

Comment on CMA-Scientific Report 2013.

Barry C. Arnold, University of California Riverside; External Advisory Committee member.

The report provides a comprehensive overview of activities in the Center during 2013. The emphasis is on research activity within the center and on research conducted in collaboration with external, often international, colleagues. Overall summary statistics, such as the average number of papers published in quality journals per researcher, must be interpreted with care but they do give some useful indication of research productivity of the center. Over the past 6 years an average rate of just under one paper per year is reported. This, for mathematical research is a reasonable and acceptable figure, though it could be improved. The figure for 2013 is lower than in preceding years. This can be partially due to the vagaries of journal publication timelines, but it is to be hoped that it represents an anomalous “outlier” figure and not a change-point in the series. The report explains that researchers are subject to enormous teaching loads. This would explain the reduced level of productivity, but some documentation of the teaching load would strengthen this argument. It is good to notice that within the Differential Equations and Numerical analysis subgroup, which had a relatively lower publication rate compared with the other groups, significant relief from teaching will be in place in the next years. External research funding showed a pleasing increase in 2013. International cooperative research continues at a commendable level. The Center’s outreach to high schools programs appears to involve considerable effort. In the long run this will be good for Portuguese mathematics and is to be enthusiastically applauded. But it does take time. This goes along with the idea that different levels of research activity should be, and I hope are, expected of different researchers depending on the nature and level of their other responsibilities. I noted that among the 32 members of the OR-Statistics group, only 14 reported accomplishments in 2013 and only 12 reported on plans for the future. In contrast in the algebra group, with 10 members, 10 reported future plans and 9 reported achievements. I think that it would be better if 100% of the researchers gave comments on both their plans and achievements. Sprinkled through the report are comments regarding outstanding achievements and special recognitions accorded to researchers in the center. Examples include a best paper at a conference of the European Association of OR societies, and the election of one researcher to membership in the International Statistical Institute. Finally, it is very good to see that researchers are actively involved in cooperative projects in a wide variety of applied areas. Not only are such endeavors of immediate use to society, but also they frequently provide seed ideas for further theoretical research.



**Fakultät für
Wirtschaftswissenschaften**

Institut für Statistik und
Operations Research

Univ.Prof. Mag. Dr. Immanuel Bomze
Oskar-Morgenstern-Platz 1
1090 Wien
Austria

T +43 (1) 4277-386 52
F +43 (1) 4277-386 59
immanuel.bomze@univie.ac.at
<http://www.isor.univie.ac.at/>

To whom it may concern

Review of the Scientific Report 2013 of CMA

Wien, 7. Dezember 2014

The 2013 Scientific report documents another productive year for the Centro de Matemática e Aplicações (CMA) at FCT/UNL. This has been achieved despite the adverse circumstances regarding teaching load that were mentioned in previous reports. Apparently CMA is consolidating on a good development path.

International visibility of all groups has been further increased by several scientific activities, first and foremost by publications in international peer-reviewed journals and proceedings, but also by presenting research results in conferences, workshops and seminars. Worldwide recognition and excellent reputation has also been augmented by organizing national and international conferences.

It is strange that one of the major successes of CMA, the organization (led by the OR group) of the conference ICCOPT 2013 (one of the largest one hosted by UNL so far) is not mentioned in the report. This event was an enormous success both from participation and quality point of view, and continues to receive very positive feedback from inside the international scientific community.

The documentation about scientific publication activities leaves room for improvement. I could not clarify some inconsistencies in the figures, and there is also missing a group-specific relative performance index (published plus accepted papers per member). This would be desirable in view of the significant differences in size (number of members). The overall number of papers per person per year in ISI/international journals has been slightly reduced compared to the last, very successful, year 2012, but this may also be due to random variation. Before solving the recurrent problem, the excessive amount of time that the members of the group have to devote to teaching, a significant increase in research output cannot be expected.

I cite from an earlier report review of the (now inactive) Scientific Advisory Board: „it would interesting to incorporate in the report some information on this point, together with some discussion regarding the proportion: productivity versus number of teaching hours (...) we feel that [a reduction of teaching load] should (...) apply to researchers with high productivity and/or high quality level of publication. Perhaps a first step could be to include in future reports some quantitative information and an estimate/proposal on the possible number of candidates for this reduction.“

Summarizing, the report shows a healthy progress and opens good perspectives of the future of CMA.

Immanuel M. Bomze

Comments on the Scientific Report 2013

The scientific report 2013 is very informative and gives a vivid picture of the research developed by the mathematicians of Universidade Nova de Lisboa. As a general comment it can be said that the production is not too large but it is good and in several cases it is of great quality. The number of ISI papers per researcher per year is 0.54. In the report it is said that the year 2013 is somehow atypical, presenting a decrease in the production. It is perhaps too early to decide if this is just a fluctuation or there is some deeper reason. The results in the next two years will be crucial to decide on this point. According to the information given in page 11, the number of researchers with Ph D has increased in the last three years, 49 in 2011, 55 in 2012, 61 in 2013. As mentioned above, in the same period there has been a reduction of the number of papers per researchers. Perhaps it could be useful to reconsider the composition of the teams in order to integrate essentially active researchers. In view of the information in page 11 this could apply specially to the group in Differential Equations and Numerical Analysis. The heavy teaching load has been a recurrent concern in the last three years. In this respect I fully agree with one of the two goals established in the page 6 of the report: "Promote, whenever it is possible, the reduction of the teaching charge for active researchers with outstanding scientific projects". I would also include those researchers publishing in journals of high level and also those publishing a substantial number of papers in ISI journals.

With my congratulations for all the achievements and my best wishes for the future, Rafael Ortega.

After a 9-page general introduction and summary of overall activities, this report is divided into 4 parallel parts, reporting on each of the 4 subdivisions of the Center in some detail. The subdivisions, in alphabetical order are: Algebra, Differential Equations and Numerical Analysis, Operations Research, and Statistics and Risk Management. The 4 are different in size, distribution of senior personnel and overall development. The latter is, by far, the largest, and it is very well established, providing, perhaps, some of the greatest strength in such areas in Portugal. Nonetheless, the 4 groups seem to work together well, and all appear to be making good progress. Besides research, all of the groups are making professional contributions that are valuable.

The research productivity seems to be in line with past progress in the direction of making UNL one of the top research institutions in the country, though there seems to be some unevenness, both among groups and intertemporally. Three things should be noted.

- a) The nature and amount of publication differs a good among areas of mathematics such as these.
- b) The teaching obligations of the Department are substantial and taken quite seriously. I do not have data on the evolution over time of the relationship between the number of students serviced and the number of faculty, but the lack of hiring of faculty expected to teach cannot have helped. Also, the school tends to be programatically innovative and put a good deal of effort into being student friendly and career oriented, which places an extra burden on faculty. I personally feel that, though, in general, this ethic is a very good thing, the institution ought to take great care to see that the marginal value of such burdens exceeds the costs and that the burdens are borne by faculty who contribute less in the research realm. Finally,
- c) seniority differs a good deal among groups, and the distribution of productivity within the groups differs a good deal.

There appear to be some differences in the completeness of items mentioned by the various groups (which is not surprising). I think that the Center should try to blow its own horn even better, and perhaps more uniformly. There is a lot of good things happening. However, all this said, the report shows a research entity doing a good deal for Portugal at a modest price. I hope that the Center can keep up its momentum and that the country can properly support what it has. There will be inevitably be some changes in view of the one-time influx of Center Members that is coming. I trust that this will be handled well and will be an opportunity to reorganize the existing structure in helpful and productive management directions.

Charles Johnson

The College of William & Mary
Williamsburg, VA

October 21st, 2014.