

PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	LIMITED IMPLEMENTATION OF THE FRAMEWORK CONVENTION ON TOBACCO CONTROL'S TOBACCO TAX PROVISION: GLOBAL COMPARISON
AUTHORS	Hiilamo, Heikki; Glantz, S

VERSION 1 – REVIEW

REVIEWER	Corne van Walbeek University of Cape Town, South Africa
REVIEW RETURNED	19-Sep-2017

GENERAL COMMENTS	<p>Given the importance of tax increases as a means to reduce tobacco consumption, any paper that considers this issue should be taken seriously. This paper considers the tax rate (total tax as a percentage of the retail price) and affordability of cigarettes (and changes in these) relative to the standards that have been set by the MPOWER and Article 6 Guidelines.</p> <p>I have some major reservations, and some minor comments. The major comments are addressed here, while the minor comments are handwritten in the attached scanned file.</p> <p>The major concern is the fact that the authors are very hung up about the 75% tax rate. According to this measure a country that has greatly increased the tax rate to 74.9% of the retail price, would have "failed", whereas a country that moved the tax rate from 74.9% in 1999 to 75,0% in 2014 would have "done well".</p> <p>Over the past two decades there have been a number of attempts to suggest "targets" for the tax rate, e.g. WB's Curbing in 1999, the WHO Technical Manual in 2010 and the Article 6 Guidelines in 2014 (hidden in a footnote). The problem with each of these is that they are arbitrary. That does not mean that they are useless, but that they are constructs that could easily have been different.</p> <p>By taking a logit approach the authors potentially ignore massive improvements in tax policy, for countries that have increased the tax burden, but who do not meet the 75% or even the 50% thresholds. A much better approach, I believe, and one that they discuss briefly on page 10 (but do not provide the results in tabular form) is to have the tax rate as the dependent variable and use OLS as the means to test for associations. By using a 0-1 dependent variable, the authors throw much information away.</p> <p>In the shortcomings section of the paper the authors explain the shortcomings of the tax rate as a measure to be targeted. While the Guidelines provide some form of target, the guidelines are</p>
-------------------------	--

	<p>equally explicit about increasing the tax amount (to not use the word tax rate) in a way that it will make cigarettes less affordable over time. That is, in my opinion, where the discussion in the literature is headed, more than chasing some arbitrary tax rate.</p> <p>The authors seem to be quite disparaging about the ability of the industry to overshift the tax increases, because that would reduce the tax rate. It is true that overshifting reduces the tax rate, but, more importantly, it increases the retail price by more than it would have increased in the absence of the overshifting. From a TC perspective that is wonderful. People don't base their purchasing behaviour on the tax rate, but on the retail price.</p> <p>A focus on affordability is much more useful than a focus on tax rates.</p> <p>Tax rates are a relatively poor indicator of the price of cigarettes. In Pakistan the tax rates are high but the retail price is low. In countries like Australia the tax rate is also very high, but the retail price is higher than one expects it to be, given the pricing strategy of the tobacco industry.</p> <p>The analysis of affordability is better than the analysis of tax rates, because affordability measure is more closely associated with changes in consumption. However, by using a logit framework (increase vs decrease in affordability) the authors again throw away much information. A country where affordability increased by 0.1% is treated the same as a country where affordability increased by 50% or more. Using OLS you can make the change in affordability the dependent variable and get much better and more rigorous results. You may want to work in differences in the logged values to avoid the results being influenced too much by the low-income countries where there have been large changes in the affordability measure.</p> <p>As such my main recommendations for this paper would be the following:</p> <ol style="list-style-type: none"> 1. Remove the logit analysis and work with the actual numbers. 2. Rather work with changes in the actual tax amounts (rather than the tax rate), because the tax rate is determined by both the government (i.e. the tax amount) and the industry (i.e. the retail price), whereas the tax amount is largely determined by the government (except in the case where the tax is fully ad valorem, in which case the industry has a large influence on the actual tax amount payable). <p>The reviewer also provided a marked copy with additional comments. Please contact the publisher for full details.</p>
--	--

REVIEWER	<p>Evan Blecher Senior Economist, Health Policy Center, University of Illinois at Chicago</p> <p>I have previously reviewed this paper at another journal (Tobacco Control). The paper was rejected for publication there. Some minor changes have been made but the paper remains very similar.</p>
REVIEW RETURNED	24-Oct-2017

GENERAL COMMENTS	<p>The paper is rather poor. The paper doesn't have a clear vision or useful research question, shows a lack of appreciation for the subject matter, confusion over tobacco tax policy including a lack of understanding of the metrics it uses, an elementary methodology and a massive stretching of conclusions.</p> <p>The paper is just basically rehashing already published surveillance data. If it is just evaluating progress on the tax target or affordability, this is already done in the MPOWER/GTCR. There is no justification for what innovation this paper provides.</p> <p>The discussion and conclusions stretch results too far. They create a narrative that progress is poor, but progress is relative and you're not comparing it to anything. What were trends in tax, price and affordability in prior periods, or maybe to other products.</p> <p>Furthermore, it focuses on one indicator that is agreed to be poor. There are many other metrics clearly defined by the WHO FCTC Article 6 Guidelines including tax structures.</p>
-------------------------	---

VERSION 1 – AUTHOR RESPONSE

REVIEWER 1

Reviewer Name: Corne van Walbeek

Institution and Country: University of Cape Town, South Africa

Please state any competing interests or state 'None declared': None

Comment:

Given the importance of tax increases as a means to reduce tobacco consumption, any paper that considers this issue should be taken seriously. This paper considers the tax rate (total tax as a percentage of the retail price) and affordability of cigarettes (and changes in these) relative to the standards that have been set by the MPOWER and Article 6 Guidelines.

Response:

We agree.

Comment:

I have some major reservations, and some minor comments. The major comments are addressed here, while the minor comments are handwritten in the attached scanned file.

The major concern is the fact that the authors are very hung up about the 75% tax rate. According to this measure a country that has greatly increased the tax rate to 74.9% of the retail price, would have "failed", whereas a country that moved the tax rate from 74.9% in 1999 to 75,0% in 2014 would have "done well".

Response:

We utilize the official WHO measure. The 75% tax rate is set by WHO MPOWER program. The WHO MPOWER program has a huge policy relevance in tobacco control. We also now report the results using 60% and 70% tax rate as the metric of success as well as the affordability measures that the

reviewers suggested. The results were all essentially similar as with 75% tax rate, confirming the importance of state capacity for implementing the tax provisions of the FCTC.

Comment:

Over the past two decades there have been a number of attempts to suggest "targets" for the tax rate, e.g. WB's Curbing in 1999, the WHO Technical Manual in 2010 and the Article 6 Guidelines in 2014 (hidden in a footnote). The problem with each of these is that they are arbitrary. That does not mean that they are useless, but that they are constructs that could easily have been different.

Response:

We agree that there are many ways that targets for taxes could be set in many different ways. This is not, however, a paper on what the most desirable metric for an "effective" tax rate is; it is a paper on the effect of the FCTC in moving countries to achieve (or exceed) the target tax rate as defined by the WHO.

We have revised the manuscript to clarify this point, by adding the following: "There are many different ways that one could define an "effective" tax rate, including 70% tax rate as specified in the WHO Technical Manual on Tobacco Tax Administration (WHO Geneva, World Health Organization, 2010). The WHO MPOWER set a target of 75% of price. Because this is a paper on the effect that the FCTC had on tax policy, we used the WHO's own standard of success as defined in MPOWER."

As noted above, the basic conclusions of the paper did not depend on the specific definition of implementation of the FCTC that was used, including those that the reviewers preferred.

Comment:

By taking a logit approach the authors potentially ignore massive improvements in tax policy, for countries that have increased the tax burden, but who do not meet the 75% or even the 50% thresholds. A much better approach, I believe, and one that they discuss briefly on page 10 (but do not provide the results in tabular form) is to have the tax rate as the dependent variable and use OLS as the means to test for associations. By using a 0-1 dependent variable, the authors throw much information away.

Response:

As noted above, there were no countries that missed the 75% target by a small amount.

We also added an analysis of the tax rate in 2014 as the dependent variable using OLS to test for associations with FCTC ratification. The new paragraph detailing results from the analysis reads as follows: "As sensitivity analysis we also ran OLS regression with tax rate in 2014 as dependent variable for the whole sample. We used the same independent variables as in logit analysis. Tax rate in 1999 was positively associated with tax rate in 2014 (coeff. 0.41, $p=0.0003$) and lack of state capacity was negatively associated with tax in 2014 (coeff. -1.52, $p=0.00001$). The results were essentially the same as the main logit analysis."

Comment:

In the shortcomings section of the paper the authors explain the shortcomings of the tax rate as a measure to be targeted. While the Guidelines provide some form of target, the guidelines are equally explicit about increasing the tax amount (to not use the word tax rate) in a way that it will make cigarettes less affordable over time. That is, in my opinion, where the discussion in the literature is headed, more than chasing some arbitrary tax rate.

Response:

We agree. That is not, however, the metric that the WHO uses.

Comment:

The authors seem to be quite disparaging about the ability of the industry to overshift the tax increases, because that would reduce the tax rate. It is true that overshifting reduces the tax rate, but, more importantly, it increases the retail price by more than it would have increased in the absence of the overshifting. From a TC perspective that is wonderful. People don't base their purchasing behaviour on the tax rate, but on the retail price.

A focus on affordability is much more useful than a focus on tax rates.

Tax rates are a relatively poor indicator of the price of cigarettes. In Pakistan the tax rates are high but the retail price is low. In countries like Australia the tax rate is also very high, but the retail price is higher than one expects it to be, given the pricing strategy of the tobacco industry.

Response:

We agree and did not intend to minimize overshifting. We have revised the manuscript to include and clarify these points.

Comment:

The analysis of affordability is better than the analysis of tax rates, because affordability measure is more closely associated with changes in consumption. However, by using a logit framework (increase vs decrease in affordability) the authors again throw away much information. A country where affordability increased by 0.1% is treated the same as a country where affordability increased by 50% or more. Using OLS you can make the change in affordability the dependent variable and get much better and more rigorous results. You may want to work in differences in the logged values to avoid the results being influenced too much by the low-income countries where there have been large changes in the affordability measure.

Response:

We have added an analysis of the cigarette affordability in 2014 as the dependent variable and use OLS as the means to test for associations. The new paragraph reads as follows: "As sensitivity analysis we also ran OLS regression with cigarette affordability in 2014 as dependent variable for the whole sample. We used the same independent variables as in logit analysis. The direction of association was again similar as in logit analysis. Ratifying the FCTC earlier was positively associated with cigarettes becoming less affordable in 2014 (coeff.0.04, p=0.03), while GDP growth (coeff.-0.10, p=0.001) and lack of state capacity (coeff.-0.02, p=0.001) were negatively associated with having less affordable cigarettes."

Comment:

As such my main recommendations for this paper would be the following:

1. Remove the logit analysis and work with the actual numbers.
2. Rather work with changes in the actual tax amounts (rather than the tax rate), because the tax rate is determined by both the government (i.e. the tax amount) and the industry (i.e. the retail price), whereas the tax amount is largely determined by the government (except in the case where the tax is fully ad valorem, in which case the industry has a large influence on the actual tax amount payable).

Response:

As described above, we have retained the official WHO MPOWER measures but added OLS analysis of both tax rates and cigarette affordability, as the reviewer suggested. The overall conclusion that the FCTC accelerated change but that the effect is fading as well as the importance of state capacity (or, more precisely, lack of state capacity) remains the same in all analyses.

Comment:

Attached are some further comments, generally minor.

Response:

We have revised the manuscript as suggested in the attached file.

REVIEWER 2

Reviewer Name: Evan Blecher

Institution and Country: Senior Economist, Health Policy Center, University of Illinois at Chicago

Please state any competing interests or state 'None declared': I have previously reviewed this paper at another journal (Tobacco Control). The paper was rejected for publication there. Some minor changes have been made but the paper remains very similar.

Comment:

The paper is rather poor. The paper doesn't have a clear vision or useful research question, shows a lack of appreciation for the subject matter, confusion over tobacco tax policy including a lack of understanding of the metrics it uses, an elementary methodology and a massive stretching of conclusions.

Response:

This reviewer fails to acknowledge that we are analyzing progress in implementing official WHO MPOWER measures for cigarette taxes. We are not analyzing tobacco taxation and its actual effect on cigarette prices. This is not an econometric study of the best way to assess taxation but a study on FCTC implementation. For that reason, the primary metric that we use is the one that the WHO itself uses. We have, however, provided the additional analyses that the reviewers suggest. Doing so did not change the fundamental conclusion of the paper, namely that the ratification of the FCTC was associated with increased taxation, but that the effect is fading. The additional analyses also confirmed the importance of state capacity for implementing the tax provisions of the FCTC.

Comment:

The paper is just basically rehashing already published surveillance data. If it is just evaluating progress on the tax target or affordability, this is already done in the MPOWER/GTCR. There is no justification for what innovation this paper provides.

Response:

To our knowledge there are no published analysis of MPOWER progress which would have a baseline stretching beyond the time of FCTC process. We use tobacco industry data and World Bank data to establish baseline in 1999. That allows us to study the possible effect of FCTC on tax rates and cigarette affordability. This is the unique contribution of the paper.

Comment:

The discussion and conclusions stretch results too far. They create a narrative that progress is poor, but progress is relative and you're not comparing it to anything. What were trends in tax, price and affordability in prior periods, or maybe to other products.

Response:

The progress is related to baseline data in 1999 and to official WHO MPOWER measures. In addition, cigarette prices are related to GDP, which is a standard method in assessing cigarette prices (that is acknowledged also by reviewer 1).

Comment:

Furthermore, it focuses on one indicator that is agreed to be poor. There are many other metrics clearly defined by the WHO FCTC Article 6 Guidelines including tax structures.

Response:

This paper studies tax rates as defined in the official WHO MPOWER standard and cigarette affordability. FCTC Article 6 or guidelines for its implementation do not include defined measures for tax rates or for cigarette affordability.

Nevertheless, we have added the analysis of other measures of tax rate and affordability.

VERSION 2 – REVIEW

REVIEWER	Steve Koch University of Pretoria Republic of South Africa
REVIEW RETURNED	15-Jan-2018

GENERAL COMMENTS	<p>This manuscript examines the successful implementation of FCTC 'mandates', and considers the determinants of tobacco taxes and whether or not cigarettes are affordable. The manuscript does what it sets out to do, but I also felt that I was reading a race. The question, the models and analysis choices could have been motivated better, and some of the issues related to data could have used a bit more attention, in my view.</p> <p>I would like to see the author's motivate this research better. The FCTC 'mandate' ought to be about reductions in tobacco consumption, as opposed to anything else. In some cases, taxes of the sort being outlined by this mandate are generally believed to have serious regressivity concerns. In other words, they might very well hurt the poor quite a bit. Admittedly, Koch (2018) Social Science & Medicine, suggests that consistent tax hikes might actually be less regressive over time. Back to my point about motivation, if we take Tanzania as an example, where cigarettes are apparently very unaffordable, is there really any reason to make them less so? There might be, but probably only if tobacco consumption was rising. In other words, to convince the reader that it is important to meet the FCTC objective, it would be better to see that tobacco consumption was rising in places that had not met the objective. I accept that many anti-tobacco researchers see no reason to question the FCTC objective, but governments have to balance far more than just the FCTC objective; thus, I also felt that the political economy issues could have received more attention in this manuscript.</p>
-------------------------	---

	<p>I do not know the exact wording of the FCTC and MPower, but it seems it might be important to use it. The data used is 75% of most sold, while MPower as described in paper is 75% of retail price. In terms of tobacco taxation, it would be impossible to set a tax that was brand/type dependent, and guaranteed 75% for every product. That is why firms can shift the tax around; it is based on some internal standard. In South Africa, as I understand it, the policy rule is 52% of the best-selling brand. So, in that case, the tax law and the data collection match. Are we confident that is true in all, many or only some countries? This might be quite a bit to ask, but it would help reduce some of the limitations listed.</p> <p>The data and model could also be motivated better. With respect to the data, why so few countries? What did you do to try to find more data? The affordable criteria is a percent of GDP, so why is there any need to put cigarettes into US\$? The US\$ is a natural currency to use, but the exchange rate in South Africa, for example, went from about 6-7 ZAR/US\$ to about 13 ZAR/US\$ in the time frame considered; importantly, the exchange rate does not necessarily mirror the relative values of any particular traded good. Thus, it is possible that the use of exchange rates had an effect on the underlying measures. A number of countries were dropped, because they already met the mandates; I am not entirely convinced, but that gets to motivation of the model. Are we interested in whether countries have met the rules, or what drives changes in them meeting the rules? One question is dynamic, and, therefore, should include dynamic controls. The other is essentially static, and should include static controls. The model itself confuses this a bit by using both static and dynamic controls, for an independent variable that could be interpreted as a change or as an outcome. For the most part, much of this can be fixed with more focus on what and why.</p> <p>I am not particularly convinced that Table 1 or the WB breakdown of countries is meaningful here. It seems to be entirely ad hoc. It is not clear why it helps answer your question, especially since 'growth' is used in the regressions. I found the two figures to be extremely difficult to read in review form.</p>
--	--

REVIEWER	Erik Martin Lecturer in Public Health School of Medicine, Faculty of Health Deakin University, Geelong, Australia
REVIEW RETURNED	15-Feb-2018

GENERAL COMMENTS	<p>Overall this as an interesting paper that makes a significant contribution in terms of the implementation of perhaps the most crucial tobacco control provision. It also raises a very important and timely call for stronger implementation, which is vital given tobacco's health burden and that governments can often over-promise and under-deliver when it comes to health agreements such as the FCTC.</p> <p>That being said, I have quite a few comments and suggested areas of improvement below – the substance is mostly there, but a fair amount of work needs to be done to improve the writing style, context provided given the audience, and more diligence in terms of how the research objective and findings are framed and reported. Note these suggestions should not detract too much from</p>
-------------------------	--

the overall value of the article, as I think it's very feasible for these to be addressed which would make for a strong publication.

The following comments are more 'major' ones that should be emphasised:

- The research objective needs to be more specific and reflective of the methods being used. E.g. I would have thought something like 'To compare the adoption of international standards in tobacco tax rates and cigarette affordability in countries that ratified the international tobacco control treaty' would be more reflective of the subsequent methods employed. 'Evaluate the implementation of the tobacco tax provision...' is more reflective of the overarching goal and outcomes of interest to this study.
- Much of the introduction seems to be focused on industry influence which doesn't seem to be the direct focus this research. I'd streamline this large paragraph to just 1 sentence, and allow room to discuss some of the previous research (and perhaps explain more of the context) around tobacco taxation/FCTC implementation.
- How do you attribute the change from 1999 to 2014 to FCTC ratification? Wouldn't a lot of other changes also happen in this time – e.g. economic cycles, political leadership, tobacco control activity outside of FCTC etc.? I'm not a statistics expert (hopefully other reviewers are more proficient), but there doesn't seem to be much consideration given to confounding variables that could also explain this, which I would think is needed if you are to terms such as "analyse the effect of the FCTC on affordability of cigarettes". The other option is to of course frame this in a different way which I recommend below. Also, consider that taxation is one of the tobacco control provisions where a lot was already happening prior to and outside the FCTC (keep in mind the FCTC only came into force from 2005 and the MPOWER recommendations of 75/50% sometime after that?).
 - o As a result it would make more sense to be more cautious in your wording on attributing changes to the FCTC, and more refer to this more broadly as an analysis of taxation/affordability over the time period (like I've mentioned in the proposed objective) and not give the reader an impression that changes (or lack thereof) are solely attributed to the FCTC (note to emphasise correlation rather than causation). The discussion re: effect of FCTC and MPOWER on affordability is still an important point for your introduction/context of the study and later in your discussion and conclusion, however I just thought the paper was overselling the power of the study with the terminology that has been used.
- The statistics would need closer scrutiny than what I am able to provide (given I have a stronger background in qualitative research). I've picked up on a couple of things from this perspective, but there may well others that go beyond my scope of expertise

- There is no mention of ethical review. From what I can gather it is likely that such a project would be exempt from ethical review as it is using secondary data, but even if this is the case it should still be mentioned.
- Figures 1 & 2 need to be much clearer – these look like really important figures that supplement the text but they are barely legible even after magnifying a significant amount.

The standard of English was good, but please note my following comments on writing that apply throughout the paper:

- There is significant room for improvement in editing, please ensure to pay close attention to the editors suggestions. Examples include 'taxe' in the first line of the abstract, text near citation 35 on Page 13, references not being listed under 'references' subtitle, etc. The reference list also needs a lot of work.
- Please pay attention to the technical language that is introduced without explanation (i.e. terms such as FCTC, MPOWER, VAT, R functions glm and minEffect, OLS regression) – these should be introduced/explained in simple terms as most readers won't be familiar with them. Note you did this well for Marshall and Cole's state fragility index as an example. Perhaps 'FCTC' in the title could also be changed accordingly or at least spelt out, and the abstract should also use more generally understood terms.
- A lot of first-person language is used. There may be varied opinions by reviewers on this, but I think it is clearer and more professional not to use it. – i.e. "We obtained data on the tobacco tax rate..." should be changed to "Data on the tobacco tax rate was obtained..."

The following are minor and more specific comments:

- Page 4 – First sentence of introduction could be supported with more peer-reviewed evidence (in addition to 2010 WHO report).
- Page 4 – I'm not quite sure what 'extranormal' is meant to mean here and it is not used by the authors of the paper you cite
- Page 5 - I'm a bit confused with the statement that public datasets for 2007, 2010, 2012 & 2012 were obtained, yet only 2014 features as the major part of your analysis
- Page 5 – If possible, it'd be good to explicitly state how prices were typically obtained, i.e. did WHO in-country experts simply self report, or base their data off financial records, etc.?
- Page 6 - It says that Low and Lower-middle income countries are combined for analysis, but this doesn't appear to be in Table 1 – did you just mean a certain part of your analysis?

	<ul style="list-style-type: none"> - Page 6 – Re: the sentence ‘we analyzed the effect of FCTC on affordability’, in line with my earlier comment, one of which was dated well before FCTC, I think this should be simplified/decoupled from FCTC – i.e. “we analysed the affordability of cigarettes by using the fraction of per capita GDP...”. I don’t think the data is powerful enough to isolate the FCTC alone and assume change across the time-points is directly related to this. - Page 6 – re: ‘additional independent variable’ near the end – what is this additional to? It’d be good from the outset to explicitly identify your independent and dependent variables are to make it clearer for the reader - Page 7 – re: countries having a tax rate of 50/75% excluded from analysis – why was this done? Could there have been countries that started with 50% but then increased to >75%? - Page 9/table 1 I don’t think that it is fair to say ‘compliant countries’ to FCTC article 6 when 1998/99 pre-dates the FCTC/MPOWER. Furthermore, if the FCTC ‘does not set any targets’, why is it suggested that >75%/50% is ‘compliant’ with Article 6? This should be reframed as simply a proportion >75/50% that met recommended tax rates in the MPOWER guidelines. - Page 10 – sentence re: ‘More fragile countries’ – I presume this relates to State capacity in the Table? It’d be good to use consistent terminology - Page 10 – what is the ‘main logit analysis’? - Page 10 – I’d more clearly refer to Luxembourg and Tanzania as the upper and lower range limits – otherwise it’s not really clear why you are referring to these 2 countries. - Page 13 – a citation to support the argument re: ceiling effect would be helpful - Page 14 – re: FCTC prompting countries to increasing tobacco taxes but not enough – I think this is an obvious possibility, given the FCTC did not have these 50/75% tax rates as a requirement - Page 14 - The proportion of countries >75/50% is rather arbitrary as you mention – why wouldn’t you use the actual and exact %tax for each country? Perhaps this may be for statistical significance/sampling issues – if so it’d be good to justify somewhere in the paper. - Page 16 – why did you deem WB survey more reliable than the tobacco industry guide? Even if it’s obvious it’d be good to indicate this.
--	--

	<ul style="list-style-type: none"> - Page 16 – insert a citation to support the statement that other categories of tobacco products are more prevalence in fragile countries. - Note I thought the conclusion was excellent and tied it all together very well
--	--

REVIEWER	Mary Assunta SEATCA Australia
REVIEW RETURNED	20-Feb-2018

GENERAL COMMENTS	<p>I. General comments</p> <ol style="list-style-type: none"> 1. There are a few fundamental issues to the paper, it does not add significantly to the existing body of knowledge on tobacco tax. It seems to be a mixed bag of issues on tobacco tax, rehashing some points already discussed in other papers. Not very helpful to the implementation of Article 6 of the FCTC. In fact part of the argument undermines the purpose of Article 6. Is the paper about the importance of using a tax escalator? If it is, then perhaps the paper should focus on it. 2. The authors mention fragile countries several times in the paper but stop short of mentioning which are these fragile countries. <p>II. Abstract</p> <ol style="list-style-type: none"> 1. The grammatical error in the first sentence in the abstract has to be fixed. 2. The methods section in the abstract refers to what the authors did, not what method was used. 3. Conclusion of abstract (starting in line 45) states, “The tobacco control community should intensified efforts to help fragile countries ... through supporting the basic functions of government.” It is not the responsibility of the tobacco control community to support the basic functions of governments. <p>III. Specific comments</p> <ol style="list-style-type: none"> 1. What the paper adds: The authors provide four bullet points. The first bullet does not add value to existing knowledge because the 2015 MPOWER report has already established that tobacco tax are the least implemented MPOWER measure. The second bullet point states FCTC ratification was not associated with implementing high tobacco taxes – not sure how useful is this to tobacco control? The phrasing in third bullet point is confusing – what is the point being made? Need rephrasing. Fourth bullet point has a grammatical error. 2. Page 6, line 17 – need to fix grammatical error. 3. Fragile countries: Page 6, line 33 – authors say the sample size included only eight low-income countries – are these the fragile countries? What are these countries? However in the statistical analysis, the authors say they combined the low income and lower-middle income categories – if this is the case how can they comment separately on the fragile countries? 4. Discussion on pages 12 and 13: the authors are not providing new ideas, but their discussion points merely “confirm”, “support” or is “consistent” with earlier published work, as reflected in all the references they provide: 5-8, 23 – 35. So nothing new is being
-------------------------	---

	<p>offered in this discussion on these pages.</p> <p>5. Page 15, line 6: authors say multinational tobacco companies are targeting 'emerging economies' in Asia and Africa – are authors equating 'emerging economies' with fragile countries?</p> <p>6. Page 15, line 10: authors say, "The tax provisions in the FCTC are not binding." This sentence is factually incorrect because all provisions in the FCTC are obligatory to implement by the Parties to the FCTC.</p> <p>7. Page 17, line 12, the authors cite as a limitation, the study does not include 'bidi' which are more prevalent in fragile countries. India and Bangladesh have a large population that uses bidi. Do India and Bangladesh belong in the category of fragile countries?</p> <p>8. Conclusion: Page 17, line 26, the authors conclude fragile countries are less likely to have high tobacco taxes. Which are these fragile countries?</p> <p>Line 29 says, "Guidelines for FCTC Article 6 implementation should assign definite targets for tobacco taxes and ..." The Article 6 Guidelines were drawn up, negotiated and adopted by Parties to the FCTC in 2012 – their text is not adjustable. The guidelines cannot assign target. This conclusion shows the authors are not fully aware of the nature of the Guidelines or how they function.</p> <p>9. The countries in the two figures are hard to read – very small font.</p>
--	---

REVIEWER	Nigar Nargis American Cancer Society, United States
REVIEW RETURNED	22-Feb-2018

GENERAL COMMENTS	<p>The authors have done a commendable job in pointing out the inadequacy of tax rate as an indicator of progress in tobacco taxation as a tobacco control measure. They rightly included change in affordability to assess implementation of the FCTC tobacco tax provision.</p> <p>I have a few minor comments that can be readily address before the paper is ready for publication.</p> <p>1. There are two statements about the finding on change in affordability of cigarettes that are hard to follow. In the Abstract (Page 2 Lines 31-33), "... cigarettes were less affordable in 2014 than in 1999 in countries that had ratified FTC earlier." Then in the section What This Paper Adds (Page 3 Lines 13-15), "Compared with 1999 cigarettes were not less affordable in 2014. However, this was the case in countries that had ratified FCTC earlier." Please state them consistently (avoid using double negatives).</p> <p>2. The paper compares data from WHO Report on the Global Tobacco Epidemic 2015 to those from 1998/99. A more recent WHO Report became available in 2017. Authors might want to consider updating their analysis using the data from this report.</p> <p>3. Page 6 Lines 49-54: Using GDP expressed in 2014 US dollars can affect the growth rate due to fluctuations in US dollar exchange rate for a specific country. I recommend using GDP expressed in local currency unit or purchasing power parity adjusted for inflation.</p> <p>4. Page 7 Lines 12-24: Please clarify the rationale for using fragility index to explain lack of progress in tobacco taxation. Generally, political environment in a country is linked to</p>
-------------------------	---

	<p>macroeconomic and policy stability. Please use citations to demonstrate the link.</p> <p>5. Page 15 Lines 3-8: Does the statement mean that the emerging economies in Asia and Africa are more fragile? How is it related to the existence of young population and relatively low smoking prevalence among women? I cannot follow the logic from the sentence preceding this statement.</p> <p>6. I was not able to read the labels in the Figures.</p>
--	--

REVIEWER	Deborah Sy Georgetown University HealthJustice, Philippines
REVIEW RETURNED	27-Feb-2018

GENERAL COMMENTS	The reviewer provided a marked copy with additional comments. Please contact the publisher for full details.
-------------------------	--

VERSION 2 – AUTHOR RESPONSE

REVIEWER: 1

Reviewer Name: Steve Koch

Institution and Country: University of Pretoria, Republic of South Africa

Please state any competing interests or state 'None declared': None declared

COMMENT: This manuscript examines the successful implementation of FCTC 'mandates', and considers the determinants of tobacco taxes and whether or not cigarettes are affordable. The manuscript does what it sets out to do, but I also felt that I was reading a race. The question, the models and analysis choices could have been motivated better, and some of the issues related to data could have used a bit more attention, in my view.

RESPONSE: We have revised the manuscript in accordance with the reviewer's suggestions as detailed below.

COMMENT: I would like to see the author's motivate this research better. The FCTC 'mandate' ought to be about reductions in tobacco consumption, as opposed to anything else. In some cases, taxes of the sort being outlined by this mandate are generally believed to have serious regressivity concerns. In other words, they might very well hurt the poor quite a bit. Admittedly, Koch (2018) Social Science & Medicine, suggests that consistent tax hikes might actually be less regressive over time.

RESPONSE: We added discussion of regressivity concerns and added reference to Koch (2018).

COMMENT: Back to my point about motivation, if we take Tanzania as an example, where cigarettes are apparently very unaffordable, is there really any reason to make them less so? There might be, but probably only if tobacco consumption was rising. In other words, to convince the reader that it is important to meet the FCTC objective, it would be better to see that tobacco consumption was rising in places that had not met the objective. I accept that many anti-tobacco researchers see no reason to question the FCTC objective, but governments have to balance far more than just the FCTC objective; thus, I also felt that the political economy issues could have received more attention in this manuscript.

RESPONSE: In the context of this manuscript we disagree with the reviewer's point that tobacco tax increases to make cigarettes less affordable are appropriate only when consumption is rising. The aim of both FCTC and MPOWER are to curb tobacco epidemic and to reduce tobacco related harm.

COMMENT: I do not know the exact wording of the FCTC and MPower, but it seems it might be important to use it.

RESPONSE: We have revised the manuscript to include exact wording from MPOWER tax measure. Exact working from FCTC is included in the first paragraph of the manuscript.

COMMENT: The data used is 75% of most sold, while MPower as described in paper is 75% of retail price.

RESPONSE: All tax measures in the paper are quantified by computing the fraction of total price that is represented by tax for the most sold brands. That is the same measure used in MPOWER.

COMMENT: In terms of tobacco taxation, it would be impossible to set a tax that was brand/type dependent, and guaranteed 75% for every product. That is why firms can shift the tax around; it is based on some internal standard. In South Africa, as I understand it, the policy rule is 52% of the best-selling brand. So, in that case, the tax law and the data collection match. Are we confident that is true in all, many or only some countries? This might be quite a bit to ask, but it would help reduce some of the limitations listed.

RESPONSE: We thank the reviewer for this important point. We have included it in the Discussion section.

COMMENT: The data and model could also be motivated better. With respect to the data, why so few countries? What did you do to try to find more data?

RESPONSE: It is very difficult to find comprehensive pre-FCTC baseline data. We tried to locate data from various sources but were able to find only two data sources, World Bank data and internal tobacco industry data, which were used in this study.

COMMENT: The affordable criteria is a percent of GDP, so why is there any need to put cigarettes into US\$? The US\$ is a natural currency to use, but the exchange rate in South Africa, for example, went from about 6-7 ZAR/US\$ to about 13 ZAR/US\$ in the time frame considered; importantly, the exchange rate does not necessarily mirror the relative values of any particular traded good. Thus, it is possible that the use of exchange rates had an effect on the underlying measures.

RESPONSE: This is not a problem because we apply the same exchange rates for GDP and cigarette price.

COMMENT: A number of countries were dropped, because they already met the mandates; I am not entirely convinced, but that gets to motivation of the model. Are we interested in whether countries have met the rules, or what drives changes in them meeting the rules? One question is dynamic, and, therefore, should include dynamic controls. The other is essentially static, and should include static controls. The model itself confuses this a bit by using both static and dynamic controls, for an independent variable that could be interpreted as a change or as an outcome. For the most part, much of this can be fixed with more focus on what and why.

RESPONSE: The objective of the study was to analyze the role of FCTC in tax rates. If the countries had tax rates above the MPOWER targets, FCTC could not have had any effect on them.

COMMENT: I am not particularly convinced that Table 1 or the WB breakdown of countries is meaningful here. It seems to be entirely ad hoc. It is not clear why it helps answer your question, especially since 'growth' is used in the regressions. ...

RESPONSE: Table 1 shows countries with 75% and 50% tobacco tax rates in 1998/1999 and 2014 by income group. It demonstrates the development in meeting the 75% and 50% tobacco tax rate target by income groups. As the table illustrates income group is an important factor with regard to development towards the tax rate goals.

COMMENT: ... I found the two figures to be extremely difficult to read in review form...

COMMENT: We have redone the figures with larger type to make them easier to read.

REVIEWER: 2

Reviewer Name: Erik Martin

Institution and Country: Lecturer in Public Health, School of Medicine, Faculty of Health, Deakin University, Geelong, Australia

(comments copied and pasted from the manuscript pdf file)

COMMENT: Abstract: results

Association may not be the only issue. Were there FCTC parties which did not increase tax at all after ratification?

RESPONSE: Yes. We have added a sentence to the results section of the abstract. It reads as follows: "In fifteen years 69 countries increased the tobacco tax rate, 33 decreased it, and one country had the same tax rate."

COMMENT: What this paper adds

Is there is a reason to state this in the negative? This must be clarified. What does this really say about countries that ratified?

RESPONSE: The sentence has been revised to read as follows: "• Compared with 1999 cigarettes were more affordable in 2014. However, in countries that had ratified FCTC earlier cigarettes were less affordable."

COMMENT: Implement? or raise? Administrating taxes and increasing them are totally different

RESPONSE: The manuscript has been revised to make it clear that we are discussing raising taxes.

COMMENT: Inc VAT??

RESPONSE: Abbreviation spelled out as "value added tax".

COMMENT: This is important progress that is worth highlighting

RESPONSE: We added this information into the abstract.

COMMENT: Did you account for those which changed status from low to mid income?

RESPONSE: We determined the income group categories at the end of the observation period, so did not consider whether their status changed during the study period. World Bank 2016 gross national income (GNI) categories: 20 low-income countries were defined as those with a GNI per capita of \$1,045 or less in 2014; middle-income economies, \$1,046 to \$12,735; high income, \$12,736 or more. Lower-middle-income and upper-middle-income economies were separated at a GNI per capita of \$4,125. Altogether 45 countries changed WB status during the observation period. The following countries changed from low-income countries to lower-middle income countries: Bangladesh, Cambodia, Cameroon, Côte d'Ivoire, Ghana, Honduras, India, Kenya, Lesotho, Nicaragua, Nigeria, Pakistan and Vietnam. The following countries changed from lower-middle income countries to upper-middle income countries: Algeria, Belarus, Belize, Bulgaria, Columbia, Costa Rica, Dominican Republic, Ecuador, Fiji, Guyana, Jamaica, Kazakhstan, Macedonia, Namibia, Panama, Romania, Russia, Suriname and Thailand. The following countries changed from upper-middle-income countries to high income countries: Barbados, Chile, Czech Republic, Estonia, Hungary, Malta, Poland, Republic of Korea, Slovakia, Trinidad and Tobago and Uruguay. Latvia and Lithuania changed from lower-income countries to high-income countries. No country changed to a lower income group. We added this information into the manuscript.

COMMENT:How many fragile countries?

RESPONSE: We did not measure state fragility as a categorical variable. We have clarified this by revising the variable description under section "Other variables". The revised description reads as follows: "The index gives higher scores for more fragile countries (Sudan scored 23 while the 15 most

stable countries scored 0) but does not place countries into different categories. We averaged scores for 2007, 2010 and in 2013 to test whether more fragile countries were less likely to have high tobacco taxes in 2014. By more fragile countries we simply refer to those countries score higher than others by Marshall and Cole's state fragility index."

COMMENT: Reconcile price and affordability. what does it imply if a relationship is found as to price but not as to affordability. Pls account for this

RESPONSE: We have revised the manuscript to address this point with the following sentence: "Ratifying the FCTC earlier was associated with cigarettes becoming less affordable in 2014 implying perhaps that countries with affordable cigarette prices in 1999 were quicker to ratify FCTC and implement the FCTC tax provision (Table 3)."

COMMENT: Implementing? Meaning the policy is in place already ? or raising?

RESPONSE: We revised the sentence to read as follows: "Our results confirm earlier findings showing slow progress in meeting with the 75% or 50% tobacco tax rate targets among low- and middle-income countries."

COMMENT: How to did you account for adoption of Guidelines in more recent times, and lack of Guidelines during period of study? Article 6 does not talk about specific rates and MPOWER came in only in 2009 or so. the rate of 75% was not as well disseminated before that due to lack of resources.

RESPONSE: This is s a good point. We have added it to the Limitations section.

COMMENT: Would they not have reached this level due to inflationary adjustments? Hence, low price plus regular adjustments to inadvertently reach 75%

RESPONSE: We added a sentence to address this point: "Countries with low cigarette prices in 1998/1999 may have reached the target with regular inflationary adjustments."

COMMENT: Large increases vs small increases should be the subject of study, that is more telling of the impact of fctc ratification or mpower

RESPONSE: We revised the sentence to read as follows: "governments may try to maintain popular support through choosing small tobacco tax increases instead of large increases".

COMMENT: Fctc art 6 does not talk about significant price increases, and is very broad. Unlike Ad ban, Smoke free, health warning Art 13, 8, 11 which are all detailed and easy to implement. Also, the last 3 are done from health sector while Art 6 is from finance sector. This says more about how fctc is appreciated by non health sector. You should comment on this and encourage further study on finance ministers knowledge of Art 6

RESPONSE: We added the reviewer's point into conclusions section.

REVIEWER: 3

Reviewer Name: Mary Assunta

Institution and Country: SEATCA, Australia

I. General comments

COMMENT: 1. There are a few fundamental issues to the paper, it does not add significantly to the existing body of knowledge on tobacco tax. It seems to be a mixed bag of issues on tobacco tax, rehashing some points already discussed in other papers. Not very helpful to the implementation of Article 6 of the FCTC. In fact part of the argument undermines the purpose of Article 6. Is the paper about the importance of using a tax escalator? If it is, then perhaps the paper should focus on it.

RESPONSE: We disagree with the reviewer's points. Unlike previous analysis on FCTC Article 6 implementation our paper has a pre-FCTC baseline which allows us to track development of taxes *after* the FCTC entered force. The fact that implementation remains incomplete should not be

taken as an argument to undermine the purpose of Article 6; quite the contrary our results point to the need for renewed efforts to implement higher tobacco taxes as part of ongoing FCTC implementation.

COMMENT: 2. The authors mention fragile countries several times in the paper but stop short of mentioning which are these fragile countries.

RESPONSE: We did not measure state fragility as a categorical variable. We have clarified this by revising the variable description under section "Other variables". The revised description reads as follows: "The index gives higher scores for more fragile countries (Sudan scored 23 while the 15 most stable countries scored 0) but does not place countries into different categories. We averaged scores for 2007, 2010 and in 2013 to test whether more fragile countries were less likely to have high tobacco taxes in 2014. By more fragile countries we simply refer to those countries which score higher than other by Marshall and Cole's state fragility index."

II. Abstract

COMMENT: 1. The grammatical error in the first sentence in the abstract has to be fixed.

RESPONSE: Revised as suggested.

COMMENT : 2. The methods section in the abstract refers to what the authors did, not what method was used.

RESPONSE: The statistical method (logistic regression) has been added to the sentence.

COMMENT: 3. Conclusion of abstract (starting in line 45) states, "The tobacco control community should intensified efforts to help fragile countries ... through supporting the basic functions of government." It is not the responsibility of the tobacco control community to support the basic functions of governments.

RESPONSE: We disagree. Without basic functions of government it is not possible to implement any of the FCTC provisions.

III. Specific comments

COMMENT: 1. What the paper adds: The authors provide four bullet points. The first bullet does not add value to existing knowledge because the 2015 MPOWER report has already established that tobacco tax are the least implemented MPOWER measure. The second bullet point states FCTC ratification was not associated with implementing high tobacco taxes – not sure how useful is this to tobacco control? The phrasing in third bullet point is confusing – what is the point being made? Need rephrasing. Fourth bullet point has a grammatical error.

RESPONSE: We combined the first and the second bullet point. It is useful for the tobacco control community to know that FCTC ratification was not associated with implementing high tobacco taxes so that they can prioritize increased efforts to implement the FCTC's tax provision.

COMMENT 2. Page 6, line 17 – need to fix grammatical error.

RESPONSE: We made the suggested revisions, as detailed below.

COMMENT: The following comments are more 'major' ones that should be emphasised:

- The research objective needs to be more specific and reflective of the methods being used. E.g. I would have thought something like 'To compare the adoption of international standards in tobacco tax rates and cigarette affordability in countries that ratified the international tobacco control treaty' would be more reflective of the subsequent methods employed. 'Evaluate the implementation of the tobacco tax provision...' is more reflective of the overarching goal and outcomes of interest to this study.

RESPONSE: We revised the objective of the manuscript to read as follows: "To compare the adoption of World Health Organization MPOWER standards in tobacco tax rates and cigarette affordability in countries that ratified the Framework Convention on Tobacco Control (FCTC)."

COMMENT: Much of the introduction seems to be focused on industry influence which doesn't seem to be the direct focus this research. I'd streamline this large paragraph to just 1 sentence, and allow room to discuss some of the previous research (and perhaps explain more of the context) around tobacco taxation/FCTC implementation.

RESPONSE: We discuss tobacco industry strategies to provide important context for this study, since industry tactics to block tax increases have a major influence on tax rates and industry responses to tax increases have a major effect on cigarette prices.

COMMENT: How do you attribute the change from 1999 to 2014 to FCTC ratification? Wouldn't a lot of other changes also happen in this time – e.g. economic cycles, political leadership, tobacco control activity outside of FCTC etc.? I'm not a statistics expert (hopefully other reviewers are more proficient), but there doesn't seem to be much consideration given to confounding variables that could also explain this, which I would think is needed if you are to terms such as “analyse the effect of the FCTC on affordability of cigarettes”. The other option is to of course frame this in a different way which I recommend below. Also, consider that taxation is one of the tobacco control provisions where a lot was already happening prior to and outside the FCTC (keep in mind the FCTC only came into force from 2005 and the MPOWER recommendations of 75/50% sometime after that?).

RESPONSE: To address the reviewer's points we added the following to the Limitation section: “FCTC Article 6 does not stipulate specific tax rates. MPOWER measures with tax rate targets were not introduced before 2008. The more specific FCTC Articles 8, 11 and 13 discuss smoke free environments, health warnings and advertising bans fall into domain of health government, while Article 6 concerns financial government. Further study is needed the evaluate the financial ministries knowledge of Article 6. In this study we were not able to assess the causal effects. Besides the variables used in this study other factors such as economic cycles, political leadership and tobacco control activity outside of FCTC may have affected the outcome variables.”

COMMENT: As a result it would make more sense to be more cautious in your wording on attributing changes to the FCTC, and more refer to this more broadly as an analysis of taxation/affordability over the time period (like I've mentioned in the proposed objective) and not give the reader an impression that changes (or lack thereof) are solely attributed to the FCTC (note to emphasise correlation rather than causation). The discussion re: effect of FCTC and MPOWER on affordability is still an important point for your introduction/context of the study and later in your discussion and conclusion, however I just thought the paper was overselling the power of the study with the terminology that has been used.

RESPONSE: We revised the wording in the manuscript by using the word “association” instead of “effect.” See also our comment on the previous point by the reviewer.

COMMENT: The statistics would need closer scrutiny than what I am able to provide (given I have a stronger background in qualitative research). I've picked up on a couple of things from this perspective, but there may well others that go beyond my scope of expertise.

RESPONSE: One of the authors has written two textbooks on statistics.

COMMENT: There is no mention of ethical review. From what I can gather it is likely that such a project would be exempt from ethical review as it is using secondary data, but even if this is the case it should still be mentioned.

RESPONSE: The reviewer is correct that this work is exempt from ethical review. We provided information about ethical review was during the submission process of the manuscript. If the editors request we would be happy to also include a statement in the manuscript text.

COMMENT: Figures 1 & 2 need to be much clearer – these look like really important figures that supplement the text but they are barely legible even after magnifying a significant amount.

RESPONSE: We have redrawn the figures using a larger font to improve readability.

COMMENT: The standard of English was good, but please note my following comments on writing that apply throughout the paper: -There is significant room for improvement in editing, please ensure to pay close attention to the editors suggestions. Examples include 'taxe' in the first line of the abstract, text near citation 35 on Page 13, references not being listed under 'references' subtitle, etc. The reference list also needs a lot of work.

RESPONSE: Revised as suggested. We also had an individual not familiar with the paper do a careful editing of the final revised manuscript before resubmitting it.

COMMENT: Please pay attention to the technical language that is introduced without explanation (i.e. terms such as FCTC, MPOWER, VAT, R functions glm and minEffect, OLS regression) – these should be introduced/explained in simple terms as most readers won't be familiar with them. Note you did this well for Marshall and Cole's state fragility index as an example.

RESPONSE: Revised as suggested.

COMMENT: Perhaps 'FCTC' in the title could also be changed accordingly or at least spelt out, and the abstract should also use more generally understood terms.

RESPONSE: Revised as suggested.

COMMENT: A lot of first-person language is used. There may be varied opinions by reviewers on this, but I think it is clearer and more professional not to use it. – i.e. "We obtained data on the tobacco tax rate..." should be changed to "Data on the tobacco tax rate was obtained..."

RESPONSE: We think first person writing is easier to follow.

COMMENT: The following are minor and more specific comments:
- Page 4 – First sentence of introduction could be supported with more peer-reviewed evidence (in addition to 2010 WHO report).

RESPONSE: The reference has been added.

COMMENT: Page 4 – I'm not quite sure what 'extranormal' is meant to mean here and it is not used by the authors of the paper you cite

RESPONSE: The word "extranormal" is replaced with the word "substantial".

COMMENT: Page 5 - I'm a bit confused with the statement that public datasets for 2007, 2010, 2012 & 2012 were obtained, yet only 2014 features as the major part of your analysis

RESPONSE: The manuscript has been revised to make it clear that we used the 2014 data.

COMMENT: Page 5 – If possible, it'd be good to explicitly state how prices were typically obtained, i.e. did WHO in-country experts simply self report, or base their data off financial records, etc.?

RESPONSE: We added a sentence to address this point: "Information on the taxation of cigarettes (and when possible, most commonly used tobacco products) was collected from ministries of finance."

COMMENT: Page 6 - It says that Low and Lower-middle income countries are combined for analysis, but this doesn't appear to be in Table 1 – did you just mean a certain part of your analysis?

RESPONSE: We revised the sentence to read: "Since our sample included only eight low-income countries, after cross tabulation analysis we combined low income and lower middle-income categories in the regression analysis."

COMMENT: Page 6 – Re: the sentence 'we analyzed the effect of FCTC on affordability', in line with my earlier comment, one of which was dated well before FCTC, I think this should be

simplified/decoupled from FCTC – i.e. “we analysed the affordability of cigarettes by using the fraction of per capita GDP...”. I don’t think the data is powerful enough to isolate the FCTC alone and assume change across the time-points is directly related to this.

RESPONSE: We revised the sentence to use the word “association” instead of “effect”.

COMMENT: Page 6 – re: ‘additional independent variable’ near the end – what is this additional to? It’d be good from the outset to explicitly identify your independent and dependent variables are to make it clearer for the reader

RESPONSE: Revised as suggested.

COMMENT: Page 7 – re: countries having a tax rate of 50/75% excluded from analysis – why was this done? Could there have been countries that started with 50% but then increased to >75%?

VERSION 3 – REVIEW

REVIEWER	Steve Koch University of Pretoria, South Africa
REVIEW RETURNED	18-Apr-2018

GENERAL COMMENTS	<p>My comments have been mostly addressed.</p> <p>I see a few minor typos, especially in the abstract: "afterafter" and "a 1" in the objective and results sections, respectively. Page 4, line 31 effects "on" cigarette prices. P4 line 49 increase "the" tax rate.</p> <p>Finally, there is a sentence that is unclear and seems more than a simple type problem: Pg 7 lines 38-40. It is not entirely clear how the comparison is being made.</p>
-------------------------	---

REVIEWER	Mary Assunta SEATCA, Australia
REVIEW RETURNED	17-Apr-2018

GENERAL COMMENTS	<p>The revised paper is much improved now. While my general comment 1 was that this paper does not add significantly to the existing body of knowledge on tobacco tax increase, the authors disagree. My view is from that of low and middle income countries and the interest this paper generates is left to be seen.</p> <p>My general comment 3 - while I agree that basic function of government is important and should be improved however it is not the responsibility of tobacco control community to do this. There may be other bodies responsible for this function. The authors disagree. The term 'tobacco control community' is vague - TC community? Civil society? Academe?</p> <p>Grammar still has to be fixed. Suggest the authors do a thorough job with editing. I picked out the following: Abstract, pg 2: Line 26 al + "all" Pg 4: Line 31 - missing a word 'on' Pg 7: Line 42 - present tense is used, then pg 8 switches to past tense. Please fix. Pg 14: Line 33 - fix the reference</p>
-------------------------	---

	Standardised whether authors want to use "WHO MPOWER" or just "MPOWER" -currently both terms are used.
REVIEWER	Nigar Nargis American Cancer Society, United States
REVIEW RETURNED	13-Apr-2018
GENERAL COMMENTS	The authors have addressed my comments. Thank you.
REVIEWER	Deborah Sy HealthJustice and CommonHealth Philippines
REVIEW RETURNED	03-May-2018
GENERAL COMMENTS	<p>The statement regarding FCTC ratification and its association with tax increases must be further qualified. Otherwise, it will be very easy to misunderstand it and it invites tobacco industry to use the same to prove that FCTC is inutile. I see no reason why this paper is not highlighting the fact that cigarettes were less affordable now than pre-FCTC. This is a point that is more important than tax increases per se since tax measure is just a means to deliver the ultimate goal to reduce consumption. Consumption is more likely to be affected by affordability than insignificant tax increases. A key point the paper seems to be making has to do with the presence of benchmarks established (70 percent NRP) around 2008 and comparing this with the 1999 when no benchmark was available. Then the study should focus on this or at least describe this as a limitation for making the conclusion on the impact of the FCTC and its guidelines. The association between FCTC and tax increases is affected mainly by the lack of policy coherence in governments or lack of whole of government approach. Even if benchmarks exist, it must be stressed that finance ministers do not simply adhere to benchmarks but make their own computations based on country needs. The review on literature as to benchmarks being a financial minister's guidepost must also be exhausted to prove the hypothesis that this study on the association is relevant.</p> <p>This statement is inaccurate: The unwillingness of states to commit to minimum tax levels during FCTC negotiations is reflected in their lack of subsequent action.</p> <p>40 You can check the countries that agreed vs disagreed with the tax levels during the negotiations and then see if these countries have taken subsequent action or not. You will not likely see a pattern.</p> <p>Also when prices/costs are too low to begin with 75% is not the best way forward. In fact, in my initial computations that led to the Philippine sin tax law, we needed a 300% increase. To avoid being misleading, this paper needs to qualify that statement and examples regarding the 75% that this is just an example, and in fact, fixed price floors may work better. I have pointed a few of these issues out in the detailed comments I have made before.</p> <p>The same still stands.</p>

VERSION 3 – AUTHOR RESPONSE

REVIEWER: 1

COMMENT: My comments have been mostly addressed.

RESPONSE: Thank you.

COMMENT: I see a few minor typos, especially in the abstract: "afterafter" and "a 1" in the objective and results sections, respectively. Page 4, line 31 effects "on" cigarette prices. P4 line 49 increase "the" tax rate.

RESPONSE: Revised as suggested.

COMMENT: Finally, there is a sentence that is unclear and seems more than a simple type problem: Pg 7 lines 38-40. It is not entirely clear how the comparison is being made.

Reviewer: We have revised the sentence to read as follows: "By more fragile countries we refer to those countries which score higher in Marshall and Cole's state fragility index than other countries."

REVIEWER: 3

COMMENT: The revised paper is much improved now.

RESPONSE: Thank you.

COMMENT: While my general comment 1 was that this paper does not add significantly to the existing body of knowledge on tobacco tax increase, the authors disagree. My view is from that of low and middle income countries and the interest this paper generates is left to be seen.

RESPONSE: We agree.

COMMENT: My general comment 3 - while I agree that basic function of government is important and should be improved however it is not the responsibility of tobacco control community to do this. There may be other bodies responsible for this function. The authors disagree. The term 'tobacco control community' is vague - TC community? Civil society? Academe?

RESPONSE: While we agree that improving the basic functioning of government is not the primary goal of the tobacco control community, our results indicate that improving government function will improve the ability to raise tobacco taxes. To clarify this point, we have revised the sentence as follows: "The tobacco control community should collaborate with other parts of civil society to intensify efforts to help more fragile countries to improve performance in FCTC implementation both through strengthening their administrative and technical capacity and through supporting the basic functions of government."

COMMENT: Grammar still has to be fixed. Suggest the authors do a thorough job with editing. I picked out the following:
Abstract, pg 2: Line 26 al + "all"
Pg 4: Line 31 - missing a word 'on'
Pg 7: Line 42 - present tense is used, then pg 8 switches to past tense. Please fix.
Pg 14: Line 33 - fix the reference

RESPONSE: Corrected as suggested.

COMMENT: Standardised whether authors want to use "WHO MPOWER" or just "MPOWER" - currently both terms are used.

RESPONSE: We use "WHO MPOWER" on the first instance when the concept is mentioned, then just "MPOWER".

REVIEWER: 5

COMMENT: The statement regarding FCTC ratification and its association with tax increases must be further qualified. Otherwise, it will be very easy to misunderstand it and it invites tobacco industry to use the same to prove that FCTC is inutile. I see no reason why this paper is not highlighting the fact that cigarettes were less affordable now than pre-FCTC. This is a point that is more important than tax increases per se since tax measure is just a means to deliver the ultimate goal to reduce consumption. Consumption is more likely to be affected by affordability than insignificant tax increases.

RESPONSE: In the abstract and in the manuscript text we stress the fact that cigarettes were less affordable in 2014 than in 1999 in countries that had ratified FCTC earlier by making this statement as the last sentence in the Results section. Placement at the end of the paragraph gives it the strongest emphasis. The fact is that, despite widespread FCTC ratification, implementation of higher tobacco taxes remains incomplete can also be interpreted as a call to intensify FCTC implementation.

COMMENT: A key point the paper seems to be making has to do with the presence of benchmarks established (70 percent NRP) around 2008 and comparing this with the 1999 when no benchmark was available. Then the study should focus on this or at least describe this as a limitation for making the conclusion on the impact of the FCTC and its guidelines.

RESPONSE: We use the MPOWER targets for the whole period of study to have a consistent endpoint. Their relevance to 1999 is demonstrated also by the fact that in our sample 11 countries already had 75% tax rate in 1999 while 59 countries had 50% tax rate.

COMMENT: The association between FCTC and tax increases is affected mainly by the lack of policy coherence in governments or lack of whole of government approach.

RESPONSE: We agree. This is why we include state capacity in our model.

COMMENT: Even if benchmarks exist, it must be stressed that finance ministers do not simply adhere to benchmarks but make their own computations based on country needs. The review on literature as to benchmarks being a financial minister's guidepost must also be exhausted to prove the hypothesis that this study on the association is relevant.

RESPONSE: This study focuses on tobacco tax rates, not the political process that led to governments decisions to set those tax rates. The Discussion section recognizes that complex political dynamics contribute to tax rates: "FCTC Article 6 and its implementation guidelines expressly emphasize health goals in determining tobacco taxation but governments may try to maintain popular support through adopting small tobacco tax increases instead of large increases."

COMMENT: This statement is inaccurate: The unwillingness of states to commit to minimum tax levels during FCTC negotiations is reflected in their lack of subsequent action. You can check the countries that agreed vs disagreed with the tax levels during the negotiations and then see if these countries have taken subsequent action or not. You will not likely see a pattern.

RESPONSE: We did not mean to discuss the roles of different countries but rather refer to the process as a whole. We have revised the sentence to read as follows: "The unwillingness of FCTC parties to commit to minimum tax levels during FCTC negotiations is reflected in the lack of subsequent action."

COMMENT: Also when prices/costs are too low to begin with 75% is not the best way forward. In fact, in my initial computations that led to the Philippine sin tax law, we needed a 300% increase.

RESPONSE: The yardstick used in this paper is the share of tax of the price of most sold cigarette brand. That cannot exceed 100 percent. We do not study the percentage increases of tobacco taxes needed to reach MPOWER targets.

COMMENT: To avoid being misleading, this paper needs to qualify that statement and examples regarding the 75% that this is just an example, and in fact, fixed price floors may work better. I have pointed a few of these issues out in the detailed comments I have made before. The same still stands.

RESPONSE: This paper is not about different alternative metrics for optimal taxation; it is a paper on how the FCTC has impacted meeting WHO's MPOWER targets for taxation.

VERSION 4 – REVIEW

REVIEWER	Deborah Sy HealthJustice, Philippines
REVIEW RETURNED	04-Jul-2018

GENERAL COMMENTS	<p>There are very general statements such as:"terms of security, political, economic, and social development may not have administrative and technical capacity to implement high tobacco taxes.27-30 We did not detect an interaction between state capacity and time since FCTC ratification, which indicates that weak state capacity as such may not prevent countries from ratifying FCTC. Promoting the FCTC should include strengthening of the basic functions of government.31 32" Given the progress in treaty implementation thus far, the author could have been more specific in defining the political landscape in treaty implementation based on some literature review. Many countries esp LMICs have already established the challenges they faced in implementing Art 6. For instance, upon ratification, the focus is to build MOH capacity first...undertake some of the basic TC measures then build the evidence in order to ask Finance Department to support tax initiatives. It takes some time to do this research. Also, the FCTC has many provisions: For MOH, the lowest hanging fruit is not Art 6. To properly analyze the results, matters like these need to be built in, hence allowing some time allowance. Also, it will help if the reckoning date is the adoption of Art 6 Guidelines, not FCTC ratification, because it was only then when most of the technical work on tobacco taxes became more prominent. I think fundamentally, the association (or lack thereof) with FCTC ratification is questionable when there could be other time points to anchor this study.I appreciate the effort to track the behavior of countries in changing cigarette price and I strongly believe this needs to be done. But associating it with the wrong time points/ incidents may be misleading. IN addition, particularly problematic is the conclusions about LMICs. LMICs are resource-constrained but can accomplish much with some incremental resources and support. In many cases, it is the treaty obligation (ratification) combined with some incremental financial / technical support (and of course, political will) that gets an LMIC to properly increase taxes for health. If the paper looks at things from a more practical perspective, then it could come to a more convincing conclusion. On the other hand, it could articulate its limitations better so that it will not look like the research is isolated from reality. I have been trying to point out the inconsistencies and gaps of this paper in detail but the changes made have been minor and does not address the overarching concern/ bigger picture. I hope these comments are considered so that the paper can become a useful one. Advocating for more specificity in Art 6 Guidelines is good, and the data research is good. But the gaps about how things work in the real world as reflected in literature and case studies, could reduce the credibility and usefulness of this paper.</p>
-------------------------	---

VERSION 4 – AUTHOR RESPONSE

REVIEWER: 5

COMMENT: There are very general statements such as: "terms of security, political, economic, and social development may not have administrative and technical capacity to implement high tobacco taxes.²⁷⁻³⁰ We did not detect an interaction between state capacity and time since FCTC ratification, which indicates that weak state capacity as such may not prevent countries from ratifying FCTC. Promoting the FCTC should include strengthening of the basic functions of government.^{31 32}" Given the progress in treaty implementation thus far, the author could have been more specific in defining the political landscape in treaty implementation based on some literature review. Many countries esp LMICs have already established the challenges they faced in implementing Art 6. For instance, upon ratification, the focus is to build MOH capacity first...undertake some of the basic TC measures then build the evidence in order to ask Finance Department to support tax initiatives. It takes some time to do this research.

RESPONSE: We have added one sentence with three new references to address the reviewer's point: "The health groups play an important role in creating awareness and building capacity for FCTC implementation.^{37 38 30}" It is important to keep in mind that this study analyzed tobacco tax rates, not the political process leading to those rates, including capacity building, on implementing tobacco tax policies. The Discussion section does, however, recognize that complex political dynamics contribute to tax rates: "FCTC Article 6 and its implementation guidelines expressly emphasize health goals in determining tobacco taxation but governments may try to maintain popular support through adopting small tobacco tax increases instead of large increases."

COMMENT: Also, the FCTC has many provisions: For MOH, the lowest hanging fruit is not Art 6. To properly analyze the results, matters like these need to be built in, hence allowing some time allowance. Also, it will help if the reckoning date is the adoption of Art 6 Guidelines, not FCTC ratification, because it was only then when most of the technical work on tobacco taxes became more prominent. I think fundamentally, the association (or lack thereof) with FCTC ratification is questionable when there could be other time points to anchor this study. I appreciate the effort to track the behavior of countries in changing cigarette price and I strongly believe this needs to be done. But associating it with the wrong time points/ incidents may be misleading.

RESPONSE: We added the reviewer's point to the Limitations section: "The Article 6 Guidelines were adopted in 2014, nine years after the FCTC entered force and may have delayed Parties' attention to implementing tax increases. Other analyses of health warning labels (Article 11), smokefree policies (Article 8) and advertising bans (Article 13), however, demonstrated an effect of FCTC ratification without considering the delay in adoption of the implementing guidelines for these articles." We do discuss the role of Article 6 guidelines on several instances in the paper.

COMMENT: In addition, particularly problematic is the conclusions about LMICs. LMICs are resource-constrained but can accomplish much with some incremental resources and support. In many cases, it is the treaty obligation (ratification) combined with some incremental financial / technical support (and of course, political will) that gets an LMIC to properly increase taxes for health. If the paper looks at things from a more practical perspective, then it could come to a more convincing conclusion.

REPOSNE: We agree with the reviewer's point and, as noted above, have revised the manuscript to discuss the need to help with capacity building in LMIC's.

COMMENT: On the other hand, it could articulate its limitations better so that it will not look like the research is isolated from reality. I have been trying to point out the inconsistencies and gaps of this

paper in detail but the changes made have been minor and does not address the overarching concern/ bigger picture. I hope these comments are considered so that the paper can become a useful one. Advocating for more specificity in Art 6 Guidelines is good, and the data research is good. But the gaps about how things work in the real world as reflected in literature and case studies, could reduce the credibility and usefulness of this paper.

RESPONSE: As discussed above, we have revised the paper to address the concerns expressed by the reviewer.

VERSION 5 – REVIEW

REVIEWER	Deborah Sy HealthJustice Philippines
REVIEW RETURNED	03-Aug-2018

GENERAL COMMENTS	One Comment: Please delete this "but governments may try to maintain popular support through adopting small tobacco tax increases instead of large increases. " unless you can prove that there is a presumption or perception that this is a popular move.. Ti claims that incremental increase is "popular " but in reality, there are opinion polls show support for higher tobacco taxes
-------------------------	--

VERSION 5 – AUTHOR RESPONSE

REVIEWER: 5

COMMENT: Please delete this "but governments may try to maintain popular support through adopting small tobacco tax increases instead of large increases. " unless you can prove that there is a presumption or perception that this is a popular move.. Ti claims that incremental increase is "popular " but in reality, there are opinion polls show support for higher tobacco taxes.

RESPONSE: Revised as suggested.