Dear Dr. McLachlan,

Thank you for your swift and constructive comments on our draft paper, entitled "Back to the future? Health and the World Bank's Human Capital Index". Thank you also for gathering seven reviews for this paper. We appreciate that the reviewers took the time to read our work and we found their comments extremely helpful. The reviews have allowed us to improve this piece significantly and we hope that you will find its revised version of publishable quality.

Please find below responses to the specific suggestions made by the reviewers and the editors. Changes to the original manuscript have been highlighted in the attached document in red.

Yours truly,

Felix Stein and Devi Sridhar

EDITORIAL NOTE

Thank you for sending us this paper and giving us the chance to consider your work. We sent it out for external peer review and discussed it at the Analysis manuscript committee meeting (present: myself, Kamran Abbassi, Gavin Yamey).

Unfortunately we do not consider it suitable for publication in its present form. However, if you are able to amend it in the light of our and/or reviewers' comments, we think this will be heading in the right direction for publication. This topic and is great and we don't think it needs huge work doing.

Please read the reviewers comments carefully and address those. Please read the editors comments and address those. Where the editors comments contradict or disagree with reviewers comments, please follow the EDITORS comments and point this out on your re-submission.

EDITOR'S COMMENTS

Great topic and well written although slightly polemic in parts which means it is not hugely balanced in its arguments in parts.

• We have tried to tone down the language in the main body. Happy to tone this down further if the editors feel it is still too controversial.

We would like to see the Health Supplement added in as a discussion point and this has been attached as a PDF.

• Since we do not know enough about the context surrounding this Health Supplement we have not discussed it in great detail. We would be delighted to discuss it further, once more information about its origins and the discussions surrounding it become available. For now we have incorporated it into the text

The explanations on the whole are clear and good. The strengths section is better than the weaknesses. The weaknesses section needs more attention to it and strengthening of the arguments, clarification and some more thought over this section.

 We have largely kept the strength section as it was – only making minor improvements to grammar, punctuation and phrase transitions. We have revised the weaknesses section, making the role of the HCI in the Human Capital Project more explicit and clearly separating the arguments around individualisation from those of an increase in healthcare financialisation.

The conclusion happens quite abruptly, and feels a bit flatter than the rest of the piece. The conclusion really should offer the reader a strong opinion based on all the arguments before.

• We have added a transition to the conclusion and rewritten it to be even more forceful.

REVIEWERS' COMMENTS

<u>Reviewer 1:</u> Need to review grammar and punctuation in the document. Tone and language needs to be tempered to be more scientific.

• We have tempered the tone throughout (except in the conclusion, as the editors felt that it was still a bit flat), and we have reviewed the punctuation (mostly taking out superfluous commas) and grammar (shortening sentences further).

Reviewer: 2: This article builds on the work of Dr. Stein and Prof. Sridhar on the financialisation of healthcare to provide an important analysis of the World Bank's newly developed Human Capital Index (HCI). A clear and thorough explanation of the HCI is provided, including how the Index is calculated and a convincing, anthropologically informed case is made of the role that the Index performs for the Bank, both internally and externally. Most significantly, the article makes a strong case concerning what may reasonably be supposed will be the future uses to which the HCI might be put by the World Bank: not just subsuming health to economic concerns but reorganising the responsibility of healthcare financing to individuals, opening the way for individualised debt instruments as the Bank has already suggested in the field of education. A timely and important contribution to the analysis of the World Bank as a governor of global health, and to the topic of Health Wealth & Profits, I give my strong commendation for its publication, without further review.

• Thank you for this supportive referee report.

Reviewer 3 (Y-Ling Chi):

- We really appreciate every reviewer's comments on our piece and have tried to take them all on. That said, we have been somewhat less open to this reviewer's comments, as she has not declared any conflict of interest, whilst also
 - publishing on the World Bank's "Investing in health" blog a blog that is trying to promote precisely those concepts which we analyse in our paper (https://blogs.worldbank.org/health/joint-learning-network-how-improve-efficiency-through-systematic-priority-setting)
 - serving as speaker on at least two Bank sponsored events (link above & http://www.aedes.be/resource/static/files/final_program_ihppn.pdf)
 - o publishing a chapter in a book written mostly by Bank staff
 (https://books.google.ht/books?id=wBkmBgAAQBAJ&pg=PR14&lpg=PR14&dq=YLing+Chi+%22world+Bank%22&source=bl&ots=EOUVljheNA&sig=ACfU3U2TxPSSS
 1HNuPJ0ZsMwRkR4H2911A&hl=en&sa=X&ved=2ahUKEwizrfjcjcfjAhUhwFkKHXF3
 B88Q6AEwA3oECAkQAQ#v=onepage&q=YLing%20Chi%20%22world%20Bank%22&f=false)
 - editing this report co-financed by the Bank
 (http://www.euro.who.int/ data/assets/pdf file/0020/271073/Paying-for-Performance-in-Health-Care.pdf)
 - o serving as a consultant for the Bank for 1.2 years, according to her linked-in profile: https://uk.linkedin.com/in/y-ling-chi-36958b25

Thank you for giving me the possibility to review this commentary considered for publication at the BMJ. The commentary looks at the Human Capital Index (HCI), the latest indicator developed by the World Bank and seeks to present the strengths and weaknesses of the index in improving health worldwide. I have read the piece with interest – the write up is very clear and the comment could be an interesting contribution since there is very little discussion about the HCI yet. However, the discussion fails to capture the measurement challenges of the HCI or contextualise the new index in the existing literature or measurement efforts in the past.

- To an extent this is true: measurement issues around the HCI could & should be discussed in greater depth. However, we do not think the BMJ is the best venue for this, as it is a generalist journal and does not aim specifically at a health-economics audience. Such a focus also risks distracting from the main point in this piece, namely what the HCI as part of Human Capital Theory does conceptually.
- The main criticism put forward by the authors is that the HCI 'subsumes healthcare to the goals and logics of economic growth'. I don't see this as a criticism of HCI, but of human capital theory as an entire field of enquiry. As the authors rightfully point out, the concept of human capital is very closely link with questions around worker productivity and economic growth. Productive abilities can be enhanced by education, health, experience, skills etc. I find it hardly surprising that a measurement of human capital subsumes health to the logics of productivity; in the sense that health is part of the definition of this capital. Since the 1980s, many attempts to measure human capital has included measures of health and the World Bank HCI is in line with those. If the authors disagree with the premises of human capital theory, they should revise the commentary to reflect their concerns as such.
 - Yes, fair point. We have now highlighted even more that we just like our interviewees at the Bank very much consider the HCI to be part of broader efforts of framing conversations around health in terms of human capital. We had already made this clear in the beginning of the

section entitled "The Human Capital Index" but we have now made this explicit throughout the text.

- The aim of the HCI is to basically push further investments in education and health by demonstrating to countries that there could be significant 'returns on investment'. The discussions about the weakness of the instrument are not really fully in line with this: the HCI is criticised for things that it does not intend to do and it seems a bit unfair at points.
- o For instance, the authors compare the HCI to the human development index, stating HCI contrasts with other 'development indices'. I agree that the HDI is a much better development index, but its aim is to rank countries according to their level of development; whereas the HCI intends to capture the unrealised economic gains from loss of health and education and is therefore not a development index.
 - We disagree: The HDI which the Bank has internally been reluctant to use for a long time and the HCI stand in direct competition when it comes to how we think about development and about health within it. Both set overall development goals (improving "development" vs improving "human capital") and both include health components.
- o The authors also don't really compare HCI to other existing measures of human capital that are in use. They point out that human capital is one of the oldest fields of enquiry in economics. There have been numerous attempts to quantify HC.
 - This criticism has been made above. Please see our answer above. Within 2000 words and for a general audience, we decide in this piece not to weigh the pro's and cons of different HCIs but to think broadly about the subject first. This is what most people in the health/development community want to first learn about and understand. We are however, happy to write a follow-up paper on different HCIs, if there is a demand on the BMJ side.
- The OECD has worked extensively on measurement of human capital, it didn't quite include health
 - This is relevant for people who already accept that human capital is a good way to think about health. This is precisely what our article challenges, which is why we mention the HDI in comparison.
- Other measures would only include rough measures of health such as life expectancy
 - Please see previous comment
- There has been important work done by the IHME (Lim and colleagues) in the same spirit as the HCI. As a reader, it would be much more useful to try to understand what the contribution of the HCI is compared to existing work see https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)31941-X/fulltext#%20
 - Please see previous comment
- o The authors don't actually discuss the 'strengths' of the HCI itself, but rather praise what the Bank is trying to do with the HCI. **Yes: please see the comment above of how we have now made this more explicit in our article.** It should be noted that the HCI is an improvement in many regards:
- It considers health not just as life expectancy and makes a first attempt to consider morbidity and mortality selection using U5m and stunting.
- It considers quality of education as well as length of education, something that researchers have struggled for a long time. https://www.devex.com/news/opinion-2-things-the-world-bank-s-human-capital-index-gets-right-on-education-93654
- o The authors don't actually talk about the HCI itself, really. It discusses opinions about strategies of the World Bank that the authors find problematic; which many readers might not disagree with but seem slightly off topic in the context of this article. They present the mechanics of the HCI but yet don't offer constructive comment about whether those make sense:
 - We challenge in which way the HCI is supposed to "make sense" in the first place. Yes, there are a tremendous amount of problems as to how the HCI moves from health to growth for example. But these problems are only relevant to people who accept that we should speak about health in terms of HC in the first place. This is what our article challenges, and we consider this to be much more pressing and relevant to the BMJ audience at this moment.
- Is stunting a good measure of morbidity? Some may argue that it is not. Perhaps it is worth researching and raising the pros and cons of using stunting.
- How are the different components of the HCI combined into a single measure? There might be methodological issues with weighting each element of the indicator this typically influences very heavily what the final figure would be. This seems to be a potential weakness of the HCI.

• Please see comments above

The presented weaknesses seem to refer more to problems with the Bank's ethos and modus operandi.

- The authors state that the HCI will push private funding in healthcare rather than public funds: the policy documents they cite are generic policy documents that predate the HCI. It's perhaps a general position of the WB (although not sure this is correct in health given the Bank's latest engagements on UHC or the GFF), which the authors could question in a different piece, but I don't see the link with the HCI.

- The reviewer here touches on an important topic that we think about a lot: Can and should the "health" work of the World Bank be dissociated from the Bank's activities in other spheres? This separation can be desirable to adequately grasp the Bank's internal complexity. Yet, past work on the health effects on structural adjustment policies (cited in our text) suggests that a full dissociation does not make sense. In re-writing the text we have stuck to embedding the health work in the wider work of the Bank (without doing this too much, so as not to put off the health specialists who read the BMJ).
- The authors imply that the HCI will promote a vision of healthcare focused on productivity, at the expense of 'non productive members of the society'. It may be a problem with human capital theory more widely, not specifically a problem of the HCI. The HCI actually uses quite generic measures of health like life expectancy or stunting, so not sure why it would undermine investments for those who are not in working age.
 - We have made the close link between HCI & HC theory more explicit now
- P6, L37-48 a link here is made about international cooperation on taxation, tariffs and redistribution it is not clear why there is reference to this here?
 - Ok, we have made the relevance of this more explicit now
- In general, the HCI is fairly new and has not been widely used yet (as of mid-2019). The 'weaknesses' that the authors point to then seem to be 'speculative' in nature. I understand that this is a commentary, and as such, it should leave some space for discussion of ideas and opinions, but I think that ideas need to be supported by some level of evidence.
 - Surely the fact that the HCI is new shows that weaknesses *and* strengths of the HCI are speculative. This comment strikes us politically biased in favour of the Bank. Moreover, while quantitative evidence is often useful, conceptual analysis based on qualitative research is as well.
- Finally, the authors imply that the HCI 'works for the Bank itself internally'. They support this claim by stating that 'it spurs further data gathering efforts around health as it relies on country data rather than than IHME estimates'. I find this comment problematic.
- o First of all, the WDI child mortality estimate is not an indicator collected by the World Bank. It is collected by a well-established UN inter-agency Group for child mortality estimation, which also includes prominent experts from many institutions incl. UNICEF and WHO. They have worked on this for decades and decades.
 - We would not claim anything to the contrary. Yet we say that this index enables the Bank to position itself as a major player in health & to widen its grants and lending portfolio (we cite more reasons in the text)
- o Would the authors imply that the IHME estimates would have been better for this indicators? See other authors have pointed out: https://www.cgdev.org/blog/global-burden-disease-estimates-secret-recipes-or-spoiled-ingredients
 - No we do not imply this. In fact, we are here repeating a point that the HCI team has told us in an off-the-record interview, so we are confident that this is a strength of the index that the Bank itself considers important.

Other comments:

- Box and figures numbering: they are screenshots from other publications, they need to be edited and numbered correctly. It is hard to assess the value of the two figures as they are not discussed at all in the text.
 - Yes, we have now added references to both images in the text.

<u>Reviewer: 4</u>: The manuscript is well-written, and provides an interesting discussion on the strength and weakness of the "human capital index" proposed by the World Bank as a guide for policy interventions.

Comments:

- (a). On page 4, lines 9-13. Actually in the health economics literature, "health" has long been considered as durable capital stock, which may depreciate by age and increase by investment and eventually produce healthy time. The HCI further assumes that healthy time can be fully translated into economic growth. I think this can be further clarified in the analysis.
 - This depends on what is meant by "fully translating" healthy time into "economic growth". The HCI's individual components are weighted so as to reflect that health is not converted into expected growth 1 to 1. Rather than opening this fascinating debate here, we would prefer to keep this article simple & to discuss the index' details & weightings in a health economics publication
- (b). On page 4, lines 59-60. In the section "Weakness of the HCI", I feel like the second argument is quite strong. But I am a little bit confused with the first argument brought by the authors. Paying attention to human capital does not necessarily mean that the policy will be more likely to favor those advantaged in terms of their

current productivity level. The human capital based healthcare may actually support more for people who can enjoy highest gain in human capital and thus highest income increment, given the same healthcare inputs. I think the authors may need to re-consider how this issue may lead to a concern towards equity.

- Thanks. We have taken this on board & made our concern here slightly more careful.
- (c). On page 6, lines 22. There is a typo... it should be "easier" not "easer"?
 - Corrected.

Reviewer: 5: The authors argue that the World Bank's Human Capital Index (HCI), launched in 2018, is not helpful for guiding healthcare policy. Discussion around what indicators we should use for decision making in healthcare policy is important. The indicators we use will drive investment and thus they can be very influential. The authors argue that HCI is not suitable because of its potential implication for equity, who is responsible for financing healthcare, and mechanisms that lead to further patient debt. The piece is written well and is engaging.

• Other readers have considered our writing style a bit too polemical, so we tried to tone it down, without losing all elements that may make it engaging.

The manuscript is missing the standfirst. If the first paragraph (prior to section 1) is intended to be the standfirst, it reads more as an abstract. It should be shorter and to the point.

• Happy to include this if the editorial board deems it necessary

The aim of the first section of the papers is to define human capital and describe the historical background of the concept. The definition is a bit buried in the text; it is in the last sentence of the section, in a paragraph that is otherwise about the term being a political concept. Defining the term earlier will help a non-economist reader, which the BMJ will have.

• We have moved the definition to the very top of the section.

I believe the title of the paper is based on HCI going back to ideas described in this section (in addition to the movie reference), and ignoring recently developed tools that consider e.g., equity. The implications of this should be tied together in the paper's conclusion if this is a central theme. Otherwise, it is not clear why the historical background is important for the argument.

• Yes, we have made this link more obvious in the conclusion now

Page 2, line 31 "the HCI tries to do something quite remarkable". Is it the authors' belief that they achieve this to some extent? The tone seems to imply that their answer is no, it does not, but the question is not explicitly addressed. Answering the question does not seem very important to the authors' argument, which implies even if it does achieve its intention, HCI is not very useful for policy. Framing the argument in this way can be done more explicitly.

• It is too early to say what the HCI will achieve. For now, all we have is the conceptual apparatus from which it emerges as well as its methodology. This is what the argument is based on. Further conclusions can be drawn in the future, but it seems a little early to draw them already now.

Page 4, line 59. The authors mention the Bank's definition of human capital excludes those who may move abroad as part of their argument concerning equity. I am not sure this aspect is related to equity. Though, this issue does deserve further discussion. The HCI is expressed by country and can easily be converted to GDP shortcomings (page 3, line 39). Presumably, if we invest according to HCI, we may have some leakage (from population movement) that is not captured by HCI, and that leakage is likely dependent to some extent on the countries' HCI value. That could be a problem for the HCI achieving what it aims to achieve-if its aim is to increase specific countries' productivity. The implications of overcoming this methodological issue may have problematic moral implications for how one would use the HCI.

• This is fascinating and we take this as a comment, rather than a demand for revision. We would love to continue to briefly flag this point in the equity section for now, since poor countries are those with the biggest outward migration. If the HCI addresses healthcare in such poor countries, should it not address this issue (an issue that is in fact very prominent in the human capital literature beyond health).

A number of examples would be stronger if the authors provide additional explanation instead of requiring the reader to delve more deeply into the works they cite. For example, page 3, line 33, what does the author mean by "make sense of ongoing changes in the global..."; make sense is quite vague here; make sense in what way?

- We would have liked to provide more examples but we are already over the word count. Page 5, line 49. It is not clear what "this" refers to. Further, it is not clear that indebting patients is your third issue until reading the conclusion. The two prior paragraphs number the issues. This one does not and I interpreted potentially indebting patients as a consequence of issue 2.
 - Yes, thanks, we have re-written that last section of the "weaknesses" to make it clearer.

It is worth noting that if indeed investing according to HCI potentially affects financial risk protection negatively, then it would not follow the principals of Universal Health Coverage and the Sustainable Development Goals. Is this the authors' view?

• This is yet to be seen

What is the concluding recommendation then? Should the HCI exist but only to promote more spending on health (a strength) and not be used for decisions within health budgets (due to its weaknesses)?

• We have updated the "key messages" to be even more precise

Page 4, line 29. The authors write only the acronym for the Institute for Health Metrics & Evaluation. Also, it is not clear why IHME is specifically mentioned as opposed to other estimates?

• Thanks, we have taken this out

The images/tables are not referred to in the text.

• Thanks, we refer to them now

Endnontes or footnotes seem to be mixed in with the bibliography; for example, item 18 in the bibliography.

• Happy to polish this even further if the entry is accepted.

Some of the citations seem incomplete (e.g., 28 and 29) or have additional text (e.g., 16, 17, and 33) in the bibliography.

• Happy to ask the copy editor if additional text in the Bibliography is ok or not

Reviewer 6: This article offers a valuable analysis of the World Bank's recently introduced (2018) Human Capital Index (HCI), which I greatly enjoyed reading. It explains what the HCI is, its historical roots in the neoclassical economic theories of human capital developed especially by Gary Becker and his student Michael Grossman, and lays out some of the potential strengths and weaknesses of the Index. I think there is great value in this kind of analysis – ie. that contextualises the often-reified numbers produced by global health knowledge brokers, like the World Bank. However, I wonder if the article takes a more polemical stance than is necessary. Given the relatively short length of the article, the claim that the HCI is 'of limited use for guiding healthcare policy overall', for example, cannot really be substantiated. While I am sympathetic to the authors' claims, I think the most valuable contribution of this article is in offering BMJ readers contextualisation of the HCI within its historical/epistemological/organisational genealogy. I would recommend saving a more thoroughgoing critique of the HCI for a longer-form article. This can accomplished quite simply by tempering some of the language and claims throughout (interestingly, the conclusion to the article already strikes a more balanced tone). This is my main concern with the article, though please also see more specific points below.

• Our current compromise here is to balance the article throughout & render the conclusion more forceful. Happy to change the tone further if need be.

1. Introduction:

P1 Line39/40 – the description of Adam Smith's early characterisation of human capital as 'one that is fixed and realised within persons' makes it sound as though it is immutable ('fixed'). Perhaps 'embodied' or 'located' would be a better term here?

• We are trying to be as close to the original as possible here, within the flow of the phrase.

2. The HCI

P2 Line 57-60 - in the description of the HCI's three components, the first sentence is a bit awkward and would benefit from rewriting.

• Yes, we have done this, thank you.

P3 Line 37 – I found myself wondering how the different elements of the HCI were combined, exactly, above and beyond how it is described as 'via multiplication'. I found the answer in the supplementary Table 1, but note that there is no in-text reference to Table 1. It would be good to place this relatively early in this section. And in text reference to Table 2 is also needed.

• Thanks yes, we have added references to both tables & can put table 1 in early.

3. Strengths of the HCI

P3 Line 49-60 – These sentences seem to ascribe a lot of agency to the HCI – it 'does' (line 50), it 'tries' (line 53), it 'serves' (line 55).

• Thanks, we have toned this down.

The first sentence also makes some assumptions about what economists at the Bank consider to be their job (this doesn't appear to be based on qualitative interviews with Bank economists, for example). Perhaps using the Bank's mission statement/vision statement etc would be a good way to make the same point without risking such assumptions about individuals' views?

• This was in fact based on several interviews with Bank staff & two weeks of observation at two Bank Spring Meetings (2018 and 2019). We have still taken the phrase out, just so as to tone down the main text.

P4 Line 3-7 – I'm not convinced that the HCI 'opens up new markets for lending and advice for the bank, beyond its traditional focus on infrastructure investment'. This claim seems a bit overstated/outdated given the Bank has been lending for health for a solid few decades now.

• We have relativized this a bit. (However, the argument really comes from the reference cited)
P4 Line 9-10 – I know that Becker/Grossman considered health a consumption good, but that hasn't been introduced in this article, so that sentence "Since the HCI considers health spending no longer a consumption good..." comes as somewhat of a surprise. Is there a way to rephrase/rework this?

• Yes, we took it out.

P4 Line 29 – it might be worth spelling out who/what the IHME rather than using the acronym.

• Yes, we took it out.

P4 Line 29-32 – In the sentence starting "Moreover..." there is a subtle invocation of causality that I'm not completely convinced by, i.e. that because of the conceptual origins of human capital in labour economics, this enables the bank to make sense of the global job market. Perhaps this can be rewritten to imply less of a causal relationship? Incidentally, the next sentence also starts with 'Moreover'...

• Yes thanks, we have changed both. The causality is there in real life (the HC team told us that their focus on the concept comes from trying to think about changes in the nature of work) but we have still made this sentence a little less causal.

P4 Line 35-38 – I think that NGOs eagerness to adopt the HCI could be characterised in a way other than 'confusing'. This speaks to the broader point that the HCI itself can be a very powerful tool with which to advocate for equity-enhancing health initiative that otherwise might be hard to justify in non-economic terms. This, as I see it, is one of the strengths of the HCI – that within a broader climate where economic logics carry so much gravitas (often to the detriment of equity arguments), harnessing economic logics in service of equity aims is a potential strength.

• Yes, thanks, we took this out

4. Weaknesses of the HCI

P5 Line 19 – this sentence references a country's 'stock of wealth'. This is a bit of a specific term that isn't really defined/explained – could it be rephrased or briefly defined?

• We added the term "national" and an explanatory reference

As a final point, there is a slightly unusual/awkward use of the word subsumed throughout the article. To the best of my grammatical knowledge, things can be subsumed within and subsumed under, but can't be subsumed to. I would recommend looking into this before submitting the final version of this article.

• We have rewritten this

On the whole, I think this is a really valuable explanation and contextualisation of the HCI that will be of great use to the readership of BMJ.

Reviewer 7: This paper has good analysis on Human Capital Index strengths and weaknesses for improving health worldwide. The concept of Human capital will help us understand the argument about the governments and personal responsibility for healthcare.

There are some improvements and clarifications needed to provide a clearer message from this paper.

Page 1 line 17: In bibliography, the second paper expresses the World Bank is one of the largest and most influential health funders worldwide. It would be better than "one the world's most influential global health institutions".

• For lack of words, we'll include large under influential

Page 4 line 32: It would be good briefly explain the relationship of "Humane Capital Project" and "Humane Capital Index".

• We have specified their nature & relation

Page5 line 40: "cascade approach" may have no strong logical relation with humane capital and the responsibility for healthcare cost. It systematically increases the role of the private sector. This seem like an organization method of health system.

• We have restructured that section to make it much more straightforward

Page6 line 22: "This makes health policies easer to assess for economists" maybe not the objective of subsuming healthcare to economics concerns. The component of HCI and HCI can evaluate the productivity. They are not the tools to evaluate the health system for economists.

• We have reworded this to make it more straightforward

Page6 line 24: It should be careful to get the conclusion the HCI will strengthen World Bank's place in global health and development. This paper seems no discussion about the World Bank's influence.

• We have made this a minor point