Manuscript Number: FORPOL-D-23-00110   
  
Active Timber Management by Outsourcing Stumpage Price Uncertainty with the American Put Option   
  
Dear Professor Chang,    
  
Thank you for submitting your manuscript to Forest Policy and Economics.   
  
I have completed my evaluation of your manuscript. The reviewers recommend reconsideration of your manuscript following minor revision and modification. I invite you to resubmit your manuscript after addressing the comments below. Please resubmit your revised manuscript by Jun 17, 2023.

If you agree, I would suggest, once accepted, putting this paper in the special issue of "7th international Faustmann Symposium".   
  
When revising your manuscript, please consider all issues mentioned in the reviewers' comments carefully: please outline every change made in response to their comments and provide suitable rebuttals for any comments not addressed. Please note that your revised submission may need to be re-reviewed.    
  
In addition to the reviewer comments, we would like you to address an additional issue in your revision, in order to encourage consistency across the research papers along a given theme for which Forest Policy and Economics is a vehicle. In the interests of engaging with the relevant audience, we encourage you to refer to the significant research on your topic, reported in forest science journals, to ensure both that your paper is speaking to the literature and demonstrating its additional contributions clearly. Forest Policy and Economics is committed to the principle of fair intellectual acknowledgment without bias or discrimination. Thus, we encourage all our authors to be attentive in attribution of intellectual property and citations.  
  
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Forest Policy and Economics values your contribution and I look forward to receiving your revised manuscript.￼   
  
Kind regards,    
  
Daowei Zhang   
  
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Forest Policy and Economics   
  
Editor and Reviewer comments:    
  
  
  
Reviewer's Responses to Questions

Note: In order to effectively convey your recommendations for improvement to the author(s), and help editors make well-informed and efficient decisions, we ask you to answer the following specific questions about the manuscript and provide additional suggestions where appropriate.  
  
1. Are the objectives and the rationale of the study clearly stated?  
  
Please provide suggestions to the author(s) on how to improve the clarity of the objectives and rationale of the study. Please number each suggestion so that author(s) can more easily respond.

Reviewer #1: No comments

Reviewer #2: yes

2. If applicable, is the application/theory/method/study reported in sufficient detail to allow for its replicability and/or reproducibility?  
  
Please provide suggestions to the author(s) on how to improve the replicability/reproducibility of their study. Please number each suggestion so that the author(s) can more easily respond.

Reviewer #1: Mark as appropriate with an X:  
Yes [] No [x] N/A []  
Provide further comments here: see Reviwer comments to author

Reviewer #2: Mark as appropriate with an X:  
Yes x No [] N/A []  
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3. If applicable, are statistical analyses, controls, sampling mechanism, and statistical reporting (e.g., P-values, CIs, effect sizes) appropriate and well described?  
  
Please clearly indicate if the manuscript requires additional peer review by a statistician. Kindly provide suggestions to the author(s) on how to improve the statistical analyses, controls, sampling mechanism, or statistical reporting. Please number each suggestion so that the author(s) can more easily respond.

Reviewer #1: Mark as appropriate with an X:  
Yes [] No [] N/A [x]  
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Reviewer #2: Mark as appropriate with an X:  
Yes x No [] N/A []  
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4. Could the manuscript benefit from additional tables or figures, or from improving or removing (some of the) existing ones?  
  
Please provide specific suggestions for improvements, removals, or additions of figures or tables. Please number each suggestion so that author(s) can more easily respond.

Reviewer #1: no

Reviewer #2: no

5. If applicable, are the interpretation of results and study conclusions supported by the data?  
  
Please provide suggestions (if needed) to the author(s) on how to improve, tone down, or expand the study interpretations/conclusions. Please number each suggestion so that the author(s) can more easily respond.

Reviewer #1: Mark as appropriate with an X:  
Yes [] No [] N/A []  
Provide further comments here: Reviwer comments to author

Reviewer #2: Mark as appropriate with an X:  
Yes [x] No [] N/A []  
Provide further comments here:

6. Have the authors clearly emphasized the strengths of their study/theory/methods/argument?  
  
Please provide suggestions to the author(s) on how to better emphasize the strengths of their study. Please number each suggestion so that the author(s) can more easily respond.

Reviewer #1: Reviwer comments to author

Reviewer #2: yes

7. Have the authors clearly stated the limitations of their study/theory/methods/argument?  
  
Please list the limitations that the author(s) need to add or emphasize. Please number each limitation so that author(s) can more easily respond.

Reviewer #1: Reviwer comments to author

Reviewer #2: yes

8. Does the manuscript structure, flow or writing need improving (e.g., the addition of subheadings, shortening of text, reorganization of sections, or moving details from one section to another)?  
  
Please provide suggestions to the author(s) on how to improve the manuscript structure and flow. Please number each suggestion so that author(s) can more easily respond.

Reviewer #1: good as it is

Reviewer #2: no

9. Could the manuscript benefit from language editing?

Reviewer #1: No

Reviewer #2: No

Reviewer #1: Comments on FORPOL-D-23-00110  
This manuscript examined the optimal management of even-aged stand under timber price uncertainty through the use of the American put option. The option values and the corresponding reservation prices for harvesting the stand at different ages were determined for a numerical example. The optimal management strategy based on the American put option approach was compared with the reservation price strategy proposed by Brazee and Mendelsohn (1988) in terms of the optimal reservation prices and land expectation value.  
The topic is relevant to the journal and the manuscript is well-written. It makes an important addition to the literature on timberland management under conditions of uncertainty. A few clarifications need to be made.  
1. The authors described that the forest owner could choose to "buy an American put option" or harvest the stand at each age before it reached a maximum age of 70 years. Please explain more clearly the benefits for the forest owner to buy an American put option.  
2. Page 6: "at age 15 the 55-year American put option is valued at $61.62 per MBF and gradually declines to $0 per MBF at age 70". What is the option value per acre at age 15? Answer to this question is of critical importance for the determination of the reservation price and the land expectation value.  
3. Page 7: It is unclear how Equation (2) was derived.  
4. Table 1: To help readers outside the US, please change the unit of stand volume from BF/acre to MBF/acre.  
5. Table 1: The reservation price at age 70 was equal to the mean stumpage price in all cases. For the B&M model, it means that if a stand has not been harvest before, there is a large probability that it will not be harvested at the age of 70 either. Then, what is the maximum age when the stand have to be harvested? For the American Put 55-year option case, the reservation price implies that it is optimal for the forest owner to exercise the option if the stumpage price is lower than 169.19 $/MBF, which in turn means that the zero option value is counter intuitive.  
6. A final question: Since "buying an American option as a price insurance would deduct land expectation values compared to the methods proposed by Brazee and Mendelsohn", why would a forest owner choose the American option approach rather than the B&M method? In which sense des this study "represents a breakthrough in dealing with stumpage price uncertainty (Highlights)"?  
  
  
  
Reviewer #2: "Active Timber Management by Outsourcing Stumpage Price Uncertainty with the American Put Option" is an innovative forest economics study addressing both sides of timber price uncertainty, the positive side expressed by higher than expected timber prices considered with the help of already introduced reservation prices (price thresholds to decide whether or not to harvest) and the negative side, being hedged by an American put option. The latter option allows selling the timber at a strike price (set at the average historical timber price in this study), when the current timber price at harvest is smaller than the strike price (i.e., when the option is "in the money"). The put option practically eliminates downside uncertainty of timber prices over the contract duration. Except from some smaller formal issues (in particular some misspellings in some sources of the reference list) and a largely lacking discussion of who could offer such put options and how much they would cost (size of the option premium), I have no concerns to recommend accepting this innovative paper.  
  
The reviewer is not an expert in the trading of American put options and guesses that this is the same for most of the Journal's readers. It would thus be good to have a short discussion on how realistically such options would be available for forest managers and how much these option contracts would possibly cost. However, even if this could be difficult in practice, this would by no means compromise the scientific merit of the contribution.  
  
Another minor comment is that the reviewer would find it more convenient for the also European readers of the Journal, if the authors could use hectares and cubic meters instead of acres and board feet, even if the adopted reference publication by Brazee and Mendelsohn also might use the American units.  
  
My further minor suggestions are:  
The highlights should be adapted to the journal style, but the editors know this better  
Replace "Hilderbrandt" by "Hildebrandt"  
Replace "Faustmann, M., (1849). Berechnung des wertes welchen waldboden sowie noch nicht haubare holzbestände für die weldwirtschaft besitzen. Allgemeine Forst-und Jagd-Zeitung 25: 441-455." by "Faustmann, M. (1849): Berechnung des Werthes, welchen Waldboden, sowie noch nicht haubare Holzbestände für die Waldwirthschaft besitzen. Allgemeine Forst- und Jagd-Zeitung 15: 441-451." The reviewer is not 100% sure that it is volume 15, but the authors could double check.  
Replace Lofgren by Löfgren  
In Fig. 1 replace mehod by method  
    
  
  
  
More information and support   
  
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