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## Country analysis: examining the numbers

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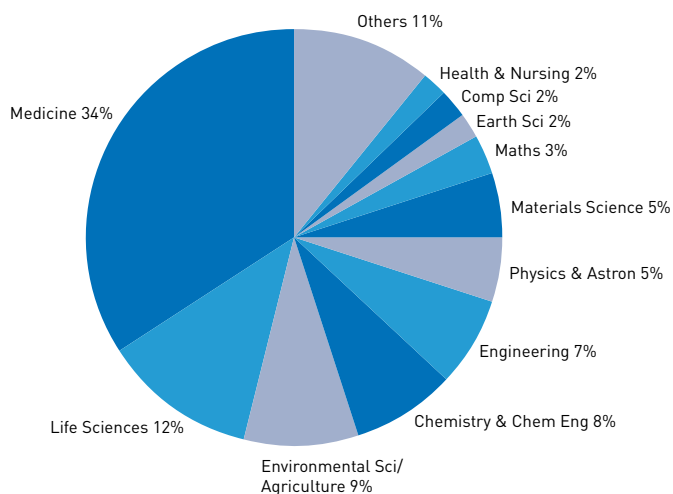


Figure 4 – Subject focus of Turkish research articles 2006  
Source: Scopus

A clear relationship exists between research funding, researcher population and article outputs at a national level, and Turkey is no exception. Data like this can inform and guide policymakers at all levels to leverage the infrastructure of the national science system and cultivate a knowledge economy.

As an ‘insider’ so to speak, Cem Saraç, Professor of Engineering at Hacettepe University, Ankara, says there are two principle reasons that could explain the figures in the tables above (3). Both relate to policy changes. “The first one can be linked to the

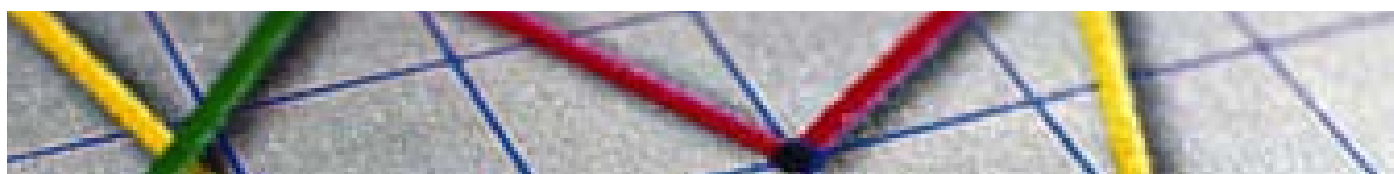
Turkish Ministry of Health’s strategy,” he says. Indeed, OECD figures (4) show that health spending per capita in Turkey grew, in real terms, by an average of 5.8% per year between 2000 and 2005. This was one of the fastest growth rates in OECD countries and significantly higher than the OECD average of 4.3% per year. In addition, as part of a nationwide performance-based contribution payment system (5), implemented in training and research hospitals in 2004, clinic and deputy chiefs, chief interns and specialists receive additional scores providing they publish a definite number of papers.

“The second reason for the significant growth is the prerequisites, generally initiated after 2000, for applying for university degrees at Lecturer, Assistant Professor, Associate Professor and Full Professor levels,” he continues. “My university stipulates that one has to write at least three international papers in order to apply for an Associate Professor Degree and another four international papers for a Full Professor Degree. While each university has its own requirements, prerequisites like these could also have affected article growth.”

References:

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- (4) OECD (2007) “OECD Health Data 2007, How Does Turkey Compare”, Retrieved September 21, 2007 from the World Wide Web
- (5) The Ministry of Health of Turkey “Performance-based payment system in the Ministry of Health Practices”, Retrieved September 21, 2007 from the World Wide Web

Research trends



# Country analysis: examining the numbers

Research evaluation at country or national level is moving increasingly towards a metric-based system. The most obvious examples of these countries are Australia, with the Research Quality Framework, and the United Kingdom, with the Research Assessment Exercise, where policymakers and administrators are being called upon to submit metrics for national evaluation.

It is interesting to extract two of the indicators researchers, policymakers and administrators focus on, namely article count and citations received at country level. The differences in the number of articles published in each country may not be unexpected but the top 1% and 5% citation thresholds certainly warrant further attention.

Methodology

An analysis was performed in Scopus to extrapolate the top 1% and 5% of cited papers for ten randomly selected countries within 27 subject categories. The results of this analysis can be found in Table 1 (downloadable at [www.researchtrends.com](http://www.researchtrends.com)).

The table denotes the number of papers published in each country for a period of five individual years from 2002-6. These counts are then separated into 27 subject categories (as specified in Scopus.com). For each of these years and for each subject category, the number of papers that forms a part of the top 1% of highly cited papers was derived.

For the purpose of this analysis, it is important to note that the

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cut-off date for the data extrapolation was set at September 18, 2007 resulting in a favoring of 'older' papers in most instances. To illustrate, we would like to take the example of Australia in the year 2002 where the following result was obtained within the subject category Engineering:

- There were 2595 papers published in 2002;
- The top 1% is thus a total of 26 papers (rounded up);
- The citation threshold equals 36 citations (up to September 18, 2007).

For an Australian researcher this means that if s/he has published a paper in Engineering and has obtained a citation

count of higher than 36 (considering the citation cut-off date), that researcher belongs to the top 1% of Australian research output in that year. The table also shows these figures for the top 5% citation threshold for all ten countries spread over the 27 subject categories.

This kind of data can also be used to analyze different results observed between countries. As a result, Research Trends will be providing this data for more countries in the future.

There are many interesting directions in which this research can develop and we welcome your **feedback**. This will help us to deliver the content you are most interested in.

A snapshot of the ten subject categories in Australia with the highest number of publications in 2006

Subject Area	Publications	Article #	1% Threshold	Article #	5% Threshold
Agricultural and Biological Sciences	5179	68	9	310	4
Biochemistry, Genetics and Molecular Biology	5411	56	18	297	8
Chemistry	1854	22	14	109	6
Earth and Planetary Sciences	2898	31	12	146	6
Engineering	3814	48	4	349	1
Environmental Science	2702	30	9	167	4
Immunology and Microbiology	1757	19	20	101	9
Medicine	12348	124	18	625	7
Physics and Astronomy	3109	33	10	237	3
Social Sciences	2702	35	4	163	2

A snapshot of publications in Engineering across ten randomly selected countries in 2006

Country	Publications	Article #	1% Threshold	Article #	5% Threshold
Australia	3814	48	4	349	1
Germany	10282	139	5	549	2
Spain	4539	56	5	247	2
France	9132	99	5	457	2
Greece	1791	23	4	149	1
Italy	7080	96	4	698	1
Japan	19254	262	3	1023	1
New Zealand	543	9	5	52	1
Taiwan	6994	96	4	555	1
South Africa	464	5	3	29	1