Reviewer's report

Title: A Systematic Review on Methods of Health Research Economic Impact Evaluation: An urgent need in an era of economic crisis

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Reviewer: Steven Wooding

Reviewer's report:

The authors of this paper have clearly reviewed a large mass of research which makes it all the more frustrating that the paper lacks useful analysis and often restates conclusions of the work it reviews in a way that changes their meaning. I'm not sure that the article makes a significant contribution to the field or summarises the area effectively.

Major Compulsory Revisions:

1) It is also full of numerous slight grammatical anomalies: "(examining the relation between conducted studies..." rather than "relationship". Confusion over the use of 'Health researches' rather than "Health Research". The paper would benefit from copy editing or detailed review by someone fluent in written English. Currently these anomalies make it much harder to read than necessary and often obscure the detailed meaning. For example it is unclear what final conclusion actually means: "It’s time for have a universal attention for producing the best methodological tools for achieving this objective according to the special conditions.” Does this mean that everyone in health research should devote all their resources to developing new methodological tools for assessing economic benefit? I would not recommend publication of this paper in its current form.

2) Results
To their three questions to answer: "which economic outcomes are attributed to research, how can the health status of humans be described in terms of financial indicators, and which methods can be used to assess the economic impacts of research?" I would add a 4th which is how long does this take - as this is key to estimating return on investment and the value of research investment as compared to other investments. This is of fundamental importance and it is surprising that it is missing from the discussion.

3) Payback model
Seems to have been some mis-reading of the studies quoted and restatement of items considered as economic benefits that makes them less clear: "absorbing external investments and continuing to invest in foreign companies, absorbing
funds for future research”. I'm fairly sure report does not use the phrase 'absorbing' I suspect it uses 'attracting' which is rather different. The original report also considers aspects of whether economic benefits are global or local (ie economic transfers) an important point that is not mentioned and leads to the impression that the study makes no distinction between global and local benefits. I think the authors need to closely examine the reports they have reviewed to ensure they are accurately quoting/summarising them.

4) CAHS framework

Again some restatement of the findings seems likely to lead to confusion: "Producer rent' is the economic benefits of companies that are more than expected"

There is no discussion of the reasons/justifications for picking different lag times in assessment - 3-5 years to economic benefit seems very small in context of a number of estimates of lag times of 17 years from research to widespread benefit. One study suggesting a 17 year lag is Health Economics Research Group, Office of Health Economics, and RAND Europe, Medical Research: What's it worth? Estimating the economic benefits from medical research in the UK, London: UK Evaluation Forum, 2008.

Essential Minor Revisions:

5) I also can't find the justification for the authors suggestion that case studies can 'partially control' for confounding factors. Seems to me that the two types of studies have very different roles - case studies aid understanding and ecologic/macroeconomic studies provide numbers for rates of return. Case studies don't give numbers because they can't take into account the money that was spent on things that didn't work (or it isn't clear how much of this they should take into account).

6) Methods

It is odd that they did not use 'rate of return' 'internal rate of return', 'net present value' as search terms and it is not clear how many reports they examined on the 21 websites to generate their list of 10 papers.


that seeks to address many of the issues of macro economic evaluation. The paper itself seems confused about the issues surrounding macro-economic evaluation:

"One of these propositions is the study of short-term effects of research; e.g. in evaluating the economic impacts of cardiovascular research projects we may consider the reduced mortality after myocardial infarction as the outcome, rather than considering the overall reduction of cardiovascular disease mortality in an
extended period. The latter may be influenced by behavioral changes and improved lifestyle, which actually lead to disease reduction, not reduced mortality."

This seems to conflate and confuse a number of issues - surely disease reduction may indeed reduce mortality? The key point is to try and look more specifically at areas of disease reduction that are more tightly linked to research - in the example given look at reductions in mortality after infarction (ie where outcomes are likely to be affected more directly by the health system and improvements in it - although if research has lead to decreased incidence of infarction through improved knowledge of nutrition then this effect will be missed). The next logical step is to look at the improvements provided by particular treatments that have a clear link to research and then estimate the overall effect of these treatments in the population rather than attempting to guesstimate the fraction of benefits from research. [See evaluation forum work].

Discussion

9) The suggestions for improvements seems extremely naive - particularly: "we suggest adding a section to research project reports in which the researcher states the expected economic impacts of his/her project. This way the economic assessment process will go through a specific and correct course" This requires the researchers to understand how to evaluation economic impact and to be able to anticipate what form it will take - this seems optimistic in the extreme. Collecting data on expenditure and tracking what outputs and impacts are related to each grant/funding unit seems a much more tractable problem.

Level of interest: An article of limited interest

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I work for an organisation that carries out significant work in the area of research evaluation hence the overall fate of the field may affect the fortunes of the
organisation.