	Rank	R₁	Rank	R₂	Rank	R₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.555	35	0.289	36	0.107	42	0.028	41	0.728	35	1.224	35	0.224	39
AUSTRALIA	0.995	9	1.013	9	0.890	7	0.816	8	1.003	11	1.624	10	1.008	8
AUSTRIA	0.845	15	0.745	17	0.628	15	0.402	17	0.905	18	1.492	15	0.764	16
BELGIUM	0.964	10	0.922	11	0.563	17	0.249	22	1.036	8	1.629	9	0.831	13
BRAZIL	0.573	34	0.271	39	0.133	40	0.058	36	0.750	32	1.218	36	0.217	40
CANADA	1.054	4	1.041	7	0.890	8	0.729	9	1.061	3	1.696	4	1.063	5
CHINA	0.543	37	0.362	31	0.157	38	0.046	38	0.694	36	1.227	34	0.260	36
CZECH REPUBLIC	0.595	33	0.334	33	0.380	24	0.282	21	0.732	34	1.241	33	0.374	30
DENMARK	0.793	19	0.710	18	0.441	22	0.218	24	0.897	20	1.463	17	0.637	20
FINLAND	0.842	16	0.808	15	0.652	14	0.456	15	0.906	17	1.491	16	0.783	15
FRANCE	1.008	8	1.063	6	0.883	9	0.657	10	1.014	10	1.637	8	1.045	7
GERMANY	1.048	5	1.090	4	1.007	5	0.964	5	1.021	9	1.665	6	1.075	4
GREECE	0.663	29	0.458	26	0.506	20	0.507	13	0.751	31	1.294	29	0.469	26
HUNGARY	0.669	28	0.455	27	0.448	21	0.293	20	0.772	30	1.305	28	0.487	23
INDIA	0.416	43	0.137	44	0.065	43	0.018	42	0.599	41	1.087	44	0.107	44
IRAN	0.299	46	0.000	46	0.000	46	0.000	47	0.464	45	0.977	46	0.000	45
IRELAND	1.106	3	1.174	3	1.078	3	0.828	7	1.056	4	1.738	3	1.296	2
ISRAEL	0.838	17	0.579	22	0.754	12	1.072	4	0.876	22	1.441	21	0.643	19
ITALY	0.963	11	0.966	10	0.906	6	0.828	6	0.962	13	1.573	13	0.976	10
JAPAN	0.931	13	0.875	13	1.058	4	1.550	1	0.900	19	1.508	14	0.942	11
LUXEMBOURG	0.686	27	0.264	40	0.024	44	0.000	46	0.910	16	1.269	31	0.118	43
MEXICO	0.644	31	0.416	28	0.311	28	0.164	29	0.777	29	1.290	30	0.416	28
NETHERLANDS	1.022	7	1.017	8	0.855	10	0.591	11	1.039	6	1.654	7	1.006	9
NEW ZEALAND	0.778	21	0.511	25	0.259	31	0.095	34	0.928	15	1.459	19	0.481	24
NORWAY	0.733	25	0.622	20	0.374	25	0.187	26	0.866	26	1.390	25	0.529	22
POLAND	0.440	42	0.228	43	0.243	32	0.238	23	0.552	42	1.108	43	0.224	38
PORTUGAL	0.759	22	0.571	23	0.559	18	0.339	19	0.835	27	1.387	26	0.682	18
RUSSIA	0.523	39	0.277	37	0.201	35	0.098	33	0.660	40	1.205	40	0.269	35
SINGAPORE	0.687	26	0.358	32	0.196	37	0.043	39	0.875	23	1.398	24	0.361	32
SOUTH AFRICA	0.949	12	0.852	14	0.730	13	0.465	14	0.982	12	1.617	11	0.885	12
SOUTH KOREA	0.596	32	0.383	30	0.233	34	0.105	32	0.744	33	1.246	32	0.343	33
SPAIN	0.805	18	0.670	19	0.567	16	0.438	16	0.872	25	1.454	20	0.694	17
SWEDEN	0.748	23	0.530	24	0.334	26	0.175	27	0.887	21	1.406	23	0.478	25
SWITZERLAND	1.271	1	1.529	1	1.444	1	1.303	3	1.138	1	1.869	1	1.559	1
TAIWAN	0.657	30	0.407	29	0.272	30	0.172	28	0.800	28	1.314	27	0.365	31
TURKEY	0.374	44	0.259	42	0.236	33	0.366	18	0.464	46	1.032	45	0.193	41
UK	1.026	6	1.068	5	0.824	11	0.520	12	1.037	7	1.677	5	1.046	6
UKRAINE	0.502	41	0.911	12	0.519	19	0.150	31	0.512	43	1.154	42	0.816	14
USA	1.177	2	1.271	2	1.205	2	1.334	2	1.109	2	1.784	2	1.290	3
1. AFSB	0.927	14	0.765	16	0.402	23	0.161	30	1.050	5	1.613	12	0.626	21
2. AM	0.529	38	0.274	38	0.145	39	0.047	37	0.693	37	1.215	39	0.253	37
3. ANTARCTICA	0.000	47	0.000	45	0.000	47	0.000	44	0.000	47	0.000	47	0.000	45
4. EU	0.548	36	0.314	34	0.200	36	0.091	35	0.691	38	1.215	37	0.290	34
5. ISLAM	0.516	40	0.263	41	0.121	41	0.028	40	0.687	39	1.215	37	0.193	42
6. OC	0.788	20	0.304	35	0.282	29	0.000	43	0.932	14	1.187	41	0.408	29
7. RAS	0.740	24	0.590	21	0.326	27	0.199	25	0.874	24	1.462	18	0.452	27
8. SAS	0.309	45	0.000	47	0.000	45	0.000	45	0.484	44	1.408	22	0.000	45

Table C. 4. All Indicators: Microbiology

	MCR	Rank	H₁	Rank	H₂	Rank	H₃	Rank	R₁	Rank	R₂	Rank	R₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.535	35	0.263	38	0.154	38	0.061	39	24	0.671	35	1.080	35	0.259
AUSTRALIA	1.000	15	0.897	16	0.634	16	0.494	15	18	1.045	14	1.474	15	0.850
AUSTRIA	1.121	6	1.173	5	1.055	4	1.164	4	8	1.074	10	1.555	9	1.202
BELGIUM	1.107	8	1.094	8	0.990	5	1.116	5	9	1.075	9	1.549	10	1.143
BRAZIL	0.476	40	0.213	42	0.093	43	0.052	41	35	0.617	39	1.031	41	0.169
CANADA	1.014	14	1.040	11	0.729	12	0.505	14	4	1.039	16	1.496	14	0.990
CHINA	0.873	22	0.860	18	0.761	11	0.588	11	29	0.890	25	1.342	23	0.964
CZECH REPUBLIC	0.535	36	0.228	40	0.163	37	0.154	32	26	0.671	36	1.055	38	0.195
DENMARK	1.143	5	1.049	10	1.073	3	1.331	3	10	1.106	7	1.571	6	1.088
FINLAND	1.061	12	0.918	15	0.639	15	0.437	18	15	1.112	6	1.557	8	0.869
FRANCE	1.078	11	1.086	9	0.873	8	0.783	8	11	1.070	12	1.545	12	1.088
GERMANY	1.082	10	1.107	7	0.867	9	0.781	9	7	1.074	11	1.546	11	1.080
GREECE	0.699	30	0.465	28	0.365	28	0.193	30	22	0.812	30	1.207	30	0.546
HUNGARY	0.581	34	0.297	36	0.164	36	0.073	37	19	0.737	34	1.107	34	0.293
INDIA	0.469	41	0.198	44	0.114	41	0.059	40	42	0.611	41	1.004	44	0.176
IRAN	0.466	42	0.223	41	0.020	46	0.000	47	44	0.615	40	1.045	39	0.099
IRELAND	1.173	3	1.445	3	0.793	10	0.402	19	14	1.160	4	1.656	3	1.306
ISRAEL	0.892	20	0.738	20	0.553	18	0.365	23	6	0.965	20	1.386	21	0.735
ITALY	0.747	27	0.610	24	0.427	23	0.295	25	16	0.828	29	1.262	26	0.602
JAPAN	0.759	26	0.541	25	0.388	26	0.320	24	21	0.862	26	1.258	27	0.526
LUXEMBOURG	1.095	9	1.027	12	0.250	32	0.036	42	20	1.172	2	1.628	4	0.456
MEXICO	0.680	32	0.414	31	0.299	29	0.179	31	39	0.805	31	1.191	32	0.420
NETHERLANDS	1.166	4	1.194	4	0.967	6	0.820	7	12	1.137	5	1.626	5	1.220
NEW ZEALAND	0.918	18	0.655	22	0.648	14	0.529	13	30	0.962	22	1.392	20	0.756
NORWAY	0.972	16	0.835	19	0.512	19	0.445	17	5	1.039	15	1.463	16	0.731
POLAND	0.634	33	0.416	30	0.295	30	0.204	29	36	0.745	33	1.160	33	0.410
PORTUGAL	0.795	25	0.319	33	0.420	24	0.658	10	25	0.918	23	1.263	25	0.390
RUSSIA	0.357	44	0.298	34	0.173	35	0.095	35	40	0.417	44	1.008	43	0.258
SINGAPORE	0.925	17	0.679	21	0.605	17	0.378	21	23	0.989	18	1.406	19	0.763
SOUTH AFRICA	0.887	21	0.938	14	0.498	21	0.211	28	38	0.963	21	1.420	17	0.801
SOUTH KOREA	0.495	38	0.209	43	0.118	40	0.062	38	28	0.648	37	1.027	42	0.181
SPAIN	0.811	24	0.629	23	0.454	22	0.394	20	17	0.900	24	1.310	24	0.606
SWEDEN	1.033	13	1.013	13	0.688	13	0.537	12	13	1.066	13	1.511	13	0.949
SWITZERLAND	1.330	1	1.585	1	1.447	1	2.126	1	3	1.193	1	1.728	1	1.566
TAIWAN	0.731	29	0.491	26	0.264	31	0.129	33	31	0.859	27	1.247	28	0.422
TURKEY	0.449	43	0.157	45	0.229	33	0.276	26	34	0.568	43	1.000	45	0.209
UK	1.110	7	1.136	6	0.953	7	0.927	6	2	1.086	8	1.564	7	1.142
UKRAINE	0.167	46	0.082	46	0.100	42	0.000	46	41	0.223	46	0.843	46	0.109
USA	1.285	2	1.529	2	1.340	2	1.413	2	1	1.168	3	1.712	2	1.564
1. AFSB	0.910	19	0.872	17	0.512	20	0.253	27	33	0.975	19	1.415	18	0.811
2. AM	0.689	31	0.364	32	0.365	27	0.457	16	27	0.800	32	1.195	31	0.387
3. ANTARCTICA	0.000	47	0.000	47	0.000	47	0.000	45	44	0.000	47	0.000	47	0.000
4. EU	0.513	37	0.237	39	0.152	39	0.086	36	32	0.643	38	1.071	36	0.250
5. ISLAM	0.482	39	0.274	37	0.196	34	0.119	34	37	0.594	42	1.071	36	0.284
6. OC	0.840	23	0.489	27	0.078	44	0.008	44	44	1.037	17	1.038	40	0.217
7. RAS	0.744	28	0.459	29	0.407	25	0.370	22	43	0.846	28	1.348	22	0.478
8. SAS	0.314	45	0.298	35	0.075	45	0.016	43	44	0.370	45	1.234	29	0.198

Table C. 5. All Indicators: Molecular Biology & Genetics

	MCR	Rank	H₁	Rank	H₂	Rank	H₃	Rank	R₁	Rank	R₂	Rank	R₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.304	43	0.089	44	0.017	44	0.003	42	0.520	41	1.042	43	0.061	44
AUSTRALIA	0.844	17	0.666	20	0.642	18	0.709	14	0.942	18	1.499	18	0.693	20
AUSTRIA	1.188	4	1.398	1	1.285	2	0.937	9	1.072	4	1.773	4	1.509	1
BELGIUM	0.898	16	0.810	16	0.670	14	0.567	17	0.971	17	1.551	16	0.806	16
BRAZIL	0.320	42	0.176	40	0.123	39	0.064	37	0.490	42	1.031	44	0.178	40
CANADA	1.011	11	1.016	11	0.939	10	0.962	6	1.006	13	1.621	12	1.027	10
CHINA	0.562	33	0.323	33	0.359	28	0.352	26	0.733	32	1.243	32	0.369	28
CZECH REPUBLIC	0.600	31	0.285	36	0.317	29	0.296	29	0.814	25	1.267	31	0.280	35
DENMARK	1.068	7	1.043	9	1.176	4	1.684	2	1.017	12	1.623	11	1.093	8
FINLAND	1.065	8	1.104	7	0.909	11	0.847	11	1.058	7	1.681	7	1.039	9
FRANCE	0.961	13	0.930	12	0.715	13	0.555	18	1.021	11	1.609	13	0.880	12
GERMANY	1.041	10	1.034	10	0.862	12	0.807	13	1.057	8	1.672	9	1.021	11
GREECE	0.710	21	0.587	24	0.652	17	0.647	15	0.804	26	1.348	27	0.699	19
HUNGARY	0.641	27	0.466	29	0.444	24	0.484	20	0.785	28	1.296	28	0.471	24
INDIA	0.348	41	0.164	41	0.102	40	0.050	39	0.552	40	1.061	42	0.140	41
IRAN	0.269	44	0.000	47	0.000	46	0.000	45	0.457	44	0.965	46	0.000	45
IRELAND	1.284	1	1.297	4	1.711	1	2.754	1	1.069	5	1.763	5	1.336	2
ISRAEL	1.053	9	1.058	8	0.963	8	0.817	12	1.035	9	1.673	8	1.100	7
ITALY	0.797	19	0.691	18	0.581	21	0.451	21	0.896	20	1.455	20	0.700	18
JAPAN	0.802	18	0.719	17	0.626	19	0.581	16	0.889	21	1.452	21	0.715	17
LUXEMBOURG	0.774	20	0.595	23	0.101	41	0.000	47	0.974	16	1.532	17	0.260	37
MEXICO	0.478	38	0.259	37	0.229	33	0.226	32	0.680	37	1.139	39	0.261	36
NETHERLANDS	1.085	6	1.126	6	0.978	7	0.900	10	1.063	6	1.690	6	1.110	6
NEW ZEALAND	0.680	26	0.491	27	0.215	34	0.081	35	0.876	23	1.407	22	0.372	27
NORWAY	0.926	15	0.835	14	0.665	15	0.400	24	1.005	14	1.575	15	0.844	15
POLAND	0.449	39	0.214	39	0.210	35	0.209	34	0.643	39	1.130	40	0.219	39
PORTUGAL	0.685	25	0.554	25	0.202	36	0.054	38	0.887	22	1.390	23	0.363	29
RUSSIA	0.227	46	0.146	42	0.083	42	0.038	41	0.336	46	1.003	45	0.130	42
SINGAPORE	0.958	14	0.908	13	0.660	16	0.438	23	1.024	10	1.628	10	0.858	14
SOUTH AFRICA	0.621	29	0.628	22	0.379	26	0.314	28	0.740	31	1.283	30	0.452	26
SOUTH KOREA	0.539	35	0.316	35	0.371	27	0.449	22	0.690	36	1.216	36	0.331	30
SPAIN	0.696	23	0.535	26	0.400	25	0.364	25	0.841	24	1.378	24	0.499	23
SWEDEN	0.991	12	0.835	15	0.946	9	1.401	3	1.002	15	1.581	14	0.873	13
SWITZERLAND	1.225	2	1.313	2	1.097	5	0.967	5	1.162	1	1.839	1	1.296	4
TAIWAN	0.579	32	0.411	30	0.162	37	0.041	40	0.799	27	1.284	29	0.331	31
TURKEY	0.701	22	0.643	21	0.552	22	0.486	19	0.780	29	1.351	26	0.615	22
UK	1.171	5	1.236	5	1.032	6	0.952	8	1.121	2	1.792	3	1.220	5
UKRAINE	0.405	40	0.405	31	0.289	30	0.328	27	0.476	43	1.123	41	0.303	34
USA	1.211	3	1.308	3	1.207	3	1.265	4	1.117	3	1.799	2	1.325	3
1. AFSB	0.490	37	0.319	34	0.155	38	0.078	36	0.696	35	1.215	37	0.239	38
2. AM	0.526	36	0.350	32	0.265	32	0.274	31	0.706	34	1.210	38	0.326	33
3. ANTARCTICA	0.000	47	0.000	46	0.000	45	0.000	43	0.000	47	0.000	47	0.000	45
4. EU	0.603	30	0.476	28	0.588	20	0.956	7	0.670	38	1.238	33	0.462	25
5. ISLAM	0.688	24	0.668	19	0.498	23	0.281	30	0.755	30	1.238	33	0.660	21
6. OC	0.624	28	0.000	45	0.000	47	0.000	46	0.935	19	1.363	25	0.000	45
7. RAS	0.539	34	0.251	38	0.276	31	0.219	33	0.712	33	1.470	19	0.328	32
8. SAS	0.242	45	0.120	43	0.045	43	0.000	44	0.360	45	1.232	35	0.105	43

Table C. 6. All Indicators: Neuroscience & Behavior

	MCR	Rank	H₁	Rank	H₂	Rank	H₃	Rank	R₁	Rank	R₂	Rank	R₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.649	30	0.523	22	0.245	28	0.080	30	0.787	31	1.420	28	0.458	0.787
AUSTRALIA	0.888	18	0.642	18	0.530	16	0.530	17	0.986	17	1.659	18	0.614	0.986
AUSTRIA	1.014	8	0.976	8	0.954	5	2.064	1	1.000	14	1.751	12	0.959	1.000
BELGIUM	0.999	9	0.949	9	0.781	7	0.783	10	1.009	13	1.785	9	0.914	1.009
BRAZIL	0.438	41	0.229	38	0.140	35	0.078	32	0.571	42	1.230	41	0.211	0.571
CANADA	1.050	4	1.033	5	0.906	6	0.968	6	1.041	8	1.817	5	1.033	1.041
CHINA	0.695	27	0.436	26	0.272	27	0.139	26	0.852	27	1.461	27	0.392	0.852
CZECH REPUBLIC	0.653	29	0.386	29	0.395	23	0.363	22	0.787	30	1.406	29	0.436	0.787
DENMARK	1.023	6	0.926	10	0.728	11	0.597	14	1.066	6	1.803	7	0.879	1.066
FINLAND	0.918	16	0.690	14	0.500	19	0.386	21	1.010	12	1.707	16	0.687	1.010
FRANCE	0.934	14	0.909	11	0.733	10	0.794	9	0.959	18	1.704	17	0.873	0.959
GERMANY	1.022	7	1.008	7	0.750	9	0.625	13	1.050	7	1.803	6	0.971	1.050
GREECE	0.637	31	0.390	28	0.449	21	0.397	19	0.742	34	1.362	32	0.494	0.742
HUNGARY	0.798	20	0.584	19	0.553	15	0.673	12	0.880	21	1.546	22	0.587	0.880
INDIA	0.290	44	0.107	41	0.064	42	0.051	39	0.412	44	1.095	45	0.096	0.412
IRAN	0.420	42	0.000	46	0.000	46	0.000	44	0.643	38	1.160	44	0.000	0.643
IRELAND	0.924	15	0.672	15	0.599	14	0.583	15	0.988	16	1.708	15	0.698	0.988
ISRAEL	0.973	11	1.054	4	0.727	12	0.484	18	0.994	15	1.752	11	0.990	0.994
ITALY	0.783	21	0.665	16	0.503	18	0.388	20	0.856	25	1.567	20	0.650	0.856
JAPAN	0.734	25	0.531	20	0.399	22	0.312	23	0.853	26	1.489	25	0.512	0.853
LUXEMBOURG	0.913	17	0.448	24	0.164	34	0.000	42	1.071	5	1.801	8	0.580	1.071
MEXICO	0.570	34	0.241	37	0.101	39	0.045	40	0.760	32	1.334	34	0.168	0.760
NETHERLANDS	0.973	13	0.872	12	0.709	13	0.944	8	1.014	11	1.751	13	0.859	1.014
NEW ZEALAND	0.748	22	0.446	25	0.192	30	0.062	35	0.934	19	1.562	21	0.360	0.934
NORWAY	1.028	5	1.018	6	0.990	4	1.068	5	1.018	10	1.757	10	1.030	1.018
POLAND	0.482	36	0.225	39	0.122	37	0.065	33	0.648	37	1.245	39	0.202	0.648
PORTUGAL	0.744	23	0.468	23	0.334	24	0.226	24	0.878	22	1.522	24	0.442	0.878
RUSSIA	0.373	43	0.186	40	0.102	38	0.058	36	0.499	43	1.179	43	0.164	0.499
SINGAPORE	0.741	24	0.526	21	0.275	26	0.136	27	0.874	23	1.529	23	0.487	0.874
SOUTH AFRICA	0.609	33	0.255	36	0.100	40	0.036	41	0.801	28	1.358	33	0.198	0.801
SOUTH KOREA	0.708	26	0.414	27	0.301	25	0.208	25	0.867	24	1.478	26	0.402	0.867
SPAIN	0.817	19	0.662	17	0.528	17	0.582	16	0.901	20	1.579	19	0.620	0.901
SWEDEN	0.992	10	0.840	13	0.773	8	1.209	3	1.034	9	1.744	14	0.816	1.034
SWITZERLAND	1.167	3	1.278	3	1.058	3	0.949	7	1.117	3	1.942	3	1.254	1.117
TAIWAN	0.626	32	0.386	30	0.207	29	0.098	28	0.798	29	1.395	30	0.311	0.798
TURKEY	0.459	39	0.266	33	0.164	33	0.087	29	0.592	41	1.243	40	0.229	0.592
UK	1.197	2	1.385	1	1.202	2	1.163	4	1.108	4	1.958	2	1.393	1.108
UKRAINE	0.150	46	0.092	42	0.096	41	0.053	38	0.205	46	1.011	46	0.120	0.205
USA	1.214	1	1.373	2	1.256	1	1.259	2	1.119	2	1.968	1	1.412	1.119
1. AFSB	0.463	38	0.307	32	0.185	31	0.063	34	0.594	40	1.264	38	0.266	0.594
2. AM	0.654	28	0.376	31	0.493	20	0.766	11	0.759	33	1.381	31	0.416	0.759
3. ANTARCTICA	0.000	47	0.000	43	0.000	44	0.000	45	0.000	47	0.000	47	0.000	0.000
4. EU	0.530	35	0.265	34	0.172	32	0.078	31	0.690	36	1.305	35	0.270	0.690
5. ISLAM	0.448	40	0.256	35	0.130	36	0.058	37	0.598	39	1.305	35	0.201	0.598
6. OC	0.973	12	0.000	44	0.000	45	0.000	47	1.194	1	1.205	42	0.000	1.194
7. RAS	0.481	37	0.000	45	0.000	43	0.000	43	0.701	35	1.841	4	0.039	0.701
8. SAS	0.196	45	0.000	47	0.000	47	0.000	46	0.328	45	1.268	37	0.000	0.328

Table C. 7. All Indicators: Pharmacology & Toxicology

	MCR	Rank	H₁	Rank	H₂	Rank	H₃	Rank	R₁	Rank	R₂	Rank	R₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.641	37	0.253	41	0.155	39	0.113	36	0.834	34	0.842	36	0.223	41
AUSTRALIA	1.016	13	1.051	9	0.684	17	0.452	18	1.046	14	1.059	13	0.995	12
AUSTRIA	1.003	15	0.935	15	0.569	19	0.307	23	1.057	13	1.064	12	0.875	16
BELGIUM	1.120	7	1.126	7	0.953	8	1.019	8	1.095	8	1.108	7	1.116	8
BRAZIL	0.714	33	0.419	34	0.219	35	0.142	33	0.892	29	0.873	33	0.346	36
CANADA	1.141	6	1.264	5	0.974	7	0.883	11	1.095	7	1.119	6	1.231	6
CHINA	0.646	36	0.444	33	0.235	33	0.147	30	0.795	37	0.845	35	0.369	33
CZECH REPUBLIC	0.737	29	0.445	32	0.235	32	0.091	39	0.893	28	0.895	28	0.405	32
DENMARK	1.073	9	1.016	11	0.917	9	0.965	9	1.064	11	1.071	10	1.042	10
FINLAND	1.010	14	0.902	16	0.626	18	0.417	19	1.069	9	1.067	11	0.852	19
FRANCE	0.969	17	0.996	13	0.764	14	0.729	12	0.972	20	1.025	17	0.966	13
GERMANY	0.998	16	1.008	12	0.875	10	0.885	10	0.979	19	1.033	15	1.034	11
GREECE	0.725	31	0.494	31	0.243	31	0.110	37	0.869	33	0.881	31	0.414	31
HUNGARY	0.814	26	0.714	23	0.530	20	0.483	17	0.894	26	0.929	26	0.676	22
INDIA	0.555	42	0.250	42	0.099	44	0.029	43	0.748	42	0.785	41	0.196	42
IRAN	0.590	40	0.157	45	0.122	42	0.122	34	0.793	38	0.790	40	0.139	44
IRELAND	1.040	12	0.754	22	0.839	12	1.362	5	1.060	12	1.053	14	0.868	18
ISRAEL	1.084	8	1.104	8	0.873	11	0.669	14	1.066	10	1.093	9	1.136	7
ITALY	0.963	18	0.893	17	0.739	15	0.722	13	0.994	17	1.012	19	0.910	15
JAPAN	0.815	25	0.656	25	0.458	23	0.374	22	0.918	23	0.933	25	0.619	25
LUXEMBOURG	0.851	22	0.838	21	0.769	13	0.000	47	0.872	32	0.957	22	1.108	9
MEXICO	0.721	32	0.520	29	0.529	21	0.553	15	0.819	36	0.858	34	0.560	27
NETHERLANDS	1.071	10	1.042	10	0.696	16	0.484	16	1.099	6	1.094	8	0.957	14
NEW ZEALAND	1.447	1	1.888	1	1.492	2	1.119	7	1.254	1	1.300	1	1.919	2
NORWAY	0.920	19	0.982	14	0.438	25	0.199	27	1.000	16	1.025	18	0.786	20
POLAND	0.611	39	0.343	37	0.264	30	0.185	28	0.760	41	0.813	38	0.362	34
PORTUGAL	0.861	20	0.495	30	0.375	28	0.411	20	0.983	18	0.969	20	0.450	30
RUSSIA	0.793	27	0.594	27	0.423	26	0.222	25	0.894	27	0.947	24	0.646	24
SINGAPORE	1.043	11	0.866	18	1.018	6	1.437	4	1.001	15	1.028	16	0.870	17
SOUTH AFRICA	0.710	34	0.388	35	0.199	36	0.145	32	0.875	31	0.876	32	0.342	37
SOUTH KOREA	0.755	28	0.529	28	0.309	29	0.155	29	0.891	30	0.908	27	0.501	28
SPAIN	0.851	21	0.710	24	0.466	22	0.403	21	0.941	21	0.965	21	0.675	23
SWEDEN	1.201	5	1.251	6	1.109	5	1.514	3	1.132	4	1.148	5	1.278	5
SWITZERLAND	1.429	2	1.813	2	1.868	1	2.435	1	1.154	2	1.242	2	1.974	1
TAIWAN	0.827	23	0.646	26	0.420	27	0.288	24	0.934	22	0.954	23	0.612	26
TURKEY	0.626	38	0.268	40	0.109	43	0.032	42	0.824	35	0.827	37	0.228	40
UK	1.292	3	1.493	4	1.341	3	1.644	2	1.148	3	1.189	3	1.526	4
UKRAINE	0.676	35	0.838	20	0.192	37	0.021	44	0.781	39	0.889	29	0.462	29
USA	1.262	4	1.504	3	1.277	4	1.224	6	1.124	5	1.187	4	1.551	3
1. AFSB	0.460	45	0.167	44	0.139	41	0.219	26	0.638	45	0.715	46	0.131	45
2. AM	0.727	30	0.329	39	0.174	38	0.093	38	0.916	24	0.887	30	0.298	38
3. ANTARCTICA	0.000	47	0.000	47	0.000	47	0.000	46	0.000	47	0.000	47	0.000	47
4. EU	0.544	43	0.331	38	0.221	34	0.118	35	0.687	44	0.775	42	0.356	35
5. ISLAM	0.496	44	0.127	46	0.078	45	0.083	40	0.701	43	0.775	42	0.112	46
6. OC	0.452	46	0.347	36	0.037	46	0.000	45	0.584	46	0.742	45	0.153	43
7. RAS	0.587	41	0.241	43	0.149	40	0.070	41	0.764	40	0.754	44	0.239	39
8. SAS	0.821	24	0.862	19	0.450	24	0.147	31	0.913	25	0.801	39	0.760	21

Table C. 8. All Indicators: Psychiatry & Psychology

	MCR	Rank	H ₁	Rank	H ₂	Rank	H ₃	Rank	R ₁	Rank	R ₂	Rank	R ₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.885	14	0.751	20	1.817	1	6.422	1	0.639	38	1.054	30	0.853	14
AUSTRALIA	0.903	13	0.759	19	0.604	21	0.513	22	1.005	11	1.250	13	0.724	21
AUSTRIA	0.835	19	0.764	18	0.603	22	0.356	27	0.936	16	1.208	17	0.764	18
BELGIUM	1.050	8	0.941	9	0.729	16	0.594	18	1.120	2	1.356	6	0.874	11
BRAZIL	0.905	12	0.934	10	0.868	11	0.867	8	0.890	20	1.235	14	0.910	10
CANADA	1.062	7	1.040	8	0.977	7	1.137	4	1.067	5	1.335	8	1.023	8
CHINA	0.746	26	0.500	28	0.249	38	0.123	37	0.941	15	1.164	23	0.400	31
CZECH REPUBLIC	0.370	41	0.312	37	0.423	28	0.380	25	0.432	44	0.866	42	0.389	32
DENMARK	1.090	5	1.253	1	1.055	4	0.848	9	1.034	8	1.367	4	1.190	2
FINLAND	1.066	6	1.097	7	0.935	9	0.817	11	1.074	4	1.357	5	1.047	7
FRANCE	0.795	23	0.794	16	0.769	13	0.800	13	0.789	29	1.169	21	0.828	15
GERMANY	0.820	20	0.772	17	0.657	19	0.530	20	0.895	18	1.178	20	0.750	20
GREECE	0.555	33	0.370	34	0.365	31	0.759	14	0.726	32	0.981	37	0.280	37
HUNGARY	1.008	9	1.144	5	0.900	10	0.359	26	0.982	14	1.334	9	1.210	1
INDIA	0.644	29	0.347	36	0.310	34	0.210	32	0.816	28	1.059	29	0.376	34
IRAN	0.593	31	0.294	38	0.060	42	0.009	42	0.822	27	1.063	28	0.127	41
IRELAND	0.782	24	0.632	24	0.604	20	0.741	15	0.835	26	1.149	24	0.585	27
ISRAEL	0.867	16	0.862	14	0.727	17	0.591	19	0.930	17	1.210	16	0.818	16
ITALY	1.150	1	1.172	2	1.090	3	1.193	2	1.108	3	1.405	2	1.166	3
JAPAN	0.535	34	0.385	33	0.301	35	0.242	31	0.675	35	1.005	34	0.365	35
LUXEMBOURG	0.288	44	0.000	46	0.000	46	0.000	44	0.539	41	0.890	41	0.000	44
MEXICO	0.321	43	0.118	42	0.277	36	0.308	29	0.450	43	0.833	43	0.205	40
NETHERLANDS	1.139	2	1.151	4	0.948	8	0.805	12	1.145	1	1.409	1	1.094	6
NEW ZEALAND	1.008	10	0.865	12	0.980	6	1.050	5	1.006	10	1.293	10	0.964	9
NORWAY	0.857	17	0.634	23	0.530	24	0.668	16	0.992	13	1.225	15	0.602	26
POLAND	0.816	21	0.931	11	0.731	15	0.598	17	0.852	24	1.183	18	0.859	13
PORTUGAL	0.802	22	0.536	27	0.661	18	0.900	7	0.861	23	1.166	22	0.630	24
RUSSIA	0.183	46	0.102	43	0.073	41	0.046	39	0.289	46	0.781	46	0.100	42
SINGAPORE	0.531	36	0.148	41	0.055	43	0.010	41	0.787	30	0.997	35	0.086	43
SOUTH AFRICA	0.574	32	0.605	25	0.534	23	0.291	30	0.642	37	1.014	32	0.688	22
SOUTH KOREA	0.867	15	0.830	15	0.412	30	0.168	34	1.004	12	1.250	12	0.640	23
SPAIN	0.611	30	0.468	29	0.441	25	0.477	23	0.717	34	1.038	31	0.477	28
SWEDEN	0.951	11	0.865	13	0.743	14	0.526	21	1.019	9	1.273	11	0.873	12
SWITZERLAND	0.848	18	0.728	21	0.852	12	1.040	6	0.873	21	1.179	19	0.791	17
TAIWAN	0.763	25	0.697	22	0.422	29	0.193	33	0.893	19	1.147	25	0.616	25
TURKEY	0.674	27	0.445	31	0.261	37	0.097	38	0.871	22	1.097	26	0.385	33
UK	1.094	3	1.163	3	1.027	5	0.821	10	1.065	6	1.368	3	1.155	5
UKRAINE	0.212	45	0.000	47	0.000	45	0.000	43	0.339	45	0.796	45	0.000	44
USA	1.093	4	1.139	6	1.126	2	1.184	3	1.049	7	1.350	7	1.156	4
1. AFSB	0.674	28	0.450	30	0.345	33	0.147	35	0.848	25	1.081	27	0.454	30
2. AM	0.501	39	0.431	32	0.427	27	0.344	28	0.603	40	0.963	40	0.458	29
3. ANTARCTICA	0.000	47	0.000	45	0.000	47	0.000	46	0.000	47	0.000	47	0.000	44
4. EU	0.516	38	0.359	35	0.361	32	0.390	24	0.634	39	0.976	38	0.331	36
5. ISLAM	0.527	37	0.259	40	0.211	39	0.131	36	0.722	33	0.976	38	0.272	38
6. OC	0.350	42	0.000	44	0.000	44	0.000	45	0.657	36	0.997	36	0.000	44
7. RAS	0.533	35	0.276	39	0.080	40	0.014	40	0.754	31	0.831	44	0.209	39
8. SAS	0.478	40	0.579	26	0.439	26	0.000	47	0.536	42	1.013	33	0.752	19

Table C. 9. All Indicators: Chemistry

	MCR	Rank	H₁	Rank	H₂	Rank	H₃	Rank	R₁	Rank	R₂	Rank	R₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.641	36	0.376	37	0.164	40	0.029	40	0.839	35	1.363	36	0.312	39
AUSTRALIA	1.035	16	0.939	16	0.742	12	0.303	10	1.053	21	1.686	18	0.932	15
AUSTRIA	1.101	13	1.114	12	0.716	13	0.185	18	1.106	13	1.767	11	1.113	12
BELGIUM	1.106	11	1.072	13	0.685	14	0.228	14	1.127	10	1.782	10	1.041	13
BRAZIL	0.715	30	0.465	31	0.265	32	0.072	29	0.885	31	1.429	30	0.417	31
CANADA	1.195	7	1.222	8	0.905	7	2.408	2	1.153	6	1.829	7	1.196	9
CHINA	0.677	33	0.565	29	0.394	24	0.120	21	0.781	39	1.377	34	0.557	28
CZECH REPUBLIC	0.798	27	0.634	27	0.383	25	0.090	25	0.921	28	1.501	27	0.613	25
DENMARK	1.433	4	1.756	3	1.366	4	0.507	8	1.236	1	2.016	2	1.795	3
FINLAND	1.004	18	0.872	19	0.491	22	0.111	22	1.094	14	1.696	17	0.815	20
FRANCE	1.027	17	0.956	15	0.638	15	1.136	3	1.073	17	1.699	16	0.920	16
GERMANY	1.107	10	1.141	10	0.848	9	0.939	6	1.080	16	1.752	13	1.141	11
GREECE	0.934	22	0.757	23	0.408	23	0.094	24	1.064	19	1.633	20	0.676	24
HUNGARY	0.748	29	0.519	30	0.263	33	0.054	34	0.912	29	1.466	29	0.459	30
INDIA	0.609	40	0.439	32	0.255	34	0.060	32	0.755	40	1.333	40	0.413	32
IRAN	0.794	28	0.669	25	0.316	28	0.056	33	0.923	27	1.520	26	0.592	27
IRELAND	1.169	8	1.298	7	0.803	10	0.188	16	1.145	8	1.824	8	1.257	7
ISRAEL	1.227	6	1.421	6	0.953	5	0.247	13	1.152	7	1.862	6	1.393	6
ITALY	1.065	14	0.990	14	0.634	16	0.345	9	1.112	12	1.739	15	0.943	14
JAPAN	0.967	19	0.896	18	0.614	17	0.194	15	1.020	23	1.640	19	0.879	17
LUXEMBOURG	0.648	35	0.000	47	0.000	47	0.000	47	0.970	26	1.393	32	0.000	46
MEXICO	0.694	31	0.414	33	0.279	30	0.088	26	0.862	32	1.401	31	0.403	33
NETHERLANDS	1.472	2	1.605	4	1.592	2	12.144	1	1.231	2	1.979	4	1.642	4
NEW ZEALAND	0.934	21	0.784	22	0.537	20	0.186	17	1.021	22	1.611	23	0.764	21
NORWAY	0.940	20	0.794	21	0.567	18	0.142	20	1.015	24	1.614	21	0.819	19
POLAND	0.638	37	0.372	39	0.203	36	0.049	36	0.825	36	1.358	37	0.339	36
PORTUGAL	0.893	23	0.632	28	0.305	29	0.061	31	1.053	20	1.614	22	0.552	29
RUSSIA	0.315	45	0.171	43	0.090	43	0.019	44	0.452	45	1.086	46	0.156	43
SINGAPORE	1.106	12	1.117	11	0.799	11	0.272	11	1.089	15	1.762	12	1.144	10
SOUTH AFRICA	0.678	32	0.396	35	0.277	31	0.076	28	0.856	33	1.374	35	0.388	34
SOUTH KOREA	0.818	26	0.749	24	0.548	19	0.185	19	0.891	30	1.493	28	0.749	22
SPAIN	1.048	15	0.919	17	0.505	21	0.110	23	1.135	9	1.747	14	0.848	18
SWEDEN	1.279	5	1.456	5	0.934	6	0.258	12	1.218	5	1.927	5	1.400	5
SWITZERLAND	1.448	3	1.762	2	1.450	3	0.865	7	1.220	4	2.016	3	1.836	2
TAIWAN	0.835	25	0.645	26	0.365	27	0.080	27	0.972	25	1.539	25	0.606	26
TURKEY	0.622	39	0.393	36	0.169	39	0.028	41	0.823	37	1.350	39	0.324	37
UK	1.153	9	1.213	9	0.888	8	1.028	4	1.113	11	1.793	9	1.203	8
UKRAINE	0.377	44	0.239	41	0.126	42	0.023	42	0.514	44	1.140	44	0.220	41
USA	1.494	1	1.840	1	1.601	1	1.013	5	1.227	3	2.032	1	1.935	1
1. AFSB	0.398	43	0.193	42	0.135	41	0.072	30	0.561	43	1.139	45	0.173	42
2. AM	0.667	34	0.399	34	0.236	35	0.053	35	0.840	34	1.383	33	0.386	35
3. ANTARCTICA	0.000	47	0.000	46	0.000	46	0.000	46	0.000	47	0.000	47	0.000	46
4. EU	0.525	41	0.316	40	0.174	38	0.036	39	0.692	41	1.262	41	0.294	40
5. ISLAM	0.418	42	0.164	44	0.083	44	0.019	43	0.623	42	1.262	41	0.142	44
6. OC	0.892	24	0.850	20	0.375	26	0.042	37	1.070	18	1.154	43	0.733	23
7. RAS	0.630	38	0.373	38	0.181	37	0.038	38	0.818	38	1.584	24	0.320	38
8. SAS	0.202	46	0.102	45	0.062	45	0.013	45	0.303	46	1.351	38	0.104	45

Table C. 10. All Indicators: Computer Science

	MCR	Rank	H₁	Rank	H₂	Rank	H₃	Rank	R₁	Rank	R₂	Rank	R₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.798	23	0.968	12	0.290	38	0.009	39	1.054	8	1.287	12	0.699	25
AUSTRALIA	0.922	15	0.904	15	0.743	12	0.627	6	0.979	21	1.253	16	0.844	13
AUSTRIA	0.730	29	0.679	29	0.460	27	0.085	20	0.892	29	1.169	28	0.670	27
BELGIUM	0.961	11	1.186	6	0.717	13	0.065	22	1.008	14	1.313	9	1.149	5
BRAZIL	0.672	35	0.571	36	0.372	33	0.029	31	0.888	30	1.145	32	0.609	33
CANADA	1.022	8	1.104	8	0.761	10	0.156	16	1.092	4	1.348	6	1.044	7
CHINA	0.784	27	0.814	21	0.427	29	0.043	28	0.958	22	1.230	22	0.718	24
CZECH REPUBLIC	0.774	28	0.799	22	0.376	32	0.025	33	0.988	18	1.239	20	0.675	26
DENMARK	1.139	5	1.306	5	0.854	8	0.084	21	1.174	2	1.437	2	1.305	4
FINLAND	0.792	24	0.868	18	0.421	30	0.028	32	0.987	19	1.243	19	0.761	19
FRANCE	0.950	12	1.026	10	0.757	11	0.133	17	0.994	17	1.280	14	1.004	9
GERMANY	0.871	17	0.876	16	0.609	19	0.195	15	0.981	20	1.250	18	0.835	14
GREECE	0.697	32	0.726	25	0.331	36	0.022	34	0.921	26	1.180	26	0.598	34
HUNGARY	0.697	33	0.518	37	0.441	28	0.203	12	0.871	33	1.137	34	0.436	39
INDIA	0.690	34	0.679	30	0.405	31	0.037	29	0.894	28	1.163	29	0.629	31
IRAN	0.458	42	0.178	45	0.071	44	0.004	42	0.795	38	1.044	42	0.143	45
IRELAND	0.805	22	0.623	33	0.676	14	0.197	14	0.830	35	1.157	30	0.743	21
ISRAEL	1.333	3	1.374	3	1.280	3	0.397	8	1.206	1	1.457	1	1.438	2
ITALY	0.877	16	0.915	14	0.501	24	0.047	27	1.058	7	1.294	10	0.833	15
JAPAN	0.697	31	0.495	41	0.653	17	3.435	2	0.742	42	1.063	41	0.459	37
LUXEMBOURG	0.481	41	0.000	46	0.000	47	0.000	45	0.875	32	1.033	43	0.000	46
MEXICO	0.826	19	0.874	17	0.653	16	0.094	19	0.902	27	1.205	24	0.809	16
NETHERLANDS	0.947	13	1.050	9	0.652	18	0.063	23	1.054	9	1.321	8	1.025	8
NEW ZEALAND	0.934	14	0.824	19	0.766	9	0.441	7	1.021	11	1.266	15	0.761	20
NORWAY	1.052	6	0.769	23	1.048	6	0.391	9	1.005	16	1.253	17	0.845	12
POLAND	0.790	25	0.683	28	0.557	21	0.203	13	0.926	25	1.199	25	0.638	30
PORTUGAL	0.604	37	0.623	32	0.337	35	0.017	36	0.791	39	1.105	39	0.648	28
RUSSIA	0.300	45	0.284	44	0.115	42	0.006	40	0.453	46	0.910	46	0.226	43
SINGAPORE	0.860	18	1.009	11	0.522	23	0.036	30	1.007	15	1.287	11	0.950	11
SOUTH AFRICA	0.973	10	0.516	38	1.070	5	0.866	5	0.937	24	1.173	27	0.621	32
SOUTH KOREA	0.571	40	0.504	40	0.264	39	0.022	35	0.783	40	1.093	40	0.449	38
SPAIN	0.789	26	0.625	31	0.657	15	1.059	4	0.864	34	1.149	31	0.546	35
SWEDEN	1.844	1	1.134	7	2.744	1	11.994	1	1.074	5	1.340	7	1.065	6
SWITZERLAND	1.212	4	1.306	4	1.183	4	0.223	11	1.066	6	1.393	5	1.395	3
TAIWAN	0.615	36	0.590	34	0.247	40	0.013	38	0.885	31	1.139	33	0.493	36
TURKEY	0.808	21	0.715	26	0.500	26	0.061	25	1.012	13	1.232	21	0.737	22
UK	1.032	7	0.950	13	0.945	7	0.386	10	1.017	12	1.282	13	0.989	10
UKRAINE	0.292	46	0.326	42	0.037	45	0.000	47	0.512	45	0.914	45	0.157	44
USA	1.351	2	1.428	2	1.407	2	1.521	3	1.134	3	1.435	3	1.525	1
1. AFSB	0.577	39	0.748	24	0.359	34	0.014	37	0.719	43	1.112	36	0.719	23
2. AM	0.809	20	0.819	20	0.534	22	0.061	24	0.942	23	1.224	23	0.788	18
3. ANTARCTICA	0.000	47	0.000	47	0.000	46	0.000	46	0.000	47	0.000	47	0.000	46
4. EU	0.604	38	0.515	39	0.312	37	0.060	26	0.829	36	1.107	37	0.433	40
5. ISLAM	0.430	43	0.294	43	0.103	43	0.004	41	0.743	41	1.107	37	0.229	42
6. OC	0.996	9	1.670	1	0.501	25	0.000	44	1.033	10	1.006	44	0.803	17
7. RAS	0.723	30	0.706	27	0.590	20	0.104	18	0.806	37	1.405	4	0.645	29
8. SAS	0.405	44	0.578	35	0.144	41	0.003	43	0.589	44	1.126	35	0.371	41

Table C. 11. All Indicators: Mathematics

	MCR	Rank	H ₁	Rank	H ₂	Rank	H ₃	Rank	R ₁	Rank	R ₂	Rank	R ₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.861	27	0.870	22	0.499	28	0.073	32	0.947	26	1.319	25	0.805	25
AUSTRALIA	1.196	7	1.086	14	1.598	1	10.042	1	1.030	16	1.404	15	1.068	13
AUSTRIA	1.250	3	1.310	6	1.082	8	0.334	12	1.186	2	1.556	4	1.342	6
BELGIUM	1.185	10	1.344	3	1.054	10	0.336	11	1.133	7	1.508	7	1.328	7
BRAZIL	0.874	25	0.735	28	0.518	25	0.117	26	0.982	22	1.323	24	0.744	28
CANADA	1.027	16	1.038	15	0.856	15	0.279	15	1.033	15	1.404	16	1.029	15
CHINA	0.914	23	0.928	19	0.707	20	0.253	18	0.942	27	1.337	23	0.905	19
CZECH REPUBLIC	0.864	26	0.789	25	0.507	27	0.106	27	0.975	25	1.308	26	0.786	26
DENMARK	1.234	5	1.298	8	0.967	11	0.313	14	1.199	1	1.556	3	1.218	10
FINLAND	1.140	12	1.211	11	1.071	9	0.323	13	1.108	9	1.470	11	1.263	8
FRANCE	1.080	13	1.138	12	0.866	14	0.258	17	1.089	12	1.451	12	1.117	12
GERMANY	1.054	15	1.026	16	0.824	16	0.485	7	1.071	14	1.432	14	1.037	14
GREECE	0.811	29	0.704	29	0.443	29	0.093	28	0.919	29	1.283	29	0.682	29
HUNGARY	0.672	37	0.488	37	0.306	35	0.073	33	0.823	35	1.193	37	0.460	36
INDIA	0.494	43	0.370	41	0.212	39	0.037	40	0.642	43	1.053	44	0.336	42
IRAN	0.534	41	0.297	44	0.071	45	0.003	44	0.747	38	1.089	41	0.184	45
IRELAND	0.927	22	0.862	23	0.726	19	0.218	20	1.002	18	1.362	19	0.870	23
ISRAEL	1.055	14	1.124	13	0.802	17	0.740	5	1.076	13	1.432	13	1.012	16
ITALY	0.971	18	1.012	17	0.737	18	0.229	19	0.993	21	1.384	17	0.978	17
JAPAN	0.738	30	0.546	35	0.341	33	0.076	30	0.889	30	1.230	30	0.533	33
LUXEMBOURG	0.317	46	0.000	47	0.000	47	0.000	45	0.597	44	0.985	46	0.000	46
MEXICO	0.716	33	0.609	31	0.254	37	0.054	36	0.887	31	1.222	32	0.446	37
NETHERLANDS	1.152	11	1.262	9	0.950	12	0.262	16	1.140	5	1.501	9	1.232	9
NEW ZEALAND	0.977	17	0.887	21	0.901	13	0.414	9	0.994	20	1.343	22	0.898	20
NORWAY	1.287	1	1.380	2	1.260	4	0.383	10	1.186	3	1.589	1	1.526	1
POLAND	0.719	32	0.570	34	0.337	34	0.074	31	0.881	32	1.222	33	0.499	34
PORTUGAL	0.939	19	0.783	26	0.699	21	0.205	22	0.997	19	1.354	21	0.815	24
RUSSIA	0.450	44	0.353	42	0.243	38	0.057	35	0.546	45	1.030	45	0.351	40
SINGAPORE	1.194	8	1.333	5	1.229	7	0.414	8	1.109	8	1.515	6	1.403	3
SOUTH AFRICA	0.687	35	0.499	36	0.366	32	0.073	34	0.810	36	1.197	36	0.629	30
SOUTH KOREA	0.730	31	0.608	32	0.393	31	0.090	29	0.859	33	1.223	31	0.564	31
SPAIN	0.933	20	0.832	24	0.545	24	0.131	25	1.028	17	1.370	18	0.784	27
SWEDEN	1.189	9	1.218	10	1.282	3	0.939	3	1.102	11	1.472	10	1.200	11
SWITZERLAND	1.275	2	1.508	1	1.256	5	0.532	6	1.178	4	1.561	2	1.455	2
TAIWAN	0.880	24	0.920	20	0.684	22	0.214	21	0.927	28	1.306	27	0.887	22
TURKEY	0.697	34	0.615	30	0.428	30	0.150	24	0.801	37	1.178	38	0.538	32
UK	1.226	6	1.309	7	1.253	6	0.828	4	1.137	6	1.516	5	1.370	5
UKRAINE	0.565	39	0.379	40	0.204	41	0.037	41	0.711	40	1.122	39	0.338	41
USA	1.240	4	1.335	4	1.398	2	1.717	2	1.108	10	1.504	8	1.390	4
1. AFSB	0.539	40	0.406	39	0.181	44	0.024	42	0.682	42	1.086	43	0.393	38
2. AM	0.933	21	0.957	18	0.679	23	0.183	23	0.979	24	1.357	20	0.927	18
3. ANTARCTICA	0.000	47	0.000	46	0.000	46	0.000	47	0.000	47	0.000	47	0.000	46
4. EU	0.687	36	0.575	33	0.287	36	0.042	37	0.831	34	1.206	34	0.492	35
5. ISLAM	0.534	42	0.297	43	0.201	42	0.040	38	0.699	41	1.206	34	0.314	43
6. OC	0.831	28	0.767	27	0.508	26	0.000	46	0.980	23	1.088	42	0.892	21
7. RAS	0.578	38	0.479	38	0.194	43	0.017	43	0.731	39	1.292	28	0.381	39
8. SAS	0.406	45	0.254	45	0.208	40	0.037	39	0.524	46	1.121	40	0.278	44

Table C. 12. All Indicators: Physics

	MCR	Rank	H₁	Rank	H₂	Rank	H₃	Rank	R₁	Rank	R₂	Rank	R₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.807	28	0.700	28	0.452	32	0.143	33	0.961	24	1.120	26	0.632	29
AUSTRALIA	0.969	21	1.001	21	0.620	25	0.174	30	1.055	18	1.229	20	0.919	21
AUSTRIA	1.226	4	1.325	6	1.205	4	0.527	16	1.109	8	1.322	5	1.386	5
BELGIUM	1.014	18	1.052	16	0.693	22	0.317	24	1.074	15	1.250	14	0.977	20
BRAZIL	0.758	30	0.592	32	0.460	30	0.191	28	0.925	26	1.083	30	0.577	31
CANADA	1.173	7	1.149	9	1.176	5	2.506	4	1.08	13	1.272	10	1.181	9
CHINA	0.633	40	0.490	38	0.343	37	0.168	31	0.808	38	1.005	40	0.464	38
CZECH REPUBLIC	0.766	29	0.721	26	0.458	31	0.116	37	0.895	29	1.098	27	0.696	27
DENMARK	1.374	2	1.659	3	1.238	3	0.492	17	1.219	1	1.441	2	1.619	2
FINLAND	1.174	6	1.071	15	1.154	6	6.074	1	1.09	10	1.269	11	1.011	19
FRANCE	1.025	17	1.042	18	0.820	16	0.897	10	1.039	21	1.232	19	1.017	17
GERMANY	1.153	8	1.259	7	0.951	11	0.700	12	1.114	6	1.314	6	1.239	7
GREECE	0.964	22	0.921	22	0.603	26	0.163	32	1.06	17	1.228	21	0.889	23
HUNGARY	1.000	20	0.863	23	0.822	15	0.376	20	1.025	23	1.215	23	0.915	22
INDIA	0.713	32	0.516	35	0.591	27	1.842	6	0.813	37	1.017	37	0.519	34
IRAN	0.707	33	0.563	33	0.418	36	0.133	34	0.879	31	1.055	32	0.544	33
IRELAND	1.000	19	1.005	20	0.758	21	0.203	27	1.043	19	1.225	22	1.013	18
ISRAEL	1.099	12	1.124	10	0.872	14	0.319	22	1.092	9	1.281	8	1.147	10
ITALY	1.071	15	1.093	12	0.939	12	1.395	7	1.041	20	1.243	16	1.077	12
JAPAN	0.861	24	0.780	24	0.648	24	0.683	13	0.943	25	1.130	24	0.775	24
LUXEMBOURG	0.878	23	0.000	46	0.000	47	0.000	46	1.135	4	1.241	18	0.317	42
MEXICO	0.599	42	0.435	40	0.283	40	0.062	41	0.8	39	0.994	41	0.423	40
NETHERLANDS	1.200	5	1.334	5	1.041	8	0.419	18	1.13	5	1.333	4	1.296	6
NEW ZEALAND	1.082	13	1.112	11	0.970	9	0.397	19	1.039	22	1.241	17	1.136	11
NORWAY	1.078	14	1.046	17	0.797	18	0.317	23	1.109	7	1.286	7	1.034	14
POLAND	0.847	25	0.732	25	0.774	20	0.737	11	0.885	30	1.087	29	0.761	25
PORTUGAL	1.034	16	1.039	19	0.781	19	0.261	25	1.061	16	1.246	15	1.032	15
RUSSIA	0.622	41	0.505	37	0.450	33	0.671	14	0.745	40	0.974	42	0.496	35
SINGAPORE	0.669	36	0.508	36	0.230	41	0.031	44	0.895	28	1.059	31	0.465	37
SOUTH AFRICA	0.665	37	0.447	39	0.430	34	0.185	29	0.845	35	1.010	39	0.444	39
SOUTH KOREA	0.818	27	0.721	27	0.659	23	0.606	15	0.895	27	1.088	28	0.717	26
SPAIN	1.099	11	1.088	13	0.936	13	1.866	5	1.082	12	1.265	13	1.069	13
SWEDEN	1.111	10	1.087	14	0.968	10	2.906	2	1.083	11	1.267	12	1.027	16
SWITZERLAND	1.554	1	1.851	2	1.834	1	2.535	3	1.197	2	1.460	1	1.956	1
TAIWAN	0.741	31	0.599	30	0.544	29	0.357	21	0.857	33	1.051	35	0.609	30
TURKEY	0.643	39	0.398	41	0.341	38	0.125	36	0.851	34	1.014	38	0.413	41
UK	1.140	9	1.188	8	1.049	7	1.165	8	1.077	14	1.279	9	1.187	8
UKRAINE	0.437	45	0.250	43	0.149	44	0.040	43	0.667	45	0.888	45	0.240	44
USA	1.349	3	1.503	4	1.404	2	1.074	9	1.157	3	1.378	3	1.553	4
1. AFSB	0.255	46	0.000	45	0.000	46	0.000	45	0.535	46	0.756	46	0.025	46
2. AM	0.645	38	0.558	34	0.327	39	0.080	39	0.829	36	1.017	36	0.490	36
3. ANTARCTICA	0.000	47	0.000	47	0.000	45	0.000	47	0	47	0.000	47	0.000	47
4. EU	0.707	34	0.595	31	0.418	35	0.127	35	0.86	32	1.051	33	0.572	32
5. ISLAM	0.448	44	0.225	44	0.152	43	0.055	42	0.696	43	1.051	33	0.216	45
6. OC	0.838	26	1.949	1	0.809	17	0.103	38	0.684	44	0.890	44	1.615	3
7. RAS	0.503	43	0.301	42	0.194	42	0.070	40	0.723	42	1.128	25	0.270	43
8. SAS	0.680	35	0.666	29	0.570	28	0.207	26	0.744	41	0.931	43	0.673	28

Table C. 13. All Indicators: Space Science

	MCR	Rank	H ₁	Rank	H ₂	Rank	H ₃	Rank	R ₁	Rank	R ₂	Rank	R ₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.748	23	0.571	25	0.352	23	0.132	24	0.921	23	1.239	22	0.546	23
AUSTRALIA	1.203	6	1.306	7	1.159	7	0.947	9	1.114	5	1.524	5	1.314	6
AUSTRIA	0.584	33	0.254	34	0.058	39	0.005	39	0.841	30	1.143	29	0.157	38
BELGIUM	0.836	19	0.738	18	0.513	19	0.399	17	0.958	17	1.291	19	0.681	20
BRAZIL	0.631	30	0.342	32	0.250	25	0.266	21	0.833	31	1.143	30	0.304	31
CANADA	1.338	2	1.343	5	1.684	2	4.123	2	1.106	6	1.528	4	1.416	3
CHINA	0.442	36	0.250	35	0.133	34	0.061	28	0.650	38	1.001	37	0.221	33
CZECH REPUBLIC	0.515	35	0.308	33	0.109	36	0.022	35	0.781	34	1.063	35	0.213	34
DENMARK	1.084	10	1.203	10	0.800	13	0.300	20	1.077	8	1.481	9	1.251	10
FINLAND	0.676	28	0.390	30	0.174	31	0.040	31	0.928	20	1.192	27	0.341	30
FRANCE	0.878	14	0.876	13	0.672	15	0.431	16	0.927	21	1.310	17	0.865	14
GERMANY	1.083	11	1.142	11	0.932	11	0.721	11	1.056	11	1.452	11	1.123	11
GREECE	0.601	31	0.444	27	0.176	30	0.031	33	0.827	32	1.133	32	0.359	28
HUNGARY	1.590	1	1.514	2	3.013	1	5.458	1	1.024	13	1.481	8	1.883	1
INDIA	0.419	39	0.201	37	0.083	37	0.021	36	0.654	37	0.990	38	0.167	36
IRAN	0.262	44	0.000	41	0.000	41	0.000	46	0.488	43	0.839	45	0.071	42
IRELAND	0.868	15	0.790	16	0.657	17	0.475	14	0.922	22	1.311	16	0.792	15
ISRAEL	1.317	3	1.567	1	1.338	3	0.981	8	1.163	2	1.617	1	1.612	2
ITALY	1.052	12	1.063	12	0.903	12	0.678	13	1.027	12	1.429	12	1.075	12
JAPAN	0.797	21	0.704	20	0.663	16	0.734	10	0.857	29	1.230	23	0.689	19
LUXEMBOURG	0.052	46	0.000	43	0.000	45	0.000	42	0.174	46	0.713	46	0.000	43
MEXICO	0.780	22	0.637	22	0.476	20	0.254	22	0.903	26	1.242	21	0.614	22
NETHERLANDS	1.187	7	1.384	3	0.940	10	0.446	15	1.137	4	1.560	2	1.338	4
NEW ZEALAND	0.824	20	0.841	14	0.356	22	0.056	29	0.987	15	1.318	15	0.732	16
NORWAY	0.715	25	0.419	29	0.188	28	0.068	27	0.946	18	1.226	24	0.391	27
POLAND	0.865	17	0.698	21	0.749	14	1.037	7	0.916	24	1.266	20	0.707	18
PORTUGAL	0.974	13	0.826	15	1.181	6	1.239	5	0.887	27	1.292	18	0.886	13
RUSSIA	0.412	40	0.233	36	0.130	35	0.051	30	0.621	40	0.971	41	0.205	35
SINGAPORE	0.351	41	0.000	42	0.000	44	0.000	45	0.605	41	1.069	33	0.000	43
SOUTH AFRICA	0.706	27	0.592	23	0.180	29	0.021	37	0.931	19	1.225	25	0.459	25
SOUTH KOREA	0.709	26	0.567	26	0.279	24	0.080	25	0.908	25	1.203	26	0.479	24
SPAIN	0.866	16	0.741	17	0.522	18	0.356	18	0.960	16	1.327	13	0.708	17
SWEDEN	0.853	18	0.712	19	0.411	21	0.178	23	1.002	14	1.326	14	0.660	21
SWITZERLAND	1.132	9	1.350	4	1.055	9	0.686	12	1.067	10	1.480	10	1.293	8
TAIWAN	0.659	29	0.573	24	0.198	26	0.037	32	0.875	28	1.189	28	0.393	26
TURKEY	0.345	42	0.116	39	0.032	40	0.004	40	0.633	39	0.886	43	0.073	41
UK	1.182	8	1.240	8	1.205	4	1.285	4	1.077	9	1.491	7	1.295	7
UKRAINE	0.515	34	0.441	28	0.195	27	0.069	26	0.707	35	1.050	36	0.356	29
USA	1.225	4	1.320	6	1.129	8	1.101	6	1.140	3	1.549	3	1.338	5
1. AFSB	0.213	45	0.000	45	0.000	46	0.000	43	0.406	45	0.853	44	0.000	43
2. AM	1.205	5	1.239	9	1.194	5	1.349	3	1.102	7	1.517	6	1.252	9
3. ANTARCTICA	0.000	47	0.000	44	0.000	42	0.000	44	0.000	47	0.000	47	0.000	43
4. EU	0.432	37	0.107	40	0.154	32	0.343	19	0.670	36	0.972	39	0.126	40
5. ISLAM	0.293	43	0.119	38	0.071	38	0.013	38	0.470	44	0.972	39	0.151	39
6. OC	0.742	24	0.000	47	0.000	47	0.000	41	1.188	1	0.894	42	0.000	43
7. RAS	0.586	32	0.000	46	0.000	43	0.000	47	0.817	33	1.069	33	0.164	37
8. SAS	0.424	38	0.381	31	0.133	33	0.025	34	0.588	42	1.135	31	0.292	32

Table C. 14. All Indicators: Agricultural Sciences

	MCR	Rank	H ₁	Rank	H ₂	Rank	H ₃	Rank	R ₁	Rank	R ₂	Rank	R ₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.887	25	0.670	28	0.397	31	0.231	32	1.019	25	1.257	25	0.604	30
AUSTRALIA	1.034	22	0.990	23	0.716	21	0.511	20	1.072	23	1.345	22	0.977	22
AUSTRIA	0.883	26	0.983	24	0.507	28	0.239	31	0.954	26	1.243	26	0.862	25
BELGIUM	1.291	10	1.385	10	1.104	11	1.290	7	1.210	9	1.498	9	1.333	10
BRAZIL	0.471	42	0.283	41	0.174	40	0.121	36	0.606	41	0.959	42	0.259	40
CANADA	1.114	20	1.122	17	0.822	16	0.822	14	1.115	20	1.397	19	1.068	17
CHINA	1.014	23	0.990	22	0.653	22	0.344	28	1.075	22	1.334	23	0.966	23
CZECH REPUBLIC	0.406	44	0.226	44	0.127	43	0.055	42	0.584	43	0.903	44	0.210	43
DENMARK	1.488	4	1.773	5	1.325	6	1.218	9	1.325	3	1.655	3	1.722	6
FINLAND	1.650	2	2.019	2	2.489	1	3.419	1	1.248	4	1.615	4	2.185	2
FRANCE	1.158	15	1.147	16	0.910	14	1.045	11	1.132	18	1.424	17	1.140	15
GERMANY	0.865	27	0.926	25	0.751	19	0.641	16	0.861	33	1.216	27	0.936	24
GREECE	1.117	19	1.219	13	0.799	17	0.444	23	1.133	17	1.393	21	1.150	14
HUNGARY	0.435	43	0.269	42	0.137	42	0.045	43	0.595	42	0.929	43	0.250	41
INDIA	0.306	45	0.147	45	0.105	45	0.073	39	0.453	45	0.844	45	0.144	44
IRAN	0.773	30	0.386	38	0.236	36	0.126	35	0.941	27	1.184	28	0.443	35
IRELAND	1.210	12	1.184	15	0.761	18	0.506	21	1.209	10	1.496	11	1.090	16
ISRAEL	1.187	14	1.282	12	0.862	15	0.437	24	1.187	13	1.462	12	1.321	11
ITALY	1.126	18	1.209	14	0.953	13	0.942	12	1.083	21	1.394	20	1.190	13
JAPAN	0.742	32	0.610	31	0.502	30	0.449	22	0.817	34	1.128	34	0.628	29
LUXEMBOURG	1.884	1	3.821	1	1.786	2	0.000	45	1.557	1	2.093	1	3.095	1
MEXICO	0.726	34	0.550	32	0.208	37	0.059	40	0.892	30	1.143	31	0.450	34
NETHERLANDS	1.461	5	1.825	4	1.714	3	1.698	3	1.222	8	1.587	6	1.943	4
NEW ZEALAND	0.942	24	0.801	26	0.538	26	0.370	26	1.037	24	1.285	24	0.756	27
NORWAY	1.401	7	1.592	7	1.380	5	1.535	5	1.241	7	1.582	7	1.605	7
POLAND	0.772	31	0.527	34	0.553	25	0.668	15	0.873	32	1.135	33	0.542	31
PORTUGAL	1.158	16	0.995	21	0.747	20	0.527	19	1.199	11	1.446	13	1.015	20
RUSSIA	0.243	46	0.125	46	0.106	44	0.111	38	0.360	46	0.805	46	0.122	45
SINGAPORE	1.626	3	1.943	3	1.696	4	1.562	4	1.394	2	1.762	2	2.046	3
SOUTH AFRICA	0.786	29	0.620	29	0.369	33	0.246	30	0.932	29	1.178	29	0.491	33
SOUTH KOREA	1.187	13	1.040	20	0.958	12	1.278	8	1.173	16	1.434	16	1.025	19
SPAIN	1.143	17	1.060	19	0.621	24	0.352	27	1.198	12	1.443	14	0.983	21
SWEDEN	1.361	8	1.446	8	1.191	9	2.755	2	1.243	6	1.548	8	1.283	12
SWITZERLAND	1.402	6	1.610	6	1.317	7	0.867	13	1.246	5	1.598	5	1.747	5
TAIWAN	1.112	21	1.076	18	0.641	23	0.273	29	1.175	15	1.421	18	1.040	18
TURKEY	0.816	28	0.611	30	0.513	27	0.568	18	0.939	28	1.166	30	0.632	28
UK	1.304	9	1.413	9	1.306	8	1.523	6	1.183	14	1.496	10	1.485	8
UKRAINE	0.492	41	0.513	35	0.200	38	0.035	44	0.559	44	1.041	38	0.416	36
USA	1.215	11	1.338	11	1.175	10	1.138	10	1.126	19	1.438	15	1.376	9
1. AFSB	0.512	40	0.284	40	0.192	39	0.221	33	0.679	39	0.975	41	0.239	42
2. AM	0.594	36	0.450	36	0.242	35	0.118	37	0.741	36	1.044	37	0.397	38
3. ANTARCTICA	0.000	47	0.000	47	0.000	47	0.000	46	0.000	47	0.000	47	0.000	47
4. EU	0.637	35	0.424	37	0.379	32	0.620	17	0.752	35	1.053	35	0.399	37
5. ISLAM	0.529	39	0.303	39	0.146	41	0.057	41	0.709	37	1.053	35	0.268	39
6. OC	0.540	38	0.239	43	0.056	46	0.000	47	0.707	38	0.993	40	0.097	46
7. RAS	0.727	33	0.534	33	0.291	34	0.139	34	0.877	31	1.032	39	0.504	32
8. SAS	0.591	37	0.764	27	0.506	29	0.371	25	0.643	40	1.142	32	0.774	26

Table C. 15. All Indicators: Engineering

	MCR	Rank	H ₁	Rank	H ₂	Rank	H ₃	Rank	R ₁	Rank	R ₂	Rank	R ₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.955	25	0.906	25	0.697	24	0.379	37	1.049	20	1.294	24	0.851	26
AUSTRALIA	1.023	19	1.013	20	0.783	20	0.812	17	1.054	19	1.325	19	0.984	19
AUSTRIA	1.113	11	1.206	13	1.011	12	0.707	22	1.073	12	1.366	12	1.207	12
BELGIUM	1.300	3	1.499	3	1.349	3	1.027	11	1.173	3	1.468	3	1.553	3
BRAZIL	0.919	27	0.787	29	0.645	28	0.572	29	1.017	24	1.268	27	0.778	28
CANADA	1.001	20	0.928	23	0.895	15	0.970	14	1.021	23	1.293	25	0.952	21
CHINA	0.882	30	0.811	28	0.711	22	0.729	21	0.938	34	1.225	32	0.790	27
CZECH REPUBLIC	1.066	15	1.281	6	1.022	11	0.763	20	1.004	26	1.329	18	1.221	10
DENMARK	1.479	2	1.804	2	1.769	2	1.472	3	1.235	2	1.552	2	1.845	2
FINLAND	1.170	6	1.261	10	1.164	7	1.279	5	1.102	9	1.388	7	1.200	13
FRANCE	1.123	10	1.144	15	0.957	14	0.979	13	1.116	8	1.381	8	1.133	15
GERMANY	1.137	9	1.246	11	1.137	8	1.112	9	1.061	15	1.368	11	1.249	9
GREECE	0.852	31	0.707	33	0.502	34	0.419	34	0.983	30	1.230	31	0.637	36
HUNGARY	1.036	18	1.067	19	0.734	21	0.586	26	1.080	11	1.341	17	0.970	20
INDIA	0.685	40	0.490	40	0.417	40	0.797	18	0.824	41	1.113	41	0.470	40
IRAN	1.081	14	1.237	12	1.011	13	0.488	31	1.046	21	1.349	16	1.343	5
IRELAND	0.999	21	1.000	21	0.867	17	0.602	24	0.996	28	1.303	20	1.082	17
ISRAEL	1.110	12	1.121	16	1.092	10	1.111	10	1.069	13	1.350	15	1.143	14
ITALY	1.063	16	1.068	18	0.848	18	0.559	30	1.091	10	1.350	14	1.053	18
JAPAN	0.825	35	0.762	30	0.629	29	0.574	28	0.894	36	1.197	35	0.741	31
LUXEMBOURG	1.058	17	1.279	7	0.495	35	0.097	43	1.158	5	1.448	4	1.210	11
MEXICO	0.722	38	0.521	39	0.418	39	0.436	33	0.864	37	1.146	38	0.526	38
NETHERLANDS	1.189	5	1.300	5	1.132	9	0.836	16	1.123	6	1.410	6	1.291	7
NEW ZEALAND	0.887	29	0.741	32	0.536	33	0.256	39	1.006	25	1.256	28	0.761	29
NORWAY	1.151	8	1.261	9	1.267	5	2.229	1	1.062	14	1.361	13	1.278	8
POLAND	0.895	28	0.744	31	0.694	25	1.222	6	0.980	31	1.236	29	0.713	32
PORTUGAL	0.942	26	0.850	27	0.564	31	0.405	35	1.058	17	1.298	22	0.759	30
RUSSIA	0.535	45	0.445	43	0.415	41	0.583	27	0.613	45	1.004	45	0.441	42
SINGAPORE	0.964	24	0.917	24	0.704	23	0.403	36	1.036	22	1.297	23	0.901	24
SOUTH AFRICA	0.722	37	0.559	38	0.318	43	0.213	41	0.895	35	1.157	37	0.457	41
SOUTH KOREA	0.825	34	0.696	34	0.548	32	0.621	23	0.942	33	1.205	34	0.656	33
SPAIN	1.103	13	1.099	17	0.876	16	0.600	25	1.121	7	1.379	9	1.090	16
SWEDEN	1.240	4	1.334	4	1.241	6	1.138	8	1.159	4	1.433	5	1.351	4
SWITZERLAND	1.521	1	1.874	1	1.810	1	1.628	2	1.260	1	1.576	1	1.942	1
TAIWAN	0.849	32	0.681	35	0.567	30	0.775	19	0.967	32	1.220	33	0.654	34
TURKEY	0.968	23	0.865	26	0.684	26	0.449	32	1.056	18	1.302	21	0.854	25
UK	0.978	22	0.941	22	0.845	19	0.909	15	1.003	27	1.283	26	0.935	23
UKRAINE	0.542	44	0.363	44	0.337	42	1.186	7	0.653	44	1.019	44	0.333	44
USA	1.166	7	1.274	8	1.269	4	1.355	4	1.058	16	1.371	10	1.310	6
1. AFSB	0.450	46	0.194	46	0.082	46	0.028	46	0.670	43	0.971	46	0.150	46
2. AM	0.842	33	0.661	36	0.446	37	0.226	40	0.989	29	1.235	30	0.644	35
3. ANTARCTICA	0.000	47	0.000	47	0.000	47	0.000	47	0.000	47	0.000	47	0.000	47
4. EU	0.717	39	0.615	37	0.446	38	0.292	38	0.831	40	1.142	39	0.574	37
5. ISLAM	0.565	43	0.327	45	0.184	45	0.086	44	0.767	42	1.142	39	0.294	45
6. OC	0.771	36	1.171	14	0.473	36	0.081	45	0.832	39	1.051	43	0.949	22
7. RAS	0.659	41	0.485	41	0.275	44	0.107	42	0.838	38	1.176	36	0.427	43
8. SAS	0.579	42	0.477	42	0.653	27	0.992	12	0.597	46	1.110	42	0.516	39

Table C. 16. All Indicators: Environment & Ecology

	MCR	Rank	H ₁	Rank	H ₂	Rank	H ₃	Rank	R ₁	Rank	R ₂	Rank	R ₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.658	34	0.423	36	0.229	41	0.068	44	0.822	34	1.015	34	0.377	37
AUSTRALIA	1.048	12	1.041	12	0.865	14	0.762	13	1.064	11	1.273	12	1.012	14
AUSTRIA	1.029	15	0.944	15	1.033	9	1.079	7	1.012	16	1.244	16	1.022	13
BELGIUM	1.139	8	1.161	9	1.136	7	1.288	4	1.097	8	1.323	8	1.179	8
BRAZIL	0.825	22	0.666	23	0.559	22	0.421	21	0.909	24	1.121	22	0.684	21
CANADA	1.033	14	1.077	11	0.934	12	0.661	14	1.023	15	1.262	13	1.090	11
CHINA	0.744	31	0.534	30	0.469	26	0.273	27	0.847	30	1.065	31	0.570	26
CZECH REPUBLIC	0.775	25	0.718	20	0.482	24	0.194	32	0.857	29	1.096	26	0.713	20
DENMARK	1.247	3	1.305	4	1.132	8	0.849	11	1.197	2	1.418	3	1.295	5
FINLAND	1.151	6	1.248	6	0.841	15	0.436	20	1.155	4	1.356	6	1.160	9
FRANCE	1.026	16	0.955	14	0.991	11	3.487	1	1.007	17	1.246	15	0.965	15
GERMANY	1.101	10	1.133	10	1.013	10	0.856	10	1.073	10	1.307	11	1.141	10
GREECE	0.652	35	0.480	33	0.324	34	0.139	37	0.764	36	1.014	35	0.465	32
HUNGARY	0.773	27	0.603	28	0.594	21	0.598	15	0.832	32	1.067	30	0.522	31
INDIA	0.442	44	0.213	44	0.181	43	0.124	40	0.586	43	0.858	44	0.226	43
IRAN	0.319	46	0.162	46	0.021	46	0.001	46	0.499	46	0.774	46	0.068	46
IRELAND	0.762	29	0.465	34	0.263	39	0.105	41	0.925	22	1.109	24	0.437	34
ISRAEL	0.834	21	0.627	26	0.414	28	0.207	30	0.958	20	1.139	21	0.567	27
ITALY	0.899	18	0.709	21	0.634	18	0.521	17	0.965	19	1.174	19	0.714	19
JAPAN	0.790	24	0.613	27	0.506	23	0.390	22	0.889	25	1.097	25	0.619	25
LUXEMBOURG	1.514	1	2.340	1	2.476	1	0.941	9	1.162	3	1.593	1	3.283	1
MEXICO	0.744	30	0.573	29	0.300	37	0.164	33	0.884	26	1.078	28	0.431	35
NETHERLANDS	1.201	5	1.321	3	1.165	4	0.766	12	1.137	6	1.375	4	1.346	3
NEW ZEALAND	1.044	13	0.909	16	0.902	13	1.377	3	1.063	12	1.256	14	0.875	16
NORWAY	1.095	11	1.035	13	0.834	16	0.534	16	1.108	7	1.319	9	1.034	12
POLAND	0.588	40	0.337	38	0.348	32	0.283	26	0.709	40	0.958	40	0.358	40
PORTUGAL	0.872	19	0.721	19	0.399	29	0.143	36	0.987	18	1.186	18	0.620	24
RUSSIA	0.499	43	0.337	39	0.288	38	0.153	35	0.581	44	0.929	42	0.372	38
SINGAPORE	0.794	23	0.656	24	0.310	36	0.102	42	0.940	21	1.118	23	0.533	29
SOUTH AFRICA	0.773	26	0.695	22	0.617	19	0.452	19	0.837	31	1.076	29	0.683	22
SOUTH KOREA	0.764	28	0.655	25	0.398	30	0.160	34	0.869	27	1.083	27	0.621	23
SPAIN	0.949	17	0.853	17	0.596	20	0.316	25	1.025	14	1.219	17	0.780	17
SWEDEN	1.231	4	1.301	5	1.330	3	1.611	2	1.143	5	1.374	5	1.322	4
SWITZERLAND	1.415	2	1.793	2	1.526	2	1.183	5	1.251	1	1.523	2	1.748	2
TAIWAN	0.678	33	0.369	37	0.310	35	0.218	28	0.826	33	1.021	33	0.381	36
TURKEY	0.541	42	0.312	42	0.234	40	0.124	39	0.689	42	0.926	43	0.302	41
UK	1.146	7	1.223	8	1.160	5	1.046	8	1.088	9	1.332	7	1.240	7
UKRAINE	0.596	38	0.314	41	0.327	33	0.207	31	0.729	37	0.963	39	0.364	39
USA	1.120	9	1.247	7	1.139	6	1.142	6	1.058	13	1.314	10	1.255	6
1. AFSB	0.559	41	0.289	43	0.188	42	0.127	38	0.717	38	0.947	41	0.254	42
2. AM	0.857	20	0.740	18	0.643	17	0.479	18	0.921	23	1.145	20	0.741	18
3. ANTARCTICA	0.000	47	0.000	47	0.000	47	0.000	47	0.000	47	0.000	47	0.000	47
4. EU	0.628	37	0.496	32	0.445	27	0.321	24	0.714	39	0.987	37	0.522	30
5. ISLAM	0.406	45	0.193	45	0.160	44	0.096	43	0.559	45	0.987	37	0.186	45
6. OC	0.648	36	0.321	40	0.142	45	0.059	45	0.863	28	0.829	45	0.225	44
7. RAS	0.709	32	0.523	31	0.482	25	0.368	23	0.802	35	1.006	36	0.541	28
8. SAS	0.596	39	0.455	35	0.391	31	0.216	29	0.704	41	1.041	32	0.447	33

Table C. 17. All Indicators: Geosciences

	MCR	Rank	H₁	Rank	H₂	Rank	H₃	Rank	R₁	Rank	R₂	Rank	R₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.568	39	0.243	40	0.145	43	0.037	43	0.783	37	1.126	40	0.241	40
AUSTRALIA	1.095	10	1.097	12	0.960	9	0.517	16	1.080	11	1.545	10	1.136	11
AUSTRIA	0.990	15	0.749	22	0.930	10	1.163	7	1.002	18	1.430	18	0.756	20
BELGIUM	1.025	14	1.071	13	0.779	15	0.296	29	1.052	14	1.488	14	1.036	13
BRAZIL	0.820	28	0.689	28	0.665	22	0.604	14	0.886	29	1.308	29	0.652	28
CANADA	0.947	18	0.887	16	0.713	19	0.348	23	0.988	19	1.443	16	0.885	17
CHINA	0.750	31	0.718	24	0.668	20	0.477	18	0.801	35	1.258	33	0.734	23
CZECH REPUBLIC	0.660	36	0.349	38	0.245	40	0.087	42	0.834	33	1.209	37	0.359	38
DENMARK	1.150	7	1.179	7	0.865	12	0.353	22	1.149	2	1.613	6	1.181	8
FINLAND	1.198	6	1.359	4	1.216	4	0.565	15	1.119	7	1.617	5	1.422	3
FRANCE	1.080	11	1.066	14	0.917	11	1.433	4	1.079	12	1.530	12	1.028	14
GERMANY	1.198	5	1.308	5	1.099	6	1.433	3	1.138	4	1.626	4	1.288	5
GREECE	0.854	24	0.723	23	0.725	17	0.833	9	0.907	27	1.337	26	0.731	24
HUNGARY	0.849	25	0.703	27	0.723	18	0.295	30	0.910	26	1.348	23	0.867	18
INDIA	0.439	41	0.248	39	0.166	42	0.128	36	0.591	41	1.029	42	0.226	41
IRAN	0.385	44	0.231	42	0.077	45	0.008	46	0.548	43	0.986	44	0.146	45
IRELAND	1.064	12	1.160	9	0.795	14	0.299	28	1.087	10	1.536	11	1.069	12
ISRAEL	0.955	16	0.871	17	0.776	16	0.512	17	1.005	16	1.428	19	0.886	16
ITALY	0.880	21	0.703	26	0.555	28	0.337	24	0.980	20	1.379	20	0.686	26
JAPAN	0.889	20	0.781	21	0.621	24	0.417	21	0.965	22	1.378	21	0.736	22
LUXEMBOURG	1.399	1	1.561	1	2.565	1	1.285	6	1.120	6	1.692	2	2.305	1
MEXICO	0.673	35	0.448	36	0.278	39	0.187	32	0.840	32	1.217	36	0.373	37
NETHERLANDS	1.201	4	1.169	8	1.187	5	3.814	1	1.130	5	1.609	7	1.188	7
NEW ZEALAND	0.951	17	0.787	20	0.486	30	0.133	33	1.060	13	1.464	15	0.763	19
NORWAY	1.045	13	1.131	11	0.855	13	0.316	27	1.047	15	1.527	13	1.152	10
POLAND	0.602	38	0.406	37	0.300	37	0.098	41	0.748	39	1.161	39	0.426	36
PORTUGAL	0.858	23	0.788	19	0.606	25	0.327	26	0.938	23	1.344	24	0.743	21
RUSSIA	0.331	45	0.207	43	0.185	41	0.133	34	0.439	46	0.956	46	0.217	42
SINGAPORE	0.453	40	0.201	44	0.089	44	0.010	45	0.677	40	1.058	41	0.169	44
SOUTH AFRICA	0.727	33	0.538	34	0.338	35	0.109	38	0.847	31	1.280	31	0.527	32
SOUTH KOREA	0.846	26	0.645	29	0.647	23	0.701	12	0.930	25	1.321	28	0.571	31
SPAIN	0.821	27	0.596	31	0.344	34	0.109	37	0.971	21	1.343	25	0.526	33
SWEDEN	1.121	9	1.228	6	1.059	8	0.632	13	1.088	9	1.560	9	1.233	6
SWITZERLAND	1.307	2	1.418	2	1.258	2	0.796	10	1.206	1	1.717	1	1.471	2
TAIWAN	0.799	29	0.706	25	0.436	32	0.131	35	0.904	28	1.321	27	0.617	29
TURKEY	0.725	34	0.642	30	0.580	26	0.464	19	0.793	36	1.259	32	0.654	27
UK	1.140	8	1.159	10	1.063	7	1.602	2	1.102	8	1.569	8	1.160	9
UKRAINE	0.330	46	0.129	46	0.057	46	0.011	44	0.463	45	0.977	45	0.109	46
USA	1.242	3	1.398	3	1.242	3	1.059	8	1.144	3	1.657	3	1.420	4
1. AFSB	0.649	37	0.460	35	0.399	33	0.191	31	0.777	38	1.187	38	0.477	34
2. AM	0.858	22	0.790	18	0.575	27	0.448	20	0.935	24	1.362	22	0.711	25
3. ANTARCTICA	0.000	47	0.000	47	0.000	47	0.000	47	0.000	47	0.000	47	0.000	47
4. EU	0.754	30	0.565	32	0.668	21	0.735	11	0.811	34	1.253	34	0.592	30
5. ISLAM	0.428	43	0.235	41	0.283	38	0.333	25	0.553	42	1.253	34	0.248	39
6. OC	0.918	19	0.973	15	0.517	29	0.107	39	1.003	17	1.003	43	0.893	15
7. RAS	0.728	32	0.554	33	0.318	36	0.101	40	0.861	30	1.440	17	0.474	35
8. SAS	0.428	42	0.145	45	0.452	31	1.317	5	0.498	44	1.281	30	0.184	43

Table C. 18. All Indicators: Materials Science

	MCR	Rank	H ₁	Rank	H ₂	Rank	H ₃	Rank	R ₁	Rank	R ₂	Rank	R ₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.761	31	0.473	34	0.195	38	0.050	38	1.004	24	1.537	26	0.407	35
AUSTRALIA	0.943	23	0.847	23	0.485	25	0.184	31	1.065	18	1.657	20	0.814	23
AUSTRIA	1.157	8	0.954	20	1.392	5	4.711	1	0.988	26	1.629	24	0.996	17
BELGIUM	1.140	9	1.203	8	0.895	10	1.182	6	1.118	8	1.773	8	1.192	7
BRAZIL	0.782	28	0.668	27	0.334	30	0.116	35	0.958	29	1.526	27	0.572	27
CANADA	1.036	17	1.100	12	0.823	14	0.459	18	1.040	19	1.680	17	1.105	11
CHINA	0.804	26	0.741	25	0.595	23	0.431	20	0.876	37	1.483	32	0.745	25
CZECH REPUBLIC	0.901	25	0.838	24	0.524	24	0.279	22	1.020	22	1.592	25	0.760	24
DENMARK	1.231	5	1.308	6	1.067	6	0.768	9	1.166	4	1.820	6	1.353	6
FINLAND	0.960	22	1.095	13	0.702	18	0.323	21	0.980	28	1.629	23	1.067	13
FRANCE	1.109	11	1.145	9	0.832	13	0.690	12	1.114	9	1.751	9	1.100	12
GERMANY	1.042	15	1.110	11	0.927	9	0.740	11	0.993	25	1.663	19	1.125	9
GREECE	0.914	24	0.732	26	0.464	26	0.269	25	1.037	20	1.630	22	0.668	26
HUNGARY	0.770	29	0.558	30	0.406	27	0.207	29	0.944	31	1.496	30	0.569	28
INDIA	0.735	32	0.521	32	0.336	28	0.254	26	0.920	34	1.464	34	0.487	29
IRAN	0.678	37	0.440	37	0.293	32	0.164	32	0.893	36	1.428	37	0.412	34
IRELAND	1.223	6	1.516	5	0.995	7	0.598	15	1.130	7	1.823	5	1.377	5
ISRAEL	1.423	4	1.632	3	1.511	4	1.038	7	1.197	1	1.920	3	1.729	3
ITALY	1.024	19	0.953	21	0.625	21	0.656	13	1.100	13	1.706	14	0.868	22
JAPAN	0.986	21	0.990	18	0.707	16	0.574	16	1.030	21	1.649	21	0.958	20
LUXEMBOURG	0.329	43	0.000	47	0.000	46	0.000	46	0.583	42	1.159	44	0.000	45
MEXICO	0.733	33	0.529	31	0.297	31	0.195	30	0.940	32	1.461	35	0.437	32
NETHERLANDS	1.468	1	1.737	2	1.719	1	2.646	2	1.179	3	1.922	2	1.837	1
NEW ZEALAND	0.796	27	0.510	33	0.335	29	0.273	23	1.007	23	1.520	28	0.437	33
NORWAY	1.028	18	1.029	16	0.656	20	0.269	24	1.099	14	1.712	13	1.001	15
POLAND	0.605	38	0.397	39	0.152	40	0.034	41	0.840	38	1.375	38	0.330	39
PORTUGAL	1.037	16	0.992	17	0.609	22	0.237	27	1.108	10	1.728	11	0.975	18
RUSSIA	0.384	42	0.304	40	0.200	37	0.141	33	0.500	43	1.162	43	0.282	40
SINGAPORE	1.181	7	1.234	7	0.948	8	0.768	8	1.146	6	1.794	7	1.169	8
SOUTH AFRICA	0.719	34	0.415	38	0.209	36	0.085	36	0.950	30	1.483	31	0.348	38
SOUTH KOREA	1.047	13	1.031	15	0.774	15	0.518	17	1.080	16	1.693	16	1.042	14
SPAIN	1.045	14	1.048	14	0.666	19	0.444	19	1.103	11	1.717	12	0.962	19
SWEDEN	1.091	12	0.989	19	0.891	11	1.656	4	1.091	15	1.703	15	0.999	16
SWITZERLAND	1.459	2	1.770	1	1.604	3	1.221	5	1.186	2	1.939	1	1.812	2
TAIWAN	1.008	20	0.935	22	0.705	17	0.598	14	1.077	17	1.674	18	0.955	21
TURKEY	0.767	30	0.590	28	0.236	35	0.060	37	0.983	27	1.512	29	0.478	30
UK	1.110	10	1.138	10	0.890	12	0.749	10	1.101	12	1.736	10	1.124	10
UKRAINE	0.275	44	0.160	43	0.091	42	0.047	39	0.411	45	1.079	45	0.139	43
USA	1.429	3	1.598	4	1.669	2	1.951	3	1.156	5	1.885	4	1.707	4
1. AFSB	0.457	41	0.215	42	0.126	41	0.033	42	0.659	41	1.214	42	0.270	41
2. AM	0.691	36	0.448	35	0.169	39	0.041	40	0.922	33	1.451	36	0.381	37
3. ANTARCTICA	0.000	47	0.000	45	0.000	45	0.000	47	0.000	47	0.000	47	0.000	45
4. EU	0.602	39	0.447	36	0.291	33	0.216	28	0.771	39	1.339	39	0.400	36
5. ISLAM	0.504	40	0.239	41	0.082	43	0.015	44	0.766	40	1.339	39	0.189	42
6. OC	0.142	46	0.000	46	0.000	47	0.000	45	0.432	44	1.284	41	0.000	45
7. RAS	0.713	35	0.560	29	0.279	34	0.139	34	0.910	35	0.869	46	0.438	31
8. SAS	0.194	45	0.085	44	0.058	44	0.016	43	0.338	46	1.464	33	0.096	44

Table C. 19. All Indicators: Multidisciplinary

	MCR	Rank	H₁	Rank	H₂	Rank	H₃	Rank	R₁	Rank	R₂	Rank	R₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	1.328	11	1.341	16	0.977	5	0.644	9	1.151	21	1.871	20	1.636	8
AUSTRALIA	1.246	16	1.449	13	0.702	15	0.441	16	1.202	19	1.880	19	1.408	13
AUSTRIA	1.132	21	1.626	8	0.417	25	0.264	23	1.227	16	1.914	14	1.003	23
BELGIUM	1.293	12	1.209	21	0.851	9	0.788	7	1.128	23	1.857	21	1.343	15
BRAZIL	0.700	36	0.546	33	0.208	30	0.117	26	0.966	34	1.541	36	0.519	31
CANADA	1.353	10	1.533	12	0.836	11	0.547	13	1.219	17	1.956	13	1.588	9
CHINA	0.532	38	0.287	36	0.111	34	0.059	32	0.823	40	1.392	39	0.266	35
CZECH REPUBLIC	1.259	15	1.600	9	0.344	28	0.080	29	1.379	2	1.996	8	0.946	24
DENMARK	1.261	14	1.209	20	0.548	20	0.339	19	1.243	13	1.960	12	1.386	14
FINLAND	1.177	17	1.248	19	0.671	17	0.295	21	1.076	25	1.884	18	1.431	12
FRANCE	0.873	29	1.025	26	0.442	22	0.337	20	0.840	38	1.603	32	0.917	25
GERMANY	1.471	7	1.721	6	0.850	10	0.549	12	1.313	8	2.068	5	1.654	7
GREECE	0.985	26	0.837	28	0.171	32	0.040	33	1.260	11	1.823	22	0.636	29
HUNGARY	1.175	18	1.419	14	0.432	24	0.145	25	1.276	9	1.967	10	1.065	21
INDIA	0.523	39	0.243	37	0.065	36	0.021	35	0.857	37	1.413	38	0.200	36
IRAN	0.100	46	0.000	44	0.000	42	0.000	43	0.272	46	0.980	45	0.000	42
IRELAND	1.531	4	1.554	11	1.052	2	0.808	5	1.228	15	1.965	11	1.838	4
ISRAEL	1.395	9	1.376	15	0.814	12	0.568	11	1.275	10	2.017	7	1.494	11
ITALY	1.458	8	1.828	4	0.943	7	0.909	2	1.242	14	1.989	9	1.666	6
JAPAN	1.287	13	1.286	17	0.727	14	0.823	3	1.217	18	1.897	17	1.211	18
LUXEMBOURG	0.299	42	0.000	45	0.000	47	0.000	45	0.991	32	0.905	46	0.000	42
MEXICO	0.705	35	0.389	35	0.073	35	0.017	36	1.028	30	1.648	28	0.328	34
NETHERLANDS	1.512	6	1.709	7	0.948	6	0.672	8	1.316	7	2.038	6	1.760	5
NEW ZEALAND	1.526	5	1.592	10	0.727	13	0.392	18	1.354	4	2.096	4	1.569	10
NORWAY	1.036	25	0.669	30	0.252	29	0.083	28	1.253	12	1.907	15	0.636	29
POLAND	0.957	27	1.002	27	0.585	18	0.613	10	0.975	33	1.631	30	0.846	26
PORTUGAL	1.066	23	1.061	25	0.357	27	0.115	27	1.349	5	1.898	16	0.784	27
RUSSIA	0.309	41	0.092	41	0.027	40	0.011	37	0.599	42	1.191	41	0.073	41
SINGAPORE	0.898	28	1.813	5	0.439	23	0.066	31	0.863	36	1.659	27	1.149	19
SOUTH AFRICA	0.808	30	0.646	31	0.196	31	0.079	30	1.069	26	1.646	29	0.502	32
SOUTH KOREA	1.143	19	1.114	24	0.884	8	0.797	6	0.956	35	1.703	26	1.302	16
SPAIN	1.049	24	1.156	23	0.541	21	0.479	15	1.066	27	1.713	24	1.005	22
SWEDEN	1.639	3	2.043	3	0.993	3	0.815	4	1.358	3	2.179	2	1.969	3
SWITZERLAND	1.752	2	2.346	1	0.989	4	0.437	17	1.436	1	2.284	1	2.229	2
TAIWAN	1.124	22	1.176	22	0.553	19	0.237	24	1.146	22	1.712	25	1.117	20
TURKEY	0.737	33	0.389	34	0.063	37	0.000	42	1.103	24	1.616	31	0.164	39
UK	1.132	20	1.280	18	0.679	16	0.520	14	1.042	28	1.771	23	1.259	17
UKRAINE	0.146	44	0.000	43	0.000	44	0.000	47	0.387	44	1.017	44	0.000	42
USA	1.837	1	2.102	2	1.441	1	1.633	1	1.339	6	2.179	3	2.252	1
1. AFSB	0.720	34	0.619	32	0.147	33	0.033	34	0.996	31	1.589	33	0.486	33
2. AM	0.668	37	0.115	40	0.049	38	0.000	44	1.037	29	1.552	35	0.193	37
3. ANTARCTICA	0.000	47	0.000	47	0.000	46	0.000	40	0.000	47	0.000	47	0.000	42
4. EU	0.225	43	0.156	38	0.023	41	0.003	38	0.421	43	1.110	42	0.082	40
5. ISLAM	0.400	40	0.131	39	0.035	39	0.000	39	0.680	41	1.110	42	0.166	38
6. OC	0.748	31	0.000	46	0.000	45	0.000	46	1.165	20	1.297	40	0.000	42
7. RAS	0.745	32	0.796	29	0.414	26	0.265	22	0.832	39	1.583	34	0.672	28
8. SAS	0.113	45	0.000	42	0.000	43	0.000	41	0.291	45	1.456	37	0.000	42

Table C. 20. All Indicators: Plant & Animal Science

	MCR	Rank	H₁	Rank	H₂	Rank	H₃	Rank	R₁	Rank	R₂	Rank	R₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.731	30	0.486	34	0.413	27	0.331	26	0.864	31	1.130	31	0.500	32
AUSTRALIA	1.078	13	1.073	13	0.848	13	0.749	15	1.088	11	1.382	15	1.063	12
AUSTRIA	0.974	18	0.994	15	0.811	14	0.839	12	0.978	23	1.304	21	0.955	16
BELGIUM	1.104	11	1.138	11	0.979	11	1.185	5	1.069	15	1.388	12	1.083	11
BRAZIL	0.547	40	0.288	41	0.156	39	0.083	41	0.731	39	1.018	41	0.255	41
CANADA	1.069	14	1.059	14	0.766	17	0.537	19	1.098	10	1.386	13	1.019	13
CHINA	0.762	29	0.633	29	0.466	26	0.379	24	0.872	30	1.157	30	0.598	28
CZECH REPUBLIC	0.815	25	0.668	27	0.581	24	0.625	17	0.891	29	1.188	28	0.681	25
DENMARK	1.262	5	1.461	4	1.050	10	0.769	14	1.204	2	1.524	3	1.368	4
FINLAND	1.093	12	1.081	12	0.742	18	0.676	16	1.129	8	1.406	11	0.991	15
FRANCE	1.132	9	1.249	7	1.085	6	0.962	9	1.060	16	1.412	8	1.252	7
GERMANY	1.116	10	1.270	6	1.173	4	1.084	8	1.020	18	1.385	14	1.307	6
GREECE	0.781	28	0.579	30	0.359	31	0.189	32	0.931	27	1.180	29	0.531	31
HUNGARY	0.703	32	0.696	26	0.600	23	0.527	20	0.741	38	1.118	32	0.718	24
INDIA	0.306	47	0.126	46	0.097	43	0.086	39	0.442	47	0.860	47	0.133	46
IRAN	0.425	44	0.242	43	0.095	44	0.020	44	0.597	45	0.930	44	0.182	43
IRELAND	0.933	22	0.897	19	0.603	22	0.285	28	0.996	22	1.294	22	0.919	17
ISRAEL	1.167	7	1.158	10	1.065	7	1.152	6	1.124	9	1.426	7	1.157	9
ITALY	0.972	19	0.928	18	0.712	19	0.565	18	1.016	19	1.308	19	0.905	19
JAPAN	0.927	23	0.828	22	0.766	16	0.872	11	0.966	24	1.257	24	0.849	21
LUXEMBOURG	0.586	37	0.491	33	0.075	46	0.006	46	0.808	35	1.034	39	0.279	39
MEXICO	0.655	36	0.415	37	0.282	34	0.198	31	0.823	33	1.082	37	0.371	36
NETHERLANDS	1.324	3	1.598	1	1.355	3	1.101	7	1.181	6	1.543	1	1.604	1
NEW ZEALAND	0.972	20	0.819	23	0.517	25	0.377	25	1.071	14	1.325	18	0.754	23
NORWAY	1.179	6	1.231	8	0.770	15	0.406	23	1.200	4	1.489	6	1.140	10
POLAND	0.485	42	0.255	42	0.154	40	0.084	40	0.670	40	0.963	43	0.229	42
PORTUGAL	1.006	15	0.884	20	0.621	21	0.449	22	1.084	12	1.354	16	0.836	22
RUSSIA	0.479	43	0.349	39	0.215	37	0.111	36	0.603	44	0.976	42	0.322	37
SINGAPORE	0.970	21	0.777	24	1.054	9	1.558	2	0.935	26	1.251	25	0.914	18
SOUTH AFRICA	0.668	34	0.435	36	0.222	36	0.087	38	0.836	32	1.111	34	0.396	34
SOUTH KOREA	0.997	16	0.972	16	0.902	12	0.783	13	1.004	21	1.306	20	1.010	14
SPAIN	0.996	17	0.931	17	0.673	20	0.504	21	1.055	17	1.332	17	0.886	20
SWEDEN	1.266	4	1.370	5	1.057	8	0.931	10	1.210	1	1.521	4	1.311	5
SWITZERLAND	1.325	2	1.524	3	1.545	1	2.035	1	1.142	7	1.512	5	1.582	3
TAIWAN	0.810	26	0.636	28	0.376	30	0.230	30	0.957	25	1.205	26	0.559	29
TURKEY	0.358	46	0.191	44	0.113	41	0.122	35	0.511	46	0.885	46	0.156	45
UK	1.350	1	1.532	2	1.476	2	1.477	3	1.192	5	1.539	2	1.596	2
UKRAINE	0.552	39	0.399	38	0.334	32	0.325	27	0.647	41	1.028	40	0.392	35
USA	1.144	8	1.209	9	1.114	5	1.292	4	1.081	13	1.406	10	1.239	8
1. AFSB	0.575	38	0.321	40	0.184	38	0.080	42	0.750	37	1.040	38	0.310	38
2. AM	0.669	33	0.508	32	0.279	35	0.130	34	0.811	34	1.113	33	0.443	33
3. ANTARCTICA	0.728	31	0.000	47	0.000	47	0.000	47	1.201	3	1.408	9	0.000	47
4. EU	0.662	35	0.556	31	0.405	29	0.269	29	0.764	36	1.096	35	0.533	30
5. ISLAM	0.423	45	0.191	45	0.093	45	0.054	43	0.603	43	1.096	35	0.161	44
6. OC	0.868	24	0.861	21	0.322	33	0.101	37	1.015	20	0.929	45	0.628	27
7. RAS	0.785	27	0.722	25	0.410	28	0.185	33	0.907	28	1.258	23	0.642	26
8. SAS	0.493	41	0.467	35	0.112	42	0.014	45	0.621	42	1.189	27	0.255	40

Table C. 21. All Indicators: Economics & Business

	MCR	Rank	H₁	Rank	H₂	Rank	H₃	Rank	R₁	Rank	R₂	Rank	R₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.322	43	0.119	41	0.074	40	0.048	35	0.461	43	0.980	40	0.109	40
AUSTRALIA	0.678	24	0.479	30	0.282	28	0.146	29	0.870	19	1.220	24	0.415	28
AUSTRIA	0.715	21	0.595	19	0.352	22	0.177	25	0.882	16	1.235	19	0.527	23
BELGIUM	0.951	5	1.036	3	0.620	9	0.333	15	1.011	7	1.421	3	0.906	3
BRAZIL	0.556	32	0.553	24	0.248	33	0.085	33	0.723	34	1.154	30	0.425	26
CANADA	0.881	10	0.806	9	0.558	11	0.322	17	0.979	10	1.366	9	0.772	11
CHINA	0.927	8	0.730	15	0.554	12	0.416	11	1.037	4	1.399	7	0.693	14
CZECH REPUBLIC	0.133	46	0.094	43	0.037	42	0.013	39	0.223	46	0.846	45	0.069	43
DENMARK	0.830	12	0.794	12	0.500	16	0.332	16	0.937	12	1.334	11	0.685	15
FINLAND	0.725	19	0.545	25	0.402	21	0.230	22	0.848	21	1.265	17	0.530	21
FRANCE	0.879	11	0.833	6	0.735	4	0.676	6	0.898	15	1.329	12	0.835	6
GERMANY	0.706	22	0.571	23	0.440	17	0.557	9	0.827	24	1.224	23	0.530	22
GREECE	0.497	36	0.136	39	0.164	35	0.165	26	0.709	35	1.073	37	0.162	38
HUNGARY	0.749	16	0.666	17	0.409	20	0.200	23	0.831	23	1.267	16	0.614	16
INDIA	0.505	34	0.351	34	0.103	39	0.026	37	0.728	31	1.093	33	0.224	37
IRAN	0.561	31	0.790	13	0.327	24	0.000	44	0.740	30	1.137	31	0.728	13
IRELAND	0.726	18	0.515	28	0.431	18	0.336	14	0.871	18	1.226	21	0.549	19
ISRAEL	0.974	4	0.805	10	0.795	3	0.675	7	1.017	6	1.400	6	0.879	5
ITALY	0.818	13	0.736	14	0.540	13	0.290	18	0.921	13	1.306	14	0.743	12
JAPAN	0.512	33	0.322	35	0.254	32	0.199	24	0.697	37	1.082	36	0.313	32
LUXEMBOURG	0.607	29	0.642	18	0.318	25	0.000	42	0.723	33	1.264	18	0.592	17
MEXICO	0.685	23	0.489	29	0.530	14	1.099	3	0.758	29	1.169	29	0.376	30
NETHERLANDS	0.939	6	0.925	5	0.563	10	0.281	20	1.038	3	1.414	5	0.825	7
NEW ZEALAND	0.640	27	0.445	32	0.254	30	0.161	28	0.841	22	1.178	27	0.357	31
NORWAY	0.798	15	0.585	20	0.304	27	0.165	27	1.000	8	1.324	13	0.468	25
POLAND	0.442	38	0.177	38	0.022	43	0.001	40	0.697	36	1.033	38	0.082	42
PORTUGAL	0.641	26	0.675	16	0.311	26	0.115	31	0.816	25	1.194	26	0.556	18
RUSSIA	0.480	37	0.479	31	0.331	23	0.288	19	0.558	41	1.084	35	0.421	27
SINGAPORE	0.894	9	0.795	11	0.711	5	0.736	5	0.946	11	1.336	10	0.792	9
SOUTH AFRICA	0.362	40	0.000	45	0.000	45	0.000	45	0.631	38	0.991	39	0.000	44
SOUTH KOREA	0.801	14	0.806	8	0.525	15	0.240	21	0.898	14	1.300	15	0.803	8
SPAIN	0.718	20	0.585	21	0.418	19	0.419	10	0.878	17	1.229	20	0.524	24
SWEDEN	1.004	3	1.009	4	0.645	7	0.408	12	1.073	2	1.450	2	0.885	4
SWITZERLAND	1.085	2	1.051	2	1.184	2	1.930	1	0.983	9	1.418	4	1.085	2
TAIWAN	0.568	30	0.310	36	0.254	31	0.396	13	0.769	28	1.122	32	0.270	33
TURKEY	0.500	35	0.303	37	0.158	36	0.064	34	0.725	32	1.092	34	0.265	34
UK	0.931	7	0.833	7	0.627	8	0.600	8	1.022	5	1.383	8	0.785	10
UKRAINE	0.307	44	0.541	26	0.179	34	0.000	43	0.384	44	0.942	44	0.249	36
USA	1.246	1	1.381	1	1.271	1	1.326	2	1.108	1	1.564	1	1.437	1
1. AFSB	0.645	25	0.370	33	0.130	37	0.039	36	0.864	20	1.226	22	0.256	35
2. AM	0.742	17	0.579	22	0.655	6	0.858	4	0.797	26	1.199	25	0.534	20
3. ANTARCTICA	0.000	47	0.000	46	0.000	44	0.000	46	0.000	47	0.000	47	0.000	44
4. EU	0.326	42	0.133	40	0.128	38	0.099	32	0.475	42	0.961	42	0.154	39
5. ISLAM	0.341	41	0.112	42	0.051	41	0.017	38	0.566	40	0.961	42	0.103	41
6. OC	0.139	45	0.000	44	0.000	47	0.000	47	0.338	45	0.968	41	0.000	44
7. RAS	0.608	28	0.536	27	0.266	29	0.123	30	0.791	27	0.778	46	0.399	29
8. SAS	0.399	39	0.000	47	0.000	46	0.000	41	0.605	39	1.178	28	0.000	44

Table C. 22. All Indicators: Social Sciences, General

	MCR	Rank	H₁	Rank	H₂	Rank	H₃	Rank	R₁	Rank	R₂	Rank	R₃	Rank
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ARGENTINA	0.609	36	0.585	27	0.344	29	0.097	38	0.758	32	1.218	33	0.570	27
AUSTRALIA	0.916	15	0.798	19	0.643	20	0.505	18	1.012	10	1.437	15	0.756	19
AUSTRIA	0.624	34	0.619	24	0.562	24	0.405	21	0.664	38	1.214	35	0.607	23
BELGIUM	1.003	11	1.079	10	0.906	11	0.580	16	1.003	12	1.496	10	1.046	11
BRAZIL	0.548	37	0.352	35	0.229	37	0.165	30	0.722	33	1.169	37	0.294	39
CANADA	0.984	13	0.889	16	0.821	14	0.864	11	1.028	9	1.475	12	0.875	16
CHINA	0.789	22	0.643	23	0.369	27	0.134	32	0.941	18	1.367	22	0.571	26
CZECH REPUBLIC	0.230	44	0.091	45	0.010	45	0.000	45	0.376	44	0.948	44	0.086	45
DENMARK	1.321	1	1.374	1	1.732	1	2.814	2	1.129	4	1.654	2	1.473	1
FINLAND	1.157	5	1.181	3	0.933	10	0.538	17	1.181	2	1.624	3	1.177	3
FRANCE	0.703	28	0.663	22	0.749	16	1.079	8	0.709	35	1.258	29	0.709	20
GERMANY	0.658	31	0.599	25	0.603	23	0.685	14	0.701	36	1.230	32	0.622	22
GREECE	1.102	7	0.971	15	1.563	2	3.935	1	0.981	15	1.438	14	1.078	9
HUNGARY	0.866	18	1.027	12	0.692	17	0.315	24	0.896	25	1.401	18	1.050	10
INDIA	0.465	40	0.237	42	0.189	39	0.122	34	0.620	41	1.117	40	0.262	41
IRAN	0.536	38	0.164	44	0.145	42	0.000	46	0.715	34	1.148	38	0.332	35
IRELAND	1.008	10	1.043	11	0.778	15	0.487	19	1.071	6	1.498	9	0.976	14
ISRAEL	0.729	26	0.508	30	0.367	28	0.209	27	0.906	23	1.303	26	0.450	31
ITALY	1.149	6	1.192	2	1.508	3	2.392	3	1.003	13	1.531	7	1.247	2
JAPAN	0.647	32	0.478	31	0.336	30	0.210	26	0.800	31	1.245	30	0.443	32
LUXEMBOURG	0.742	25	1.093	9	0.847	13	0.393	22	0.697	37	1.328	25	0.886	15
MEXICO	0.629	33	0.308	39	0.221	38	0.106	37	0.857	27	1.216	34	0.283	40
NETHERLANDS	1.158	4	1.177	4	1.070	7	1.063	10	1.139	3	1.604	4	1.159	5
NEW ZEALAND	0.894	17	0.818	18	0.638	21	0.380	23	0.979	16	1.423	16	0.773	18
NORWAY	1.171	3	1.102	8	1.231	4	2.010	4	1.117	5	1.588	5	1.143	7
POLAND	0.492	39	0.264	40	0.180	40	0.058	42	0.635	40	1.147	39	0.303	38
PORTUGAL	0.790	21	0.540	29	0.606	22	0.643	15	0.878	26	1.332	24	0.575	25
RUSSIA	0.205	45	0.178	43	0.152	41	0.132	33	0.269	46	0.935	46	0.158	44
SINGAPORE	0.786	23	0.732	20	0.324	31	0.114	36	0.924	20	1.368	21	0.549	28
SOUTH AFRICA	0.896	16	0.868	17	0.664	19	0.435	20	0.961	17	1.420	17	0.785	17
SOUTH KOREA	0.713	27	0.447	32	0.685	18	1.073	9	0.802	29	1.240	31	0.489	30
SPAIN	0.998	12	0.982	14	1.070	8	1.704	5	0.987	14	1.441	13	0.979	13
SWEDEN	1.219	2	1.149	6	1.065	9	1.323	6	1.197	1	1.664	1	1.113	8
SWITZERLAND	0.983	14	1.112	7	1.076	6	0.745	13	0.918	21	1.477	11	1.155	6
TAIWAN	0.813	19	0.585	26	0.247	36	0.060	41	1.005	11	1.389	19	0.548	29
TURKEY	0.695	29	0.383	34	0.252	35	0.083	39	0.908	22	1.277	27	0.373	34
UK	1.039	9	1.001	13	0.880	12	0.802	12	1.066	7	1.521	8	0.987	12
UKRAINE	0.178	46	0.000	47	0.000	46	0.000	47	0.302	45	0.939	45	0.000	46
USA	1.088	8	1.157	5	1.109	5	1.095	7	1.040	8	1.540	6	1.172	4
1. AFSB	0.813	20	0.705	21	0.454	26	0.205	28	0.939	19	1.373	20	0.626	21
2. AM	0.663	30	0.419	33	0.269	33	0.162	31	0.838	28	1.270	28	0.389	33
3. ANTARCTICA	0.000	47	0.000	46	0.000	47	0.000	44	0.000	47	0.000	47	0.000	46
4. EU	0.459	41	0.246	41	0.139	43	0.070	40	0.643	39	1.101	41	0.203	42
5. ISLAM	0.612	35	0.326	36	0.252	34	0.167	29	0.802	30	1.101	41	0.314	37
6. OC	0.397	42	0.319	37	0.282	32	0.116	35	0.527	42	1.198	36	0.323	36
7. RAS	0.773	24	0.575	28	0.461	25	0.284	25	0.897	24	1.048	43	0.589	24
8. SAS	0.296	43	0.314	38	0.122	44	0.018	43	0.389	43	1.333	23	0.191	43

Table D. Country Ranking According to H₂ versus ranking Occupied According To H₀

Biology & Biochemistry				Clinical Medicine			Immunology			Microbiology				
		(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)			
1	Ireland	13.93	16	Denmark	1.62	2	Japan	1.55	13	Switzerland	2.13	1		
2	Switzerland	2.84	2	Norway	1.58	11	USA	1.33	2	USA	1.41	2		
3	Singapore	1.68	15	Finland	1.56	7	Switzerland	1.30	1	Denmark	1.33	10		
4	USA	1.24	1	Belgium	1.46	4	Israel	1.07	22	Austria	1.16	5		
5	Germany	1.15	8	Canada	1.40	5	Germany	0.96	4	Belgium	1.12	8		
6	UK	1.12	4	Switzerland	1.35	6	Ireland	0.83	3	UK	0.93	6		
7	France	1.03	18	Mexico	1.21	35	Italy	0.83	10	Netherlands	0.82	4		
8	Sweden	0.93	11	Netherlands	1.18	1	Australia	0.82	9	France	0.78	9		
9	Norway	0.58	21	Australia	1.13	13	Canada	0.73	7	Germany	0.78	7		
10	New Zealand	0.56	20	USA	1.13	3	France	0.66	6	Portugal	0.66	33		
11	Australia	0.56	14	Argentina	1.12	27	Netherlands	0.59	8	China	0.59	18		
12	Netherlands	0.45	7	New Zealand	1.10	16	UK	0.52	5	Sweden	0.54	13		
13	Japan	0.38	19	Singapore	1.07	31	Greece	0.51	26	New Zealand	0.53	22		
14	Canada	0.36	5	Sweden	1.06	8	South Africa	0.47	14	Canada	0.51	11		
15	Austria	0.36	17	Ireland	1.02	18	Finland	0.46	15	Australia	0.49	16		
16	Belgium	0.36	10	Hungary	1.01	21	Spain	0.44	19	AM	0.46	32		
17	Israel	0.35	6	UK	0.93	9	Austria	0.40	17	Norway	0.45	19		
18	Denmark	0.28	9	France	0.93	14	Turkey	0.37	42	Finland	0.44	15		
19	Finland	0.22	13	Spain	0.91	20	Portugal	0.34	23	Ireland	0.40	3		
20	Spain	0.20	23	South Africa	0.84	28	Hungary	0.29	27	Spain	0.39	23		
21	Portugal	0.19	25	Italy	0.83	12	Czech Republic	0.28	33	Singapore	0.38	21		
22	Italy	0.16	22	Brazil	0.77	36	Belgium	0.25	11	RAS	0.37	29		
23	Russia	0.14	32	Germany	0.70	15	Poland	0.24	43	Israel	0.37	20		
24	China	0.12	35	Czech Republic	0.65	22	Denmark	0.22	18	Japan	0.32	25		
25	Hungary	0.12	24	Israel	0.61	23	RAS	0.20	21	Italy	0.30	24		

Molecular Biology & Genetics				Neuroscience & Behavioral			Phar. & Toxicology			Psychiatry & Psychology				
		(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)			
1	Ireland	2.75	4	Austria	2.06	8	Switzerland	2.44	2	Argentina	6.42	20		
2	Denmark	1.68	9	USA	1.26	2	UK	1.64	4	Italy	1.19	2		
3	Sweden	1.40	15	Sweden	1.21	13	Sweden	1.51	6	USA	1.18	6		
4	USA	1.27	3	UK	1.16	1	Singapore	1.44	18	Canada	1.14	8		
5	Switzerland	0.97	2	Norway	1.07	6	Ireland	1.36	22	New Zealand	1.05	12		
6	Canada	0.96	11	Canada	0.97	5	USA	1.22	3	Switzerland	1.04	21		
7	EU	0.96	28	Switzerland	0.95	3	New Zealand	1.12	1	Portugal	0.90	27		
8	UK	0.95	5	Netherlands	0.94	12	Belgium	1.02	7	Brazil	0.87	10		
9	Austria	0.94	1	France	0.79	11	Denmark	0.97	11	Denmark	0.85	1		
10	Netherlands	0.90	6	Belgium	0.78	9	Germany	0.89	12	UK	0.82	3		
11	Finland	0.85	7	AM	0.77	31	Canada	0.88	5	Finland	0.82	7		
12	Israel	0.82	8	Hungary	0.67	19	France	0.73	13	Netherlands	0.81	4		
13	Germany	0.81	10	Germany	0.63	7	Italy	0.72	17	France	0.80	16		
14	Australia	0.71	20	Denmark	0.60	10	Israel	0.67	8	Greece	0.76	34		
15	Greece	0.65	24	Ireland	0.58	15	Mexico	0.55	29	Ireland	0.74	24		
16	Japan	0.58	17	Spain	0.58	17	Netherlands	0.48	10	Norway	0.67	23		
17	Belgium	0.57	16	Australia	0.53	18	Hungary	0.48	23	Poland	0.60	11		
18	France	0.56	12	Israel	0.48	4	Australia	0.45	9	Belgium	0.59	9		
19	Turkey	0.49	21	Greece	0.40	28	Finland	0.42	16	Israel	0.59	14		
20	Hungary	0.48	29	Italy	0.39	16	Portugal	0.41	30	Germany	0.53	17		
21	Italy	0.45	18	Finland	0.39	14	Spain	0.40	24	Sweden	0.53	13		
22	South Korea	0.45	35	Czech Republic	0.36	29	Japan	0.37	25	Australia	0.51	19		
23	Singapore	0.44	13	Japan	0.31	20	Austria	0.31	15	Spain	0.48	29		
24	Norway	0.40	14	Portugal	0.23	23	Taiwan	0.29	26	EU	0.39	35		
25	Spain	0.36	26	South Korea	0.21	27	Russia	0.22	27	Czech Republic	0.38	37		

Agricultural Sciences				Engineering				Environment & Ecology				Geoscience			
	(1)	(2)		(1)	(2)		(1)	(2)		(1)	(2)		(1)	(2)	
1	Finland	3.42	2	Norway	2.23	9	France	3.49	14	Netherlands	3.81	8			
2	Sweden	2.76	8	Switzerland	1.63	1	Sweden	1.61	5	UK	1.60	10			
3	Netherlands	1.70	4	Denmark	1.47	2	New Zealand	1.38	16	France	1.43	14			
4	Singapore	1.56	3	USA	1.36	8	Belgium	1.29	9	Germany	1.43	5			
5	Norway	1.54	7	Finland	1.28	10	Switzerland	1.18	2	SAS	1.32	45			
6	UK	1.52	9	Poland	1.22	31	USA	1.14	7	Luxembourg	1.29	1			
7	Belgium	1.29	10	UKraine	1.19	44	Austria	1.08	15	Austria	1.16	22			
8	South Korea	1.28	20	Sweden	1.14	4	UK	1.05	8	USA	1.06	3			
9	Denmark	1.22	5	Germany	1.11	11	Luxembourg	0.94	1	Greece	0.83	23			
10	USA	1.14	11	Israel	1.11	16	Germany	0.86	10	Switzerland	0.80	2			
11	France	1.05	16	Belgium	1.03	3	Denmark	0.85	4	EU	0.74	32			
12	Italy	0.94	14	SAS	0.99	42	Netherlands	0.77	3	South Korea	0.70	29			
13	Switzerland	0.87	6	France	0.98	15	Australia	0.76	12	Sweden	0.63	6			
14	Canada	0.82	17	Canada	0.97	23	Canada	0.66	11	Brazil	0.60	28			
15	Poland	0.67	34	UK	0.91	22	Hungary	0.60	28	Finland	0.57	4			
16	Germany	0.64	25	Netherlands	0.84	5	Norway	0.53	13	Australia	0.52	12			
17	EU	0.62	37	Australia	0.81	20	Italy	0.52	21	Israel	0.51	17			
18	Turkey	0.57	30	India	0.80	40	AM	0.48	18	China	0.48	24			
19	Portugal	0.53	21	Taiwan	0.78	35	South Africa	0.45	22	Turkey	0.46	30			
20	Australia	0.51	23	Czech Republic	0.76	6	Finland	0.44	6	AM	0.45	18			
21	Ireland	0.51	15	China	0.73	28	Brazil	0.42	23	Japan	0.42	21			
22	Japan	0.45	31	Austria	0.71	13	Japan	0.39	27	Denmark	0.35	7			
23	Greece	0.44	13	South Korea	0.62	34	RAS	0.37	31	Canada	0.35	16			
24	Israel	0.44	12	Ireland	0.60	21	EU	0.32	32	Italy	0.34	26			
25	SAS	0.37	27	Spain	0.60	17	Spain	0.32	17	Islam	0.33	41			

Materials Science				Multidisciplinary				Plant & Animal Science			
	(1)	(2)		(1)	(2)		(1)	(2)		(1)	(2)
1	Austria	4.71	20	USA	1.63	2	Switzerland	2.04	3		
2	Netherlands	2.65	2	Italy	0.91	4	Singapore	1.56	24		
3	USA	1.95	4	Japan	0.82	17	UK	1.48	2		
4	Sweden	1.66	19	Sweden	0.82	3	USA	1.29	9		
5	Switzerland	1.22	1	Ireland	0.81	11	Belgium	1.19	11		
6	Belgium	1.18	8	South Korea	0.80	24	Israel	1.15	10		
7	Israel	1.04	3	Belgium	0.79	21	Netherlands	1.10	1		
8	Denmark	0.77	6	Netherlands	0.67	7	Germany	1.08	6		
9	Singapore	0.77	7	Argentina	0.64	16	France	0.96	7		
10	UK	0.75	10	Poland	0.61	27	Sweden	0.93	5		
11	Germany	0.74	11	Israel	0.57	15	Japan	0.87	22		
12	France	0.69	9	Germany	0.55	6	Austria	0.84	15		
13	Italy	0.66	21	Canada	0.55	12	South Korea	0.78	16		
14	Ireland	0.60	5	UK	0.52	18	Denmark	0.77	4		
15	Taiwan	0.60	22	Spain	0.48	23	Australia	0.75	13		
16	Japan	0.57	18	Australia	0.44	13	Finland	0.68	12		
17	South Korea	0.52	15	Switzerland	0.44	1	Czech Republic	0.63	27		
18	Canada	0.46	12	New Zealand	0.39	10	Italy	0.57	18		
19	Spain	0.44	14	Denmark	0.34	20	Canada	0.54	14		
20	China	0.43	25	France	0.34	26	Hungary	0.53	26		
21	Finland	0.32	13	Finland	0.30	19	Spain	0.50	17		
22	Czech Republic	0.28	24	RAS	0.27	29	Portugal	0.45	20		
23	New Zealand	0.27	33	Austria	0.26	8	Norway	0.41	8		
24	Greece	0.27	26	Taiwan	0.24	22	China	0.38	29		
25	Norway	0.27	16	Hungary	0.15	14	New Zealand	0.38	23		

Chemistry				Computer Science				Mathematics				Physics			
	(1)	(2)		(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)		
1	Netherlands	12.14	4	Sweden	11.99	7	Australia	10.04	14	Finland	6.07	15			
2	Canada	2.41	8	Japan	3.44	41	USA	1.72	4	Sweden	2.91	14			
3	France	1.14	15	USA	1.52	2	Sweden	0.94	10	Switzerland	2.54	2			
4	UK	1.03	9	Spain	1.06	31	UK	0.83	7	Canada	2.51	9			
5	USA	1.01	1	South Africa	0.87	38	Israel	0.74	13	Spain	1.87	13			
6	Germany	0.94	10	Australia	0.63	15	Switzerland	0.53	1	India	1.84	35			
7	Switzerland	0.87	2	New Zealand	0.44	19	Germany	0.49	16	Italy	1.40	12			
8	Denmark	0.51	3	Israel	0.40	3	New Zealand	0.41	21	UK	1.17	8			
9	Italy	0.35	14	Norway	0.39	23	Singapore	0.41	5	USA	1.07	4			
10	Australia	0.30	16	UK	0.39	13	Norway	0.38	2	France	0.90	18			
11	Singapore	0.27	11	Switzerland	0.22	4	Belgium	0.34	3	Poland	0.74	25			
12	Sweden	0.26	5	Hungary	0.20	37	Austria	0.33	6	Germany	0.70	7			
13	Israel	0.25	6	Poland	0.20	28	Finland	0.32	11	Japan	0.68	24			
14	Belgium	0.23	13	Ireland	0.20	33	Denmark	0.31	8	Russia	0.67	37			
15	Japan	0.19	18	Germany	0.20	16	Canada	0.28	15	South Korea	0.61	27			
16	Ireland	0.19	7	Canada	0.16	8	Netherlands	0.26	9	Austria	0.53	6			
17	New Zealand	0.19	22	France	0.13	10	France	0.26	12	Denmark	0.49	3			
18	Austria	0.19	12	RAS	0.10	27	China	0.25	19	Netherlands	0.42	5			
19	South Korea	0.19	24	Mexico	0.09	17	Italy	0.23	17	New Zealand	0.40	11			
20	Norway	0.14	21	Austria	0.09	29	Ireland	0.22	23	Hungary	0.38	23			
21	China	0.12	29	Denmark	0.08	5	Taiwan	0.21	20	Taiwan	0.36	30			
22	Finland	0.11	19	Belgium	0.07	6	Portugal	0.21	26	Israel	0.32	10			
23	Spain	0.11	17	Netherlands	0.06	9	AM	0.18	18	Norway	0.32	17			
24	Greece	0.09	23	AM	0.06	20	Turkey	0.15	30	Belgium	0.32	16			
25	Czech Republic	0.09	27	Turkey	0.06	26	Spain	0.13	24	Portugal	0.26	19			

Space Science				Economics & Business				Social Sciences, General			
	(1)	(2)		(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
1	Hungary	5.46	2	Switzerland	1.93	2	Greece	3.94	15		
2	Canada	4.12	5	USA	1.33	1	Denmark	2.81	1		
3	AM	1.35	9	Mexico	1.10	29	Italy	2.39	2		
4	UK	1.29	8	AM	0.86	22	Norway	2.01	8		
5	Portugal	1.24	15	Singapore	0.74	11	Spain	1.70	14		
6	USA	1.10	6	France	0.68	6	Sweden	1.32	6		
7	Poland	1.04	21	Israel	0.68	10	USA	1.10	5		
8	Israel	0.98	1	UK	0.60	7	France	1.08	22		
9	Australia	0.95	7	Germany	0.56	23	South Korea	1.07	32		
10	Japan	0.73	20	Spain	0.42	21	Netherlands	1.06	4		
11	Germany	0.72	11	China	0.42	15	Canada	0.86	16		
12	Switzerland	0.69	4	Sweden	0.41	4	UK	0.80	13		
13	Italy	0.68	12	Taiwan	0.40	36	Switzerland	0.75	7		
14	Ireland	0.48	16	Ireland	0.34	28	Germany	0.69	25		
15	Netherlands	0.45	3	Belgium	0.33	3	Portugal	0.64	29		
16	France	0.43	13	Denmark	0.33	12	Belgium	0.58	10		
17	Belgium	0.40	18	Canada	0.32	9	Finland	0.54	3		
18	Spain	0.36	17	Italy	0.29	14	Australia	0.51	19		
19	EU	0.34	40	Russia	0.29	31	Ireland	0.49	11		
20	Denmark	0.30	10	Netherlands	0.28	5	South Africa	0.44	17		
21	Brazil	0.27	32	South Korea	0.24	8	Austria	0.41	24		
22	Mexico	0.25	22	Finland	0.23	25	Luxembourg	0.39	9		
23	Sweden	0.18	19	Hungary	0.20	17	New Zealand	0.38	18		
24	Argentina	0.13	25	Japan	0.20	35	Hungary	0.32	12		
25	South Korea	0.08	26	Austria	0.18	19	RAS	0.28	28		

Table E. Grades By Field According to H₁ Obtained By European Countries

A = Above what is expected from its publication share

B = 0%- 20% below what is expected from its publication share

C = 20%- 40% below what is expected from its publication share

D = More than 40% below what is expected from its publication share

LIFE SCIENCES

COUNTRIES	Biology & Bioch. (1)	Clinical Med. (2)	Imm. (3)	Microbiology (4)	Mol. Biology & Genetics (5)	Neuroscs. & Behavior (6)	Pharmaco. & Toxic. (7)	Psych. & Psycholog (8)
1. UK	A	B	B	B	A	A	A	A
2. Netherlands	B	A	B	B	B	C	C	B
3. Sweden	A	A	D	C	B	C	A	C
4. Belgium	B	A	D	B	C	C	B	C
5. Denmark	C	A	D	A	A	C	B	A
6. Finland	C	A	C	C	B	D	C	B
7. Austria	C	C	C	A	A	B	D	C
8. Germany	B	C	A	B	B	C	B	C
9. France	C	B	B	B	C	C	C	C
10. Italy	D	C	B	D	D	D	C	A
11. Spain	D	C	D	D	D	D	D	D
12. Greece	D	D	D	D	C	D	D	D
13. Portugal	D	B	D	D	D	D	D	B
14. Ireland	A	B	A	C	A	D	B	C
15. Luxembourg	D	D	D	D	D	D	D	D

PHYSICAL SCIENCES

SOCIAL SCIENCES

COUNTRIES	Chemistry (9)	Computer Science (10)	Mathematics (11)	Physics (12)	Space Science (13)	Economics & Business (14)	Soc. Sciences, General (15)
1. UK	B	B	A	A	A	C	B
2. Netherlands	A	C	B	A	B	D	A
3. Sweden	B	A	A	B	D	C	A
4. Belgium	C	C	A	C	D	C	B
5. Denmark	A	B	B	A	B	D	A
6. Finland	D	D	A	A	D	D	B
7. Austria	C	D	A	A	D	D	D
8. Germany	B	C	B	B	B	D	C
9. France	C	C	B	B	C	C	C
10. Italy	C	D	C	B	B	D	A
11. Spain	D	C	D	B	D	D	A
12. Greece	D	D	D	C	D	D	A
13. Portugal	D	D	C	C	A	D	C

14. Ireland	B	C	C	C	C	D	C
15. Luxembourg	D	D	D	D	D	D	B

OTHER NATURAL SCIENCES

COUNTRIES	Agricultural Sciences (16)	Engineering (17)	Environment & Ecology (18)	Geosciences (19)	Materials Science (20)	Multidisciplinary (21)	Plant & Animal Science (22)
1. UK	A	B	A	A	B	C	A
2. Netherlands	A	A	A	A	A	B	A
3. Sweden	A	A	A	A	B	B	A
4. Belgium	A	A	A	C	B	B	B
5. Denmark	A	A	A	B	A	D	A
6. Finland	A	A	C	A	D	C	C
7. Austria	D	A	A	B	A	D	B
8. Germany	C	A	A	A	B	B	A
9. France	B	B	B	B	B	D	A
10. Italy	B	B	C	D	C	B	C
11. Spain	C	B	D	D	C	D	C
12. Greece	C	D	D	C	D	D	D
13. Portugal	C	D	D	C	C	D	C
14. Ireland	C	B	D	C	C	A	C
15. Luxembourg	D	D	A	A	D	D	D