

AN EVALUATION OF TÜBİTAK'S SUPPORT PROGRAM OF INTERNATIONAL SCIENTIFIC PUBLICATIONS (UBYT)

SUMMARY

One of the main indicators of scientific production is the number of papers published in scholarly journals. The number of citations to such papers that are listed in citation indexes is an indirect indicator of the scientific quality and the level of scientific development of countries. Turkey ranks 18th place in the world on the basis of the number of scholarly publications. Yet, the scientific impact of these publications in terms of the number of citations they gather is well below the average of the world, the European Union (EU) and the Organisation for Economic Co-operation and Development (OECD) countries. The citation impact of only one out of every five papers is above the world's average.

Starting from 1993, TÜBİTAK has initiated a support program (UBYT) to incentivize researchers and increase the impact, visibility and quality of international publications authored by Turkish researchers. The objective of this study is to analyze the payments made to researchers by TÜBİTAK for their scientific contributions over the period of 1997-2015 and test if the support program has had any impact on the increase of the number of publications originating from Turkey. We analyzed some 390,000 publications with Turkish affiliations listed in the Web of Science database between 1976 and 2015 along with 157,000 payments records that belonged to the period of 1997-2015. We used the interrupted time series analysis technique (also known as intervention analysis or quasi-experimental time series analysis) to test if the support program helped increase the number of publications.

Starting from 1990s, the number of publications authored by Turkish researchers has increased tremendously. Over 36,000 papers were published in 2015 alone. Considerable percentages of those papers were supported by

TÜBİTAK in the early years of the program. Yet, due to the steep increase in the number of published papers with Turkish affiliations, the rate of support has gradually decreased over the years (to 30%).

As part of the program, more than 285,000 authors of some 157,000 publications (93% of which were papers/articles) were supported between 1997 and 2015. The total amount of support was about 124 million Turkish Liras (in 2015 current prices; equal to c. 35 million USD). The number of papers supported has increased four-fold and the amount paid to researchers has increased 13-fold during this period.

The overwhelming majority (97%) of the total support went to the authors of some 146,000 papers/articles and the rest (3%) to those of other types of contributions (i.e., book reviews, notes, letters to the editor, among others). The amount of support to be paid for each paper is determined on the basis of the impact factor of the journal in which it was published. Three quarters of the papers received half the total amount of support. Two-thirds received 826 liras or (250 USD) less per paper. The average payment per author was 448 liras (in 2015 current prices; equal to c. 130 USD). The amount was below 250 liras for multi-authored papers.

It is important that some 285,000 authors received monetary support from TÜBİTAK during this period. Yet, some two thirds (200,000) of these payments can be considered quite low. One third of the total number of applications for support was for 501 liras (c. 150 USD) or less. “Micropayments” made to the majority of authors suggest that the existing resources were used primarily to support the authors of mediocre papers published in journals with relatively low impact factors. It is likely that these micropayments failed to incentivize many authors and reduced the impact of the support program. Findings should be evaluated in the light of whether the small payments help achieve the main objective of the support program, which is to increase the impact and quality of scientific papers with Turkish affiliations.

TÜBİTAK set a minimum amount of support for each paper that is published in journals listed in citation indexes regardless of their impact factors. Thus, the authors of papers published in journals with relatively low impact factors get supported with the minimum amount of support. The minimum amount of

support set by TÜBİTAK for papers that appear in journals with low impact factors should be discontinued. The authors of papers that appear in journals with relatively higher impact factors, on the other hand, cannot even apply for support if the number of co-authors is high. This is because the amount of support for each paper gets equally split among the co-authors and the amount of support per author should be above the minimum threshold set by TÜBİTAK (250 liras per author in 2015).

Along with the use of the new support algorithm, the percentage of papers receiving relatively lower amounts of support in 2015 (compared to that in 2010) appears to have doubled, and the total amount of payments made to such papers has tripled. The algorithm currently used converts the article influence score of each journal to what is called “journal final score” in TÜBİTAK’s parlance to determine the amount of support to be given to each paper. Yet, the article influence score as a measure seems to have lost its original meaning after this conversion, as some journals with article influence scores over 1.00 indicating that they publish papers whose citation impacts are above the world’s average, seems to have received minimum support. The algorithm should be improved or redesigned so that such journals should be acknowledged and supported consistently.

We carried out an intervention analysis on the time series data of supported papers between 1997 and 2015 and found that the support program has had negligible impact on the increase of the number of papers. It can be argued that this is due to the micropayments made to the majority of the authors. It should also be pointed out that the objective of the support program is not to increase the number of papers *per se* but increase their impact and quality, as stated in the By-Law of TÜBİTAK’s support program (UBYT). Some authors may find the small payments satisfactory. Yet, if such small payments do not help achieve the program’s objectives, precautions should be taken to correct it. The support program seems to have functioned as a mechanism to transfer small amounts of payments to authors without any considerable improvement in the impact and quality of the papers.

The support program’s main objective of increasing the impact and quality of papers appears to have, over time, become secondary. Nonetheless, the

modest amounts of payments to researchers have both “transaction costs” and “opportunity costs”. The question of whether the best way of improving the impact and quality of papers is to distribute a total of 12 million liras every year as “micropayments” to incentivize some 15-20 thousand authors needs to be considered carefully along with the sustainability of such an approach in the long run.

Recommendations

- TÜBİTAK’s Support Program of International Publications (UBYT) needs to be reviewed comprehensively by taking into account all the options including its discontinuation and the existence of similar support programs that benefit researchers in Turkey.
- If the outcome of the comprehensive review is such that the support program is continued, the methods and instruments by which the impact and quality of papers can be improved should be studied extensively.
- The current method of support based on journal impact factors and article influence scores should be studied carefully along with other options so that papers get supported more selectively.
- Support to papers published in journals with relatively low impact factors and article influence scores should be discontinued (one third of those papers did not even deserve 500 liras in 2015 but got supported nonetheless because of the set minimum amount of support applied to all papers listed in citation indexes).
- The current support algorithm should be improved so as to consistently and generously support papers that are published in journals with article influence scores over the world average of 1.00.
- Alternative methods should be sought to increase the number of papers in Social Sciences and Arts and Humanities, as well as to increase the quality of journals that are published in Turkey and indexed in Web of Science and to support them.

- The impact of the support program should be monitored more often.

In conclusion, such support programs should function as a leverage to speed up the scientific and economic development of Turkey. New policies should be instituted to increase the impact and quality of scientific papers originating from Turkey, and TÜBİTAK's support program should be redesigned accordingly.