

Trs: Fwd: Tourism analysis

---

Dari: Yani Muri (muryani2008@yahoo.co.id)

Kepada: sugeng\_unair@yahoo.co.id

Tanggal: Jumat, 3 Desember 2021 15.01 WIB

---

Ini bukti korespondensinya

[Dikirim dari Yahoo Mail di Android](#)

----- Pesan yang Diteruskan -----

**Dari:** "Miguel Angel" <miguel@feb.unair.ac.id>

**Kepada:** "Yani Muri" <muryani2008@yahoo.co.id>

**Cc:**

**Terkirim:** Kam, 2 Des 2021 pada 20:54

**Judul:** Fwd: Tourism analysis

24-Jul-2019

Dear Dr. Esquivias:

Your manuscript entitled "DETERMINANTS OF TOURISM DEMAND IN INDONESIA: A PANEL DATA ANALYSIS" has been successfully submitted online and is presently being given full consideration for publication in the Tourism Analysis: An Interdisciplinary Journal.

Your manuscript ID is TA-2019-0031.R2.

Please mention the above manuscript ID in all future correspondence or when calling the office for questions. If there are any changes in your street address or e-mail address, please log in to ScholarOne Manuscripts at <https://mc.manuscriptcentral.com/cogcomm-ta> and edit your user information as appropriate.

You can also view the status of your manuscript at any time by checking your Author Center after logging in to <https://mc.manuscriptcentral.com/cogcomm-ta>.

Thank you for submitting your manuscript to the Tourism Analysis: An Interdisciplinary Journal.

Sincerely,  
Tourism Analysis: An Interdisciplinary Journal Editorial Office

Dear Dr. Ercan Sirakaya-Turk,

Greetings from Indonesia. I hope this email finds you well.

Appreciate very much all the support during the review process. I would kindly like to ask whether there is any specific person I shall get in touch with regarding the voluntary submission fee or to complete any other administrative issue. In case any additional information required from us, we are more than happy to support anything needed

I appreciate very much as well the help of Dr. Serdar Aydin. Appreciate any feedback in case there is additional information,

Thanks very much, have a wonderful week

Dr. Miguel Angel Esquivias Padilla  
[Universitas Airlangga](#)

[Faculty of Business and Economics](#)  
Campus B, Jl. Airlangga No. 4 Surabaya-Indonesia  
Telp. +6231-5033642, Fax +6231-5026288  
[miguel@feb.unair.ac.id](mailto:miguel@feb.unair.ac.id)  
<http://feb.unair.ac.id/>

On Wed, Sep 4, 2019 at 2:13 AM Tourism Analysis: An Interdisciplinary Journal  
<[onbehalf@manuscriptcentral.com](mailto:onbehalf@manuscriptcentral.com)> wrote:

03-Sep-2019

Dear Colleague Dr. Esquivias:

It is a pleasure to accept your manuscript entitled "DETERMINANTS OF TOURISM DEMAND IN INDONESIA: A PANEL DATA ANALYSIS" pending technical and grammar (spelling) revisions in the Tourism Analysis: An Interdisciplinary Journal. We know you had other publication outlets for your work. We appreciate your choice of our journal as your outlet. I've read your paper, it looks and reads well. My editorial assistant Dr. Aydin will look at it within a few weeks to make sure that citations are not missing. You may receive an email from him first. Later, we will put publish it in fastrack first. A few months before the publication of the hardcopy, the publisher, cognizant communication corporation and its editor Mrs. Christine Stagg will be in contact with you regarding any last minute comments or changes. I strongly suggest that you get these changes back to them as quickly as possible as to not delay the publication of your article. Technical comments maybe included below and the comments, if any, of the reviewer(s) who reviewed your manuscript are also included at the foot of this letter. I am expecting a final paper sent to my editorial assistant (read more about the process below) at [serdaraydin7777@gmail.com](mailto:serdaraydin7777@gmail.com).

Thank you for your fine contribution. On behalf of the Editors of the Tourism Analysis: An Interdisciplinary Journal, we look forward to your continued contributions to the Journal.

Sincerely,  
Dr. Ercan Sirakaya-Turk  
Editor-in-Chief, Tourism Analysis: An Interdisciplinary Journal  
[ercan@hrsm.sc.edu](mailto:ercan@hrsm.sc.edu)

Associate Editor Comments to Author:

We would like you to perform a technical revision that will increase its already good quality and therefore its chances of being read and cited.

As you may know, Tourism Analysis is an A journal and consistently ranked top six among the +200 journals in the field but our aim is to go even higher than this by becoming a part of, what we call, the "Pack 3 or A+ Journals." Because of this new target and administration, we have now revised our standards. We ask authors of paper that go through the first review successfully to create higher quality manuscripts by following the guidelines and the format below, almost to the letter. It might seem a little tedious at first glance but I can assure you that the resulting product will be worth it, especially when published in the company of alike papers. You will notice that

some do apply to your case others do not.

We also ask our contributors to consult a few relevant studies from Tourism Analysis to enhance the quality of their paper's literature review and/or conclusion section. Please let me know if you do not have access to our Journal through your library's site, I will supply you with relevant papers. We hope that you will find the guidelines below very useful when revising your manuscript.

Please consult the guidelines below as well as the attached document for contributors as you revise your manuscript for the final time. Again thank you very much for your contribution and am looking forward to your revised version. After making the following changes please send me a clean copy (one single word file saved using manuscripts' ID number and your name) title page (with contact author's information), abstract with key words, the revised and edited manuscript, references, and tables to [ercan@sc.edu](mailto:ercan@sc.edu) (e.g., TA-2015-Unable to Display Letter Tag (Unable to Display Letter Tag (#####))\_final\_yourname). Figures shall be submitted as separate, state of the art .jpg or other type of graphic files (named as Figure 1, Figure 2, or Figure # and so on). Please prepare and submit a separate word file that contains the figure legends (numbers and titles of figures displayed in picture files).

Language :

We are asking that you take one final look at the manuscript, correcting any grammatical and content issues as you feel appropriate. Please recheck the manuscript and refine the language carefully, when possible get some else read your paper before finalizing it.

Technical :

- 1) Maximum word count for the manuscript, which includes tables, figures and references is 7,500 words (go up 8,000 words if you need to).
- 2) The abstract should be between 150 and 200 words, including keywords. Please omit any citations within your abstract.
- 3) Make sure that you include a statement identifying the gap in the literature and your paper's contribution within the text preferably within the first page (or within the first two pages; the sooner, the better).
- 4) Round correlations to two decimal places in text and tables. Never report significant levels more than two decimals. Please make sure that you use period (American system), not comma when reporting decimals. (These do not apply to your paper)
- 5) Round means to whole numbers or to one decimal place. (These do not apply to your paper)
- 6) Round standard deviations to one or maximum two decimal places. (These do not apply to your paper)
- 7) Use American English (not British, not Australian); for example: whilst = British English while= American English
- 8) When a work has two authors always cite both names every time the reference occurs (APA manual p.208). Do not use "et al." first time the authors mentioned; include all authors' names if the first call to a reference in the text (up to five authors); use "et al." subsequently.
- 9) For references with six or more names you can use et al. throughout.
- 10) Make sure that that all reference text citations are listed in the reference list and that no reference list entries are included that do not appear in the text.
- 11) To accentuate the currency of your paper, please use present tense as much as possible to indicate your general disposition relative to reported research. Be consistent in your use of tenses, especially in the literature review part. Use past tense in literature only if past research is of secondary importance to your research. Keep the use of passive tense to a minimum, avoid whenever possible.

Do not write, "Uysal (2013) reported that ...."

Do write, "Uysal (2013) reports that ...."

Use past tense if research is secondary of importance to your study; otherwise you shall use present tense or present perfect tense.

In their seminal article, Witt and Goodale noted (1977) that...

12) Do not use shading in tables and figures. Avoid coloring in tables and figures or in text pages. Consult Tourism Analysis recent issues for formatting of tables. Don't forget to name your tables.

13) Cut down on pictures. Keep only pertinent ones.

14) All figures and tables go at the end of the manuscript; call for placement in text using,

Insert Table 1 about here.

15) Indent ALL paragraph starts 5 spaces. Make sure that you indent the first paragraph or the first paragraph below subheadings.

16) Keep your title to 10 words or less. We do not want long titles. Short and sweet yet impressive and attractive.

17) Never use footnotes at bottom of pages and no endnotes at the end of the paper. All must be included in the text.

18) Do not use the following pronouns in sentences except when quoting someone else: it their we our.

19) Avoid associating action verbs with inanimate objects. Also note that inanimate objects cannot do things; they cannot write or explain or state. For example, "this study will enhance our understanding of xyz;" " this newly designed questionnaire will qualitatively assess people's motivations toward travelling to..." Both examples are wrong. A study cannot do anything, the researcher on the other hand can be an actor. However, it can allow you (the researcher) to conclude xyz. The trick is that how do you avoid saying "I" "or" "we" all the time. That would be boring too.

20) Avoid writing, "This results in three conditions." Add a noun after writing, "This." For example, "This finding results in three conditions

Reviewer(s)' Comments to Author:

Dear Dr. Ercan Sirakaya-Turk  
Editor-in-Chief, Tourism Analysis: An Interdisciplinary Journal

Greetings from Indonesia, hope this email finds you well. Appreciate very much all the support of the journal.

I would like to ask if we should wait for instructions regarding the voluntary Submission fee or shall we proceed with the transfer? We would appreciate any info about it.

Manuscript ID TA-2019-0031.R1 entitled "DETERMINANTS OF TOURISM DEMAND IN INDONESIA: A PANEL DATA ANALYSIS" submitted to the Tourism Analysis: An Interdisciplinary Journal

Best regards

Miguel Esquivias

On Tue, Jul 23, 2019, 10:51 PM Tourism Analysis: An Interdisciplinary Journal <[onbehalf@manuscriptcentral.com](mailto:onbehalf@manuscriptcentral.com)> wrote:

23-Jul-2019

Dear Dr. Esquivias:

Manuscript ID TA-2019-0031.R1 entitled "DETERMINANTS OF TOURISM DEMAND IN INDONESIA: A PANEL DATA ANALYSIS" which you submitted to the Tourism Analysis: An Interdisciplinary Journal, has been reviewed. The comments of the reviewer(s) are included at the bottom of this letter.

The reviewer(s) have suggested publication of your manuscript. Therefore, I invite you to go over your final version the manuscript to make sure that everything confirms to our guidelines and resubmit it within seven days. Also please sign and submit the attached two documents (copyright and author's option formas).

To revise your manuscript, log into <https://mc.manuscriptcentral.com/cogcomm-ta> and enter your Author Center, where you will find your manuscript title listed under "Manuscripts with Decisions." Under "Actions," click on "Create a Revision." Your manuscript number has been appended to denote a revision.

You may also click the below link to start the revision process (or continue the process if you have already started your revision) for your manuscript. If you use the below link you will not be required to login to ScholarOne Manuscripts.

\*\*\* PLEASE NOTE: This is a two-step process. After clicking on the link, you will be directed to a webpage to confirm. \*\*\*

[https://mc.manuscriptcentral.com/cogcomm-ta?URL\\_MASK=726f54914a004e099091723817fa419f](https://mc.manuscriptcentral.com/cogcomm-ta?URL_MASK=726f54914a004e099091723817fa419f)

You will be unable to make your revisions on the originally submitted version of the manuscript. Instead, revise your manuscript using a word processing program and save it on your computer. Please also highlight the changes to your manuscript within the document by using the track changes mode in MS Word or by using bold or colored text.

Once the revised manuscript is prepared, you can upload it and submit it through your Author Center.

When submitting your revised manuscript, you will be able to respond to the comments made by the reviewer(s) in the space provided. You can use this space to document any changes you make to the original manuscript. In order to expedite the processing of the revised manuscript, please be as specific as possible in your response to the reviewer(s).

**IMPORTANT:** Your original files are available to you when you upload your revised manuscript. Please delete any redundant files before completing the submission.

Because we are trying to facilitate timely publication of manuscripts submitted to the Tourism Analysis: An Interdisciplinary Journal, your revised manuscript should be submitted by 21-Sep-2019. If it is not possible for you to submit your revision by this date, we may have to consider your paper as a new submission.

Once again, thank you for submitting your manuscript to the Tourism Analysis: An Interdisciplinary Journal and I look forward to receiving your revision.

Sincerely,  
Dr. Ercan Sirakaya-Turk  
Editor-in-Chief, Tourism Analysis: An Interdisciplinary Journal  
[ercan@hrsm.sc.edu](mailto:ercan@hrsm.sc.edu)

Associate Editor Comments to Author:

Language :

We are asking that you take one final look at the manuscript, correcting any grammatical and content issues as you feel appropriate. When possible please have your paper proofread by a native speaker of English and then refine the language carefully.

Technical :

1) Maximum word count for the manuscript, which includes tables, figures and references is 7000 words (but

go up to 7,500 when necessary).

2) The abstract should be between 150 and 200 words (max), including keywords. Please omit any citations within your abstract.

3) Make sure that you include a statement identifying the gap in the literature and your paper's theoretical contribution within the text, preferably within the first few paragraphs if not within the first two pages (the sooner, the better).

4) To accentuate the currency of your paper, please use present tense as much as possible to indicate your general disposition relative to reported research. Be consistent in your use of tenses, especially in the literature review part. Use past tense in literature only if past research is of secondary importance to your research. Keep the use of passive tense to a minimum, avoid whenever possible.

Do not write, "Uysal (2013) reported that ...."

Do write, "Uysal (2013) reports that ...."

Use past tense if research is secondary of importance to your study; otherwise you shall use present tense or present perfect tense.

In their seminal article, Witt and Goodale noted (1977) that...

5) Round correlations to two decimal places in text and tables. Never report significant levels more than two decimals. Please make sure that you use period (American system), not comma when reporting decimals.

6) Round means to whole numbers or to one decimal place.

7) Round standard deviations to one or maximum two decimal places.

8) Use American English (not British, not Australian); for example: whilst = British English while= American English

9) When a work has two authors always cite both names every time the reference occurs (APA manual p.208). Do not use "et al." first time the authors mentioned; include all authors' names if the first call to a reference in the text (up to five authors); use "et al." subsequently.

10) For references with six or more names you can use et al. throughout.

11) Do not use the following pronouns in sentences except when quoting someone else: it their we our.

12) Make sure that that all reference text citations are listed in the reference list and that no reference list entries are included that do not appear in the text.

13) Do not use shading in tables and figures. Avoid coloring in tables and figures or in text pages. Consult Tourism Analysis recent issues for formatting of tables. Don't forget to name your tables.

14) All figures and tables go at the end of the manuscript; call for placement in text using,

Insert Table 1 about here.

15) Indent ALL paragraph starts 5 spaces. Make sure that you indent the first paragraph or the first paragraph below subheadings.

16) Keep your title to 10 words or less. We do not want long titles. Short and sweet yet impressive and attractive.

17) Avoid associating action verbs with inanimate objects. Also note that inanimate objects cannot do things; they cannot write or explain or state. For example, "this study will enhance our understanding of xyz;" "this newly designed questionnaire will qualitatively assess people's motivations toward travelling to..." Both examples are wrong. A study cannot do anything, the researcher on the other hand can be an actor. However, it can allow you (the researcher) to conclude xyz. The trick is that how one avoids saying "I" "or "we" all the time. That would be boring too.

18) Avoid writing, "This results in three conditions." Add a noun after writing, "This." For example, "This finding results in three conditions."

Reviewer(s)' Comments to Author:

Reviewer summary

Comments to the Author

I appreciate the efforts put by the authors to address the comments raised. I think now paper is improved considerably and therefore i accept it.

24-Jul-2019

Dear Dr. Esquivias:

Your manuscript entitled "DETERMINANTS OF TOURISM DEMAND IN INDONESIA: A PANEL DATA ANALYSIS" has been successfully submitted online and is presently being given full consideration for publication in the Tourism Analysis: An Interdisciplinary Journal.

Your manuscript ID is TA-2019-0031.R2.

Please mention the above manuscript ID in all future correspondence or when calling the office for questions. If there are any changes in your street address or e-mail address, please log in to ScholarOne Manuscripts at <https://mc.manuscriptcentral.com/cogcomm-ta> and edit your user information as appropriate.

You can also view the status of your manuscript at any time by checking your Author Center after logging in to <https://mc.manuscriptcentral.com/cogcomm-ta>.

Thank you for submitting your manuscript to the Tourism Analysis: An Interdisciplinary Journal.

Sincerely,  
Tourism Analysis: An Interdisciplinary Journal Editorial Office

29-May-2019

Dear Dr. Esquivias:

Your manuscript entitled "DETERMINANTS OF TOURISM DEMAND IN INDONESIA: A PANEL DATA ANALYSIS" has been successfully submitted online and is presently being given full consideration for publication in the Tourism Analysis: An Interdisciplinary Journal.

Your manuscript ID is TA-2019-0031.R1.

Please mention the above manuscript ID in all future correspondence or when calling the office for questions. If there are any changes in your street address or e-mail address, please log in to ScholarOne Manuscripts at <https://mc.manuscriptcentral.com/cogcomm-ta> and edit your user information as appropriate.

You can also view the status of your manuscript at any time by checking your Author Center after logging in to <https://mc.manuscriptcentral.com/cogcomm-ta>.

Thank you for submitting your manuscript to the Tourism Analysis: An Interdisciplinary Journal.

Sincerely,  
Tourism Analysis: An Interdisciplinary Journal Editorial Office

----- Forwarded message -----

From: **Tourism Analysis: An Interdisciplinary Journal** <[onbehalfof@manuscriptcentral.com](mailto:onbehalfof@manuscriptcentral.com)>  
Date: Sat, May 4, 2019, 10:36 PM  
Subject: Tourism Analysis: An Interdisciplinary Journal - Decision on Manuscript ID TA-2019-0031  
To: <[miguel@feb.unair.ac.id](mailto:miguel@feb.unair.ac.id)>

04-May-2019

Dear Dr. Esquivias:

Manuscript ID TA-2019-0031 entitled "DETERMINANTS OF TOURISM DEMAND IN INDONESIA: A PANEL DATA ANALYSIS" which you submitted to the Tourism Analysis: An Interdisciplinary Journal, has been reviewed. If any, the comments of the reviewer(s) are included at the bottom of this letter.

The reviewer(s) have recommended publication, but also suggest moderate revisions to your manuscript. Therefore, I invite you to respond to the reviewer(s)' comments one last time and revise your manuscript. Typically reviewers give advise about the content and scientific merit but are less concerned about the format and readability. As the editor, I also read your paper, I think that it has potential to attract a lot of citation but readability can be improved further. Therefore, I strongly encourage you to respond to the reviewer(s)' comments. While revising your manuscript please follow our new guidelines below.

To revise your manuscript, log into <https://mc.manuscriptcentral.com/cogcomm-ta> and enter your Author Center, where you will find your manuscript title listed under "Manuscripts with Decisions." Under "Actions," click on "Create a Revision." Your manuscript number has been appended to denote a revision.

You may also click the below link to start the revision process (or continue the process if you have already started your revision) for your manuscript. If you use the below link you will not be required to login to ScholarOne Manuscripts.

\*\*\* PLEASE NOTE: This is a two-step process. After clicking on the link, you will be directed to a webpage to confirm.  
\*\*\*

[https://mc.manuscriptcentral.com/cogcomm-ta?URL\\_MASK=fe469f5779a4445fb25ee2c3bfd5714f](https://mc.manuscriptcentral.com/cogcomm-ta?URL_MASK=fe469f5779a4445fb25ee2c3bfd5714f)

You will be unable to make your revisions on the originally submitted version of the manuscript. Instead, revise your manuscript using a word processing program and save it on your computer. Please also highlight the changes to your manuscript within the document by using the track changes mode in MS Word or by using bold or colored text.

Once the revised manuscript is prepared, you can upload it and submit it through your Author Center.

When submitting your revised manuscript, you will be able to respond to the comments made by the reviewer(s) in the space provided. You can use this space to document any changes you make to the original manuscript. In order to expedite the processing of the revised manuscript, please be as specific as possible in your response to the reviewer(s).

**IMPORTANT:** Your original files are available to you when you upload your revised manuscript. Please delete any redundant files before completing the submission.

Because we are trying to facilitate timely publication of manuscripts submitted to the Tourism Analysis: An Interdisciplinary Journal, your revised manuscript should be submitted by 03-Jul-2019. If it is not possible for you to submit your revision by this date, we may have to consider your paper as a new submission.

Once again, thank you for submitting your manuscript to the Tourism Analysis: An Interdisciplinary Journal and I look forward to receiving your revision.

Sincerely,  
Dr. Ercan Sirakaya-Turk  
Editor-in-Chief, Tourism Analysis: An Interdisciplinary Journal  
Associate Dean for Research, Grants and Graduate Programs  
The University of South Carolina



Associate Editor Comments to Author:

As you may already know that *Tourism Analysis* is an A journal and consistently ranked at top six among the +200 journals in the field but our aim is to go even higher than this by becoming a part of, what we call, the "Pack 3 or A+ Journals." Because of this new target and administration, we have now revised our standards. We ask authors of paper that go through the review process successfully to create even a higher quality manuscript by following the guidelines and the format below, almost to the letter. It might seem a little tedious at first glance, but I can assure you that the resulting product will be worth it, especially when published in the company of alike papers. You will notice that some do apply to your case others do not.

Language :

We are asking that you take one final look at the manuscript, correcting any grammatical and content issues as you feel appropriate. When possible please have your paper proofread by a native speaker of English and then refine the language carefully.

Technical :

- 1) Maximum word count for the manuscript, which includes tables, figures and references is 7000 words (but go up to 7,500 when necessary). This limit is 3,000 words for shorter articles (research notes)
- 2) The abstract should be between 150 and 200 words (max), including keywords. Please omit any citations within your abstract.
- 3) Make sure that you include a statement identifying the gap in the literature and your paper's theoretical contribution within the text, preferably within the first few paragraphs if not within the first two pages (the sooner, the better).
- 4) To accentuate the currency of your paper, please use present tense as much as possible to indicate your general disposition relative to reported research. Be consistent in your use of tenses, especially in the literature review part. Use past tense in literature only if past research is of secondary importance to your research. Keep the use of passive tense to a minimum, avoid whenever possible.

Do not write, "Uysal (2013) reported that ...."

Do write, "Uysal (2013) reports that ...."

Use past tense if research is secondary of importance to your study; otherwise you shall use present tense or present perfect tense.

In their seminal article, Witt and Goodale noted (1977) that...

- 5) When a work has two authors always cite both names every time the reference occurs (APA manual p.208). Do not use "et al." first time the authors mentioned; include all authors' names if the first call to a reference in the text (up to five authors); use "et al." subsequently.
- 6) For references with six or more names you can use et al. throughout.
- 7) Do not use the following pronouns in sentences except when quoting someone else: it their we our.
- 8) Make sure that that all reference text citations are listed in the reference list and that no reference list entries are included that do not appear in the text.
- 9) Do not use shading in tables and figures. Avoid coloring in tables and figures or in text pages. Consult *Tourism Analysis* recent issues for formatting of tables. Don't forget to name your tables.

Reviewer(s)' Comments to Author:

Reviewer: 1

Comments to the Author

The model used double log model and the demand side factors were included in the demand function. The coefficient for income, cross price can be explained as cross price elasticity, income elasticity for demand function but there were not discussed in the discussion.

Reviewer: 2

Comments to the Author

The paper entitled "DETERMINANTS OF TOURISM DEMAND IN INDONESIA: A PANEL DATA ANALYSIS" is on a very interesting topic but the analysis carried out is not up to the level. Hence, I offer few comments which would improve the quality of the paper in my belief. I list my comments below:

1. Authors may provide results panel unit root test may be data and variables are non-stationary.
2. If variables are non-stationary in level of stationary at first difference, they can use panel cointegration and error correction models.
3. If variables are non-stationary, then they can not be used in Fixed/random effect regression models.
4. Authors may also try using GMM based estimations methods as robustness of their results.
5. Policy implications section is too weak.
6. Authors may insert some dummy variables in fixed effect and GMM equations to capture the policy break/announcements that might have influenced tourist arrivals in those 15 years period.

28-Feb-2019

Dear Dr. Esquivias:

Your manuscript entitled "DETERMINANTS OF TOURISM DEMAND IN INDONESIA: A PANEL DATA ANALYSIS" has been successfully submitted online and is presently being given full consideration for publication in the Tourism Analysis: An Interdisciplinary Journal.

Your manuscript ID is TA-2019-0031.

Please mention the above manuscript ID in all future correspondence or when calling the office for questions. If there are any changes in your street address or e-mail address, please log in to ScholarOne Manuscripts at <https://mc.manuscriptcentral.com/cogcomm-ta> and edit your user information as appropriate.

You can also view the status of your manuscript at any time by checking your Author Center after logging in to <https://mc.manuscriptcentral.com/cogcomm-ta>.

Thank you for submitting your manuscript to the Tourism Analysis: An Interdisciplinary Journal.

Sincerely,

Tourism Analysis: An Interdisciplinary Journal Editorial Office



Tourism Analysis: An Interdisciplinary Journal - Decision on Manuscript ID TA-2019-0031.R2.eml  
21.9kB



Tourism Analysis: An Interdisciplinary Journal - Decision on Manuscript ID TA-2019-0031.R1.eml  
41kB



Tourism Analysis: An Interdisciplinary Journal - Manuscript ID TA-2019-0031.R2.eml  
47kB



Tourism Analysis: An Interdisciplinary Journal - Manuscript ID TA-2019-0031.R1.eml  
53kB



Tourism Analysis: An Interdisciplinary Journal - Decision on Manuscript ID TA-2019-0031.eml  
71.7kB





# *Tourism Analysis* An Interdisciplinary Journal

## **DETERMINANTS OF TOURISM DEMAND IN INDONESIA: A PANEL DATA ANALYSIS**

Journal:	<i>Tourism Analysis: An Interdisciplinary Journal</i>
Manuscript ID	TA-2019-0031.R1
Manuscript Type:	Original Article
Background Keywords:	Tourism demand, Inbound tourism, International Tourism, Dynamic panel data model
Research Interests:	Tourism, International Economics, Econometrics
Abstract:	<p>By 2014 Indonesia registered 11.6 million inbound foreign tourists, 135% higher than the year 2000. Since then, government policies to promote tourism flourished. This paper investigates the determinants of inbound tourism from the top nine mayor tourist origin countries into Indonesia covering the period of 2000 to 2014. This paper employs a dynamic panel dataset to estimate the impact of per capita real income, relative prices, accommodation capacity, distance and public infrastructure investment on international tourism demand in Indonesia, capturing demand and supply-side effects. The results show that per capita income of tourist, relative price, and available rooms have a positive effect on tourism expenditure in Indonesia, while distance has a negative effect. Dummy variables capture large negative shocks in tourism arising from two terrorist attacks in 2002 and 2005, as well as from the global financial crisis in 2008. Income plays a positive but low impact on tourism demand compared to other nations. The positive effect of prices suggests an advantage of Indonesia in competitive tourism prices. Nevertheless, low prices also denote low value in tourism services. The substantial impact of accommodation may indicate that significant effects of tourism are allocated in lodging, minimizing the impact on other sectors.</p>

SCHOLARONE™  
Manuscripts

# DETERMINANTS OF TOURISM DEMAND IN INDONESIA: A PANEL DATA ANALYSIS

## Abstract

By 2014 Indonesia registered 11.6 million inbound foreign tourists, 135% higher than the year 2000. Since then, government policies to promote tourism flourished. This paper investigates the determinants of inbound tourism from the top nine mayor tourist origin countries into Indonesia covering the period of 2000 to 2014. This paper employs a dynamic panel dataset to estimate the impact of per capita real income, relative prices, accommodation capacity, distance and public infrastructure investment on international tourism demand in Indonesia, capturing demand and supply-side effects. The results show that per capita income of tourist, relative price, and available rooms have a positive effect on tourism expenditure in Indonesia, while distance has a negative effect. Dummy variables capture large negative shocks in tourism arising from two terrorist attacks in 2002 and 2005, as well as from the global financial crisis in 2008. Income plays a positive but low impact on tourism demand compared to other nations. The positive effect of prices suggests an advantage of Indonesia in competitive tourism prices. Nevertheless, low prices also denote low value in tourism services. The substantial impact of accommodation may indicate that significant effects of tourism are allocated in lodging, minimizing the impact on other sectors.

**KEYWORDS:** Tourism demand; Inbound tourism; Dynamic Panel Model; Indonesia

## Introduction

In the last decades, tourism developed into one of the most dynamic and rapid growth sectors globally. From 2000 to 2014, Indonesia also experienced vast expansion of foreign tourist arrivals from 5.06 million to nearly 9.43 million travelers. In addition, tourism revenue doubled to more than 11 USD billion. The rapid growth of the tourism sector has re-attracted the attention of Indonesian policymakers to launch tourism as a key sector to stimulate economic growth, create employment, increase foreign exchange income, encourage other supporting industries, and promote the natural beauty and culture of Indonesia, among others. The national government has set an ambitious target of reaching 20 million

1  
2  
3 international tourists by 2019, doubling the contribution of tourism to GDP to 8%, and  
4  
5 multiplying foreign revenue to nearly 16 USD billion.

6  
7 However, by 2017, the contribution of tourism to Indonesia's GDP accounted for 5.8%,  
8  
9 lower than the 9.1% share of GDP in the year 2000. By contrast, most Southeast Asian  
10  
11 countries' tourism industries increased in terms of their contribution to total GDP. Although  
12  
13 average receipts per traveler increased from US\$1.059 in 2007 to US\$ 1.226 in 2014, since  
14  
15 2010 the ratio fell year-after-year until the figure was at US\$1.005 in 2017. Inbound tourism  
16  
17 expanded by 155% (2007-2017), but total tourism expenditure only increased by 98%.

18  
19 Although the contribution of the tourism sector to GDP is shrinking and receipts per traveler  
20  
21 fell, in 2017 the sector still accounted for an essential source of employment, estimated at  
22  
23 10% of total employment -direct and indirect jobs- and it contributed to the balance of  
24  
25 payments with nearly US\$20 billion in 2017.

26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65  
66  
67  
68  
69  
70  
71  
72  
73  
74  
75  
76  
77  
78  
79  
80  
81  
82  
83  
84  
85  
86  
87  
88  
89  
90  
91  
92  
93  
94  
95  
96  
97  
98  
99  
100  
101  
102  
103  
104  
105  
106  
107  
108  
109  
110  
111  
112  
113  
114  
115  
116  
117  
118  
119  
120  
121  
122  
123  
124  
125  
126  
127  
128  
129  
130  
131  
132  
133  
134  
135  
136  
137  
138  
139  
140  
141  
142  
143  
144  
145  
146  
147  
148  
149  
150  
151  
152  
153  
154  
155  
156  
157  
158  
159  
160  
161  
162  
163  
164  
165  
166  
167  
168  
169  
170  
171  
172  
173  
174  
175  
176  
177  
178  
179  
180  
181  
182  
183  
184  
185  
186  
187  
188  
189  
190  
191  
192  
193  
194  
195  
196  
197  
198  
199  
200  
201  
202  
203  
204  
205  
206  
207  
208  
209  
210  
211  
212  
213  
214  
215  
216  
217  
218  
219  
220  
221  
222  
223  
224  
225  
226  
227  
228  
229  
230  
231  
232  
233  
234  
235  
236  
237  
238  
239  
240  
241  
242  
243  
244  
245  
246  
247  
248  
249  
250  
251  
252  
253  
254  
255  
256  
257  
258  
259  
260  
261  
262  
263  
264  
265  
266  
267  
268  
269  
270  
271  
272  
273  
274  
275  
276  
277  
278  
279  
280  
281  
282  
283  
284  
285  
286  
287  
288  
289  
290  
291  
292  
293  
294  
295  
296  
297  
298  
299  
300  
301  
302  
303  
304  
305  
306  
307  
308  
309  
310  
311  
312  
313  
314  
315  
316  
317  
318  
319  
320  
321  
322  
323  
324  
325  
326  
327  
328  
329  
330  
331  
332  
333  
334  
335  
336  
337  
338  
339  
340  
341  
342  
343  
344  
345  
346  
347  
348  
349  
350  
351  
352  
353  
354  
355  
356  
357  
358  
359  
360  
361  
362  
363  
364  
365  
366  
367  
368  
369  
370  
371  
372  
373  
374  
375  
376  
377  
378  
379  
380  
381  
382  
383  
384  
385  
386  
387  
388  
389  
390  
391  
392  
393  
394  
395  
396  
397  
398  
399  
400  
401  
402  
403  
404  
405  
406  
407  
408  
409  
410  
411  
412  
413  
414  
415  
416  
417  
418  
419  
420  
421  
422  
423  
424  
425  
426  
427  
428  
429  
430  
431  
432  
433  
434  
435  
436  
437  
438  
439  
440  
441  
442  
443  
444  
445  
446  
447  
448  
449  
450  
451  
452  
453  
454  
455  
456  
457  
458  
459  
460  
461  
462  
463  
464  
465  
466  
467  
468  
469  
470  
471  
472  
473  
474  
475  
476  
477  
478  
479  
480  
481  
482  
483  
484  
485  
486  
487  
488  
489  
490  
491  
492  
493  
494  
495  
496  
497  
498  
499  
500  
501  
502  
503  
504  
505  
506  
507  
508  
509  
510  
511  
512  
513  
514  
515  
516  
517  
518  
519  
520  
521  
522  
523  
524  
525  
526  
527  
528  
529  
530  
531  
532  
533  
534  
535  
536  
537  
538  
539  
540  
541  
542  
543  
544  
545  
546  
547  
548  
549  
550  
551  
552  
553  
554  
555  
556  
557  
558  
559  
560  
561  
562  
563  
564  
565  
566  
567  
568  
569  
570  
571  
572  
573  
574  
575  
576  
577  
578  
579  
580  
581  
582  
583  
584  
585  
586  
587  
588  
589  
590  
591  
592  
593  
594  
595  
596  
597  
598  
599  
600  
601  
602  
603  
604  
605  
606  
607  
608  
609  
610  
611  
612  
613  
614  
615  
616  
617  
618  
619  
620  
621  
622  
623  
624  
625  
626  
627  
628  
629  
630  
631  
632  
633  
634  
635  
636  
637  
638  
639  
640  
641  
642  
643  
644  
645  
646  
647  
648  
649  
650  
651  
652  
653  
654  
655  
656  
657  
658  
659  
660  
661  
662  
663  
664  
665  
666  
667  
668  
669  
670  
671  
672  
673  
674  
675  
676  
677  
678  
679  
680  
681  
682  
683  
684  
685  
686  
687  
688  
689  
690  
691  
692  
693  
694  
695  
696  
697  
698  
699  
700  
701  
702  
703  
704  
705  
706  
707  
708  
709  
710  
711  
712  
713  
714  
715  
716  
717  
718  
719  
720  
721  
722  
723  
724  
725  
726  
727  
728  
729  
730  
731  
732  
733  
734  
735  
736  
737  
738  
739  
740  
741  
742  
743  
744  
745  
746  
747  
748  
749  
750  
751  
752  
753  
754  
755  
756  
757  
758  
759  
760  
761  
762  
763  
764  
765  
766  
767  
768  
769  
770  
771  
772  
773  
774  
775  
776  
777  
778  
779  
780  
781  
782  
783  
784  
785  
786  
787  
788  
789  
790  
791  
792  
793  
794  
795  
796  
797  
798  
799  
800  
801  
802  
803  
804  
805  
806  
807  
808  
809  
810  
811  
812  
813  
814  
815  
816  
817  
818  
819  
820  
821  
822  
823  
824  
825  
826  
827  
828  
829  
830  
831  
832  
833  
834  
835  
836  
837  
838  
839  
840  
841  
842  
843  
844  
845  
846  
847  
848  
849  
850  
851  
852  
853  
854  
855  
856  
857  
858  
859  
860  
861  
862  
863  
864  
865  
866  
867  
868  
869  
870  
871  
872  
873  
874  
875  
876  
877  
878  
879  
880  
881  
882  
883  
884  
885  
886  
887  
888  
889  
890  
891  
892  
893  
894  
895  
896  
897  
898  
899  
900  
901  
902  
903  
904  
905  
906  
907  
908  
909  
910  
911  
912  
913  
914  
915  
916  
917  
918  
919  
920  
921  
922  
923  
924  
925  
926  
927  
928  
929  
930  
931  
932  
933  
934  
935  
936  
937  
938  
939  
940  
941  
942  
943  
944  
945  
946  
947  
948  
949  
950  
951  
952  
953  
954  
955  
956  
957  
958  
959  
960  
961  
962  
963  
964  
965  
966  
967  
968  
969  
970  
971  
972  
973  
974  
975  
976  
977  
978  
979  
980  
981  
982  
983  
984  
985  
986  
987  
988  
989  
990  
991  
992  
993  
994  
995  
996  
997  
998  
999  
1000

Though previous empirical studies may support the idea that the tourism sector could make a substantial contribution to the Indonesian economy (Mahadevan, Amir, & Nugroho, 2017), the challenge is to understand the drivers that influence tourism demand in the country to help policy-makers design strategies in order to develop the tourism sector and to unleash the potential of the archipelago. Several papers focus on demand aspects, leaving supply factors as secondary causes in determining tourism demand, opening a research gap.

It is also important to note that Indonesia is sensitive to terrorist attacks, to natural disasters, and to global financial shocks, suggesting the need to capture how these issues affect tourism demand.

This paper employs variables proxying both demand and supply factors that could trigger demand for tourism, offering insights of impacts that could help address policy efforts. This paper analyzes the influence of per capita income of the country of origin, accommodation capacity, relative price, and infrastructure development in Indonesia on trans-border travelers' expenditure in Indonesia. In addition, this paper introduces five dummies to

1  
2  
3 incorporate effects due to terrorism incidents (2002 and 2005), the 2004 Tsunami (natural  
4  
5 disaster), and the global financial shock (2008) that can help to measure the impact of events  
6  
7 in tourism, which are constant threats to the country. Finally, the study tests a free entry-  
8  
9 visa scheme introduced in 2003 as a tourist promotion policy tool. A contribution of this  
10  
11 paper is that it employs a dynamic data panel applying a Generalized Method of Moments  
12  
13 (GMM) system to a set that covers nine main origin countries during the period 2000–2014,  
14  
15 five possible explanatory variables, capturing country-specific factors. The use of GMM  
16  
17 also allows testing effects of lagged influence from previous tourism arrivals, solving the  
18  
19 presence of endogeneity in the data.  
20  
21  
22  
23

## 24 Literature review

25  
26 This section deals with the demand function for tourism, and with factors that influence  
27  
28 tourism demand. Understanding the dynamics of tourism demand helps to design more  
29  
30 effective policy tools and to build links towards evidence on tourism-led growth. Although  
31  
32 the empirical evidence on the tourism-led growth is mixed (Brida, Cortes-Jimenez, &  
33  
34 Pulina, 2016; De Vita & Kyaw, 2016), more often evidence suggests a positive contribution  
35  
36 to the economy by tourism as it has the ability to increase employment, tax revenue and  
37  
38 national income, as well as provide wide and long linkages towards different sectors in the  
39  
40 economy (Proenca & Soukiazis, 2005; Tang & Tan, 2015). In specific cases, tourism  
41  
42 outstrips economic growth versus other sectors and plays the role of an engine of *economic*  
43  
44 *recovery* after periods of crisis (Dogru & Bulut, 2018). In Indonesia, there is evidence that  
45  
46 the tourism sector supports the presence of economic growth but that it is not free of painful  
47  
48 trade-offs with income inequality (Mahadevan et al., 2017), environmental degradation, and  
49  
50 cultural and social distortion (Kinseng, Nasdian, Fatchiya, Mahmud, & Stanford, 2018).  
51  
52  
53  
54  
55  
56

## 57 Tourism Demand

1  
2  
3 The demand function is the fundamental theory that illustrates tourism as an economic  
4 activity where the output represents the aggregate set of services/goods demanded by a  
5 visitor during a specific time-frame at a foreign location. People at the tourist destination  
6 develop products and services offered to incoming visitors. The willingness of visitors to  
7 acquire those goods determines the demand for services/goods. While demand function  
8 more often illustrates output as a function of income (purchasing power of the tourist) and  
9 prices (relative to one another, e.g., Akis, 1998), there are economic and non-economic  
10 factors that interact in the demand of tourism services (Habibi, 2017). Besides the most  
11 common determinants of tourism demand -income and prices- other forces behind tourism  
12 demand are still an empirical question. Different approaches to tourism demand include  
13 tourist arrivals, length of the visit and visitor expenditure, among others (Mello, Pack &  
14 Sinclair, 2002; Proenca & Soukiazis, 2005). A wide range of explanatory variables is an  
15 object of empirical studies (Gallego, Rodríguez-Serrano & Casanueva, 2019).

16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
What is generally common in the literature of tourism demand is that tourism activities have  
the potential to drive demand, for both consumption and investment, eventually leading to  
the direct and indirect effects on other sectors. Spillover effects triggered by the tourism  
sector can raise demand for capital goods and raw materials (investment derived demand)  
with the potential to foster economic growth across sectors (transportation and  
communication, hospitality, the handicraft industry, consumer products, services and  
restaurants, among others).

Within a general demand function, the wider availability of resources can trigger the  
willingness of travelers to spend. Nevertheless, other factors, such as the accessibility of the  
products and attractions and quality of services, could contribute to the demand for tourism  
attractions (Harb & Bassil, 2018). Transportation infrastructure can capture accessibility, as  
it is influential in connecting visitors to tourist destinations.



Besides personal income, other factors influencing demand in tourism include government regulation of the country of origin, transportation technology, real exchange rate, and inter-state economic relations, amongst others (Kim, Lee, & Mjelde, 2018; A. Liu, Sanshan Lin, & Song, 2018; Wray, 2015). Analysis covering behavioral forces are also gaining weight in the literature of tourism demand as behavioral factors can lead to significant variations, depending on a full set of circumstances. Empirical studies covering destination image (Cohen, Prayag & Moital, 2014; Isaac & Eid, 2018), expenditure behavior among tourists (Hung, Shang & Wang, 2013), perception of destinations (Yang & Wall, 2009), and market structures (Y. Liu, Li & Parkpian, 2018), among others, are an example.

The empirical study of Proenca and Soukiazis (2005) points out that the theory of demand and the theory of consumer behavior are the basis in determining tourism activities. Nevertheless, the demand for tourism services (willingness of consumers to demand touristic services), is determined by a set of observable and unobservable factors, not always the same as demand functions for tradable goods.

### **Factors affecting tourism demand**

Per capita income of the country of origin, rooms, relative prices, and infrastructure development are often important drivers of tourism demand, both in developing and developed countries. However, the degree and direction often differ. Kim et al., (2018) find a significant effect of per capita GDP, relative prices, and exchange rates towards Japanese inbound tourism from Korea (the largest inbound market for Japan). In the case of Portugal, Proenca and Soukiazis (2005) find that income per capita accounts for the largest effect driving demand, while accommodation capacity represents the largest supply variable in attracting more tourists. Habibi (2017) points out that income, hotel rooms, and political stability play a determinant role in larger tourism inflows into Malaysia. As for Thailand,

1  
2  
3 distance appears as a driver of regional tourism; however, GDP per capita and population  
4  
5 size are not conclusive as drivers of ASEAN tourism (Y. Liu, Li & Parkpian, 2018).

6  
7 In the case of the United States, Yazdi and Khanalizadeh (2017) find that GDP, prices, real  
8  
9 exchange rate, certain events, and transportation play a role in determining tourism demand.

10  
11 Other factors often employed in tourism demand studies include distance and accessibility  
12  
13 (A. Liu et al., 2018; Y. Liu, Li & Parkpian, 2018), the role of location factors (Assaf,  
14  
15 Josiassen & Agbola, 2015), tourism cycles (Kozić, 2014), transportation infrastructure  
16  
17 (Barman & Nath, 2019; Khadaroo & Seetanah, 2008; Tóth, Dávid & Vasa, 2014), and  
18  
19 security (Ghaderi, Saboori, & Khoshkam, 2017), amongst others. Studies such as that of

20  
21 Khadaroo and Seetanah (2008) highlight the positive role of transportation and  
22  
23 infrastructure in tourism inflows in a sample of 28 countries, with larger coefficients for  
24  
25 countries within Africa and Asia. The Indian case supports the notion that transportation  
26  
27 and communications play a crucial role in attracting tourists (Barman & Nath, 2019).

28  
29 Effects of terrorism on tourism are attracting attention in tourism literature, as in Indonesia  
30  
31 (Pambudi, McCaughey & Smyth, 2009; Smyth, Nielsen & Mishra, 2009) where evidence  
32  
33 suggests that a bomb attack in 2002 caused a decrease in real GDP, employment, export  
34  
35 prices, and the consumer price index of Bali. The World Bank/UNDP (2006) also reported  
36  
37 a fall in tourism arrivals of nearly 50% after the bombing attacks of 2002.

38  
39 Other studies suggest that tourism is sensitive to economic and financial shocks (Khalid,  
40  
41 Okafor & Shafiullah, 2019). Song and Lin (2010) suggest negative impacts on tourism in  
42  
43 Asia as a result of the 2008 financial crisis, although with an expected rebound a year after  
44  
45 the shock (2010). Purwomarwanto and Ramachandran (2015) found that Indonesia  
46  
47 experienced a decrease in tourism arrivals on the aftershock of the 2008 financial crisis,  
48  
49 with a slowdown on arrivals in 2009 and a recovery in the following year. Smeral (2010)  
50  
51 predicted a nearly 10% decrease in World total tourism expenditure as a consequence of the  
52  
53 global financial crisis, although the recovery process was a rather short-term effect.  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 Some policy interventions can support tourism flows with the use of tools such as free tourist  
4 visas. Fee tourist visas in Turkey (Balli, Balli & Cebeci, 2013) and in South Korea (Lee,  
5 Song & Bendle, 2010) suggest a positive effect on arrivals.  
6  
7

8  
9  
10 Three points support the need for an analysis of factors influencing tourism which will be  
11 done in this paper. Firstly, there is the unachieved national goal of Indonesia related to  
12 tourism activities. Secondly, the potential that the tourism sector offers to support economic  
13 growth is still at a low level (Mahadevan et al., 2017). Thirdly, the still unconcluded results  
14 on tourism determinant factors for Indonesia (Pujiharini & Ichihashi, 2016; Tan, McCahon  
15 & Miller, 2002) need to be examined. A possible reason why Indonesia is below its target  
16 levels is related to tourism offerings, the so-called Triple-A (Damanik & Weber, 2006):  
17 attractions, accessibility, and amenity. Indonesia may have superior resources (natural  
18 beauty) but it may need to support its advantages with more qualified human resources,  
19 infrastructure, institutions, and security, among others.  
20  
21

22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65  
66  
67  
68  
69  
70  
71  
72  
73  
74  
75  
76  
77  
78  
79  
80  
81  
82  
83  
84  
85  
86  
87  
88  
89  
90  
91  
92  
93  
94  
95  
96  
97  
98  
99  
100  
101  
102  
103  
104  
105  
106  
107  
108  
109  
110  
111  
112  
113  
114  
115  
116  
117  
118  
119  
120  
121  
122  
123  
124  
125  
126  
127  
128  
129  
130  
131  
132  
133  
134  
135  
136  
137  
138  
139  
140  
141  
142  
143  
144  
145  
146  
147  
148  
149  
150  
151  
152  
153  
154  
155  
156  
157  
158  
159  
160  
161  
162  
163  
164  
165  
166  
167  
168  
169  
170  
171  
172  
173  
174  
175  
176  
177  
178  
179  
180  
181  
182  
183  
184  
185  
186  
187  
188  
189  
190  
191  
192  
193  
194  
195  
196  
197  
198  
199  
200  
201  
202  
203  
204  
205  
206  
207  
208  
209  
210  
211  
212  
213  
214  
215  
216  
217  
218  
219  
220  
221  
222  
223  
224  
225  
226  
227  
228  
229  
230  
231  
232  
233  
234  
235  
236  
237  
238  
239  
240  
241  
242  
243  
244  
245  
246  
247  
248  
249  
250  
251  
252  
253  
254  
255  
256  
257  
258  
259  
260  
261  
262  
263  
264  
265  
266  
267  
268  
269  
270  
271  
272  
273  
274  
275  
276  
277  
278  
279  
280  
281  
282  
283  
284  
285  
286  
287  
288  
289  
290  
291  
292  
293  
294  
295  
296  
297  
298  
299  
300  
301  
302  
303  
304  
305  
306  
307  
308  
309  
310  
311  
312  
313  
314  
315  
316  
317  
318  
319  
320  
321  
322  
323  
324  
325  
326  
327  
328  
329  
330  
331  
332  
333  
334  
335  
336  
337  
338  
339  
340  
341  
342  
343  
344  
345  
346  
347  
348  
349  
350  
351  
352  
353  
354  
355  
356  
357  
358  
359  
360  
361  
362  
363  
364  
365  
366  
367  
368  
369  
370  
371  
372  
373  
374  
375  
376  
377  
378  
379  
380  
381  
382  
383  
384  
385  
386  
387  
388  
389  
390  
391  
392  
393  
394  
395  
396  
397  
398  
399  
400  
401  
402  
403  
404  
405  
406  
407  
408  
409  
410  
411  
412  
413  
414  
415  
416  
417  
418  
419  
420  
421  
422  
423  
424  
425  
426  
427  
428  
429  
430  
431  
432  
433  
434  
435  
436  
437  
438  
439  
440  
441  
442  
443  
444  
445  
446  
447  
448  
449  
450  
451  
452  
453  
454  
455  
456  
457  
458  
459  
460  
461  
462  
463  
464  
465  
466  
467  
468  
469  
470  
471  
472  
473  
474  
475  
476  
477  
478  
479  
480  
481  
482  
483  
484  
485  
486  
487  
488  
489  
490  
491  
492  
493  
494  
495  
496  
497  
498  
499  
500  
501  
502  
503  
504  
505  
506  
507  
508  
509  
510  
511  
512  
513  
514  
515  
516  
517  
518  
519  
520  
521  
522  
523  
524  
525  
526  
527  
528  
529  
530  
531  
532  
533  
534  
535  
536  
537  
538  
539  
540  
541  
542  
543  
544  
545  
546  
547  
548  
549  
550  
551  
552  
553  
554  
555  
556  
557  
558  
559  
560  
561  
562  
563  
564  
565  
566  
567  
568  
569  
570  
571  
572  
573  
574  
575  
576  
577  
578  
579  
580  
581  
582  
583  
584  
585  
586  
587  
588  
589  
590  
591  
592  
593  
594  
595  
596  
597  
598  
599  
600  
601  
602  
603  
604  
605  
606  
607  
608  
609  
610  
611  
612  
613  
614  
615  
616  
617  
618  
619  
620  
621  
622  
623  
624  
625  
626  
627  
628  
629  
630  
631  
632  
633  
634  
635  
636  
637  
638  
639  
640  
641  
642  
643  
644  
645  
646  
647  
648  
649  
650  
651  
652  
653  
654  
655  
656  
657  
658  
659  
660  
661  
662  
663  
664  
665  
666  
667  
668  
669  
670  
671  
672  
673  
674  
675  
676  
677  
678  
679  
680  
681  
682  
683  
684  
685  
686  
687  
688  
689  
690  
691  
692  
693  
694  
695  
696  
697  
698  
699  
700  
701  
702  
703  
704  
705  
706  
707  
708  
709  
710  
711  
712  
713  
714  
715  
716  
717  
718  
719  
720  
721  
722  
723  
724  
725  
726  
727  
728  
729  
730  
731  
732  
733  
734  
735  
736  
737  
738  
739  
740  
741  
742  
743  
744  
745  
746  
747  
748  
749  
750  
751  
752  
753  
754  
755  
756  
757  
758  
759  
760  
761  
762  
763  
764  
765  
766  
767  
768  
769  
770  
771  
772  
773  
774  
775  
776  
777  
778  
779  
780  
781  
782  
783  
784  
785  
786  
787  
788  
789  
790  
791  
792  
793  
794  
795  
796  
797  
798  
799  
800  
801  
802  
803  
804  
805  
806  
807  
808  
809  
810  
811  
812  
813  
814  
815  
816  
817  
818  
819  
820  
821  
822  
823  
824  
825  
826  
827  
828  
829  
830  
831  
832  
833  
834  
835  
836  
837  
838  
839  
840  
841  
842  
843  
844  
845  
846  
847  
848  
849  
850  
851  
852  
853  
854  
855  
856  
857  
858  
859  
860  
861  
862  
863  
864  
865  
866  
867  
868  
869  
870  
871  
872  
873  
874  
875  
876  
877  
878  
879  
880  
881  
882  
883  
884  
885  
886  
887  
888  
889  
890  
891  
892  
893  
894  
895  
896  
897  
898  
899  
900  
901  
902  
903  
904  
905  
906  
907  
908  
909  
910  
911  
912  
913  
914  
915  
916  
917  
918  
919  
920  
921  
922  
923  
924  
925  
926  
927  
928  
929  
930  
931  
932  
933  
934  
935  
936  
937  
938  
939  
940  
941  
942  
943  
944  
945  
946  
947  
948  
949  
950  
951  
952  
953  
954  
955  
956  
957  
958  
959  
960  
961  
962  
963  
964  
965  
966  
967  
968  
969  
970  
971  
972  
973  
974  
975  
976  
977  
978  
979  
980  
981  
982  
983  
984  
985  
986  
987  
988  
989  
990  
991  
992  
993  
994  
995  
996  
997  
998  
999  
1000

Tourism led-growth hypothesis (TLGH) suggests that nations with a well-developed tourism sector could achieve higher economic growth, as concluded by Brida et al., (2016) in an exhaustive review on TLGH literature. The research on Indonesia TLGH supports that tourism could help in reducing poverty, although this would not be free of a trade-off of income inequality (Mahadevan et al., 2017) and some negative social impacts (Kinseng et al., 2018; Mahendradhata, 2019) beyond the scope of this paper. This paper contributes to the literature on tourism demand, first addressing a gap due to unconcluded results in the Indonesian case. In addition, this study contributes by combining supply and demand factors to form a model, supported by other studies but not yet incorporated into Indonesia.

## Data and Methods

The purpose of this study is to analyze the factors that influence the demand of trans-border tourists in Indonesia, including the nine major countries of origin that account for about 80% of the total inflows of tourism in Indonesia. In contrast to a large majority of papers

1  
2  
3 employing time series, this study employs dynamic panel data to estimate the demand  
4  
5 function of tourism in Indonesia for 15 years (2000-2014). A combination of time series and  
6  
7 cross-sectional data enables higher degrees of freedom in the estimation process, providing  
8  
9 the advantage of incorporating specific effects in the country, providing more data  
10  
11 information, reducing multicollinearity effects and enabling dynamic specification (Proenca  
12  
13 & Soukiazis, 2005).

14  
15  
16 As a dependent variable, this study employs the total expenditure of travelers from each of  
17  
18 the nine origin countries in Indonesia.

$$19 \quad \omega_{i,t} = \text{Average Tourist Expenditure of per Country} * \text{Total Arrivals per country} \quad (1)$$

20  
21  
22 Where  $i$  is 1, ..., 9 ( $i$  nine main inbound countries), and  $t$  corresponds to the year of research.

23  
24  
25  
26  
27  
28 The model includes a lagged variable of tourism arrivals proxied through the expenditure  
29  
30 variable. The lagged variable captures the effect of previous tourist arrivals on current  
31  
32 arrivals as tourists are likely to spread news about the destination. Besides, the effect of  
33  
34 growing numbers of tourists from particular destinations may influence government and  
35  
36 investors to increase the availability of services.

37  
38  
39  
40 As independent variables, the proposed model includes the country of origin per capita real  
41  
42 income, calculated as Real Gross Domestic Product (GDP) per capita. The income per capita  
43  
44 is expected to play a positive role with tourism demand as income rises.

$$45 \quad Y_{i,t} = \frac{GDP}{CPI \cdot POPULATION} \quad (2)$$

46  
47  
48  
49  
50  
51  
52 The relative price between Indonesia and each of the nine origin countries of travelers  
53  
54 reflects the level of prices consumed by foreign tourists in Indonesia against prices in the  
55  
56 tourists' countries of origin. Goods/services consumed by international tourists are hotels,  
57  
58 food, transportation, entertainment and souvenirs, among others. Considering that the prices  
59  
60

of goods consumed by foreign visitors are not available, this study uses CPI data as a proxy. The weakness of employing CPI as a proxy is the possibility of finding differences in the group of goods used to compute the CPI and the group of goods consumed by trans-border tourists. This study follows Dogru and Bulut (2018) who demonstrate the superiority of using relative price adjusted by exchange rates over other possible proxies (exchange rate or relative prices alone). The CPI then captures relative prices adjusted to the exchange rate:

$$P_{i,t} = \text{CPI}_{\text{Indonesia}} / (\text{CPI}_{\text{origin}} * \text{ER}_{\text{Indonesia/origin}}) \quad (3)$$

Accommodation capacity uses the number of hotel rooms available in Indonesia every year, considering that the readiness of accommodation is important for travelers. The hotel rooms include both starred and non-starred hotels.

The variable of Public investment is used as a proxy for connectivity and infrastructure, expected to be positively related to tourism expenditure. In a number of empirical studies, including that of Magerman, Studnicka & Van Hove (2016), there is a negative impact between distance and tourism, commonly associated with transportation costs. Also, distance is not only associated with trade cost but also with sensitivity to policy modifications, or *weaker cultural affinity* (Baier, Yotov, & Zylkin, 2019). Distance represents the distance (kilometers) between the capital cities of the origin country and Indonesia (touristic destination).

The model incorporates a set of four dummy variables (years). Two dummies consider the effects of terrorist attacks expected to affect tourism inbounds negatively after the 2002 and 2005 bombings in Bali (Pambudi et al., 2009; Smyth et al., 2009). The effects are likely to be short term (one year) as suggested in Smyth et al., (2009). A dummy for the year 2004 captures the impact from a free tourist visa launched in 2003 for selected Asian countries. A dummy for 2005 is expected to capture adverse effects from the devastating Tsunami of

2004 (Kelman, Spence, Palmer, Petal & Saito, 2008). An additional dummy (2009) covers the effect of the global economic slowdown of the year 2008, with impacts in 2009, as suggested in Smeral (2010).

### Model Specification

Based on tourism supply and demand theory, this study assumes that the tourism inflows received by Indonesia are equivalent to the "export receipts" and the "import costs" for the sending countries. Export revenue (tourism inflows) will depend positively on the purchasing power of the tourist-sending countries (importers) and negatively to the relative price between the recipient country (exporter) and the tourist-sending countries (importers). It is likely that the higher the purchasing power of the sending countries, the higher the demand for tourism. Also, the higher the prices of the recipient country, the lower the tourism demand for the recipient country. Other current factors may also influence demand (resistance factors), besides the possible effect of prior periods (word-of-mouth or persistent habits). Consequently, the tourism demand model is formulated as follows:

$$\ln\omega_{it} = \alpha + \beta_1 \ln\omega_{it-1} + \beta_2 \ln y_{it} + \beta_3 \ln P_{it} + \beta_4 \ln A_t + \beta_5 \ln IP_t + \beta_6 Dis_i + \beta_7 Dummy_{2003} + \beta_8 Dummy_{2004} + \beta_9 Dummy_{2006} + \beta_{10} Dummy_{2009} + \mu_{it} \quad (4)$$

#### TABLE 1 - VARIABLES HERE-----

The data panel includes the top nine tourist origin countries; Singapore, Malaysia, Australia, Japan, the United States, the United Kingdom, Italy, Germany, and the Netherlands.

#### -----TABLE 2 - SUMMARY STATISTICS- HERE---

Gallego et al., (2019) suggest applying a Generalized Method of Movements (GMM) to deal with an endogeneity problem, common in the sector, as well as to capture dynamic effects from previous years (e.g. word-of-mouth effect). The GMM is a model proposed by Arellano and Bond (1991) which converts the original regression model by differencing the

variables, securing the stationarity of the different variables that carry fixed effects (Lam & Shiu, 2010). Applying the Sargan diagnosis test is necessary to validate for possible overidentification of restrictions. The Arellano-Bond test AR(1) also helps to validate for no autocorrelation in the model using the z-statistical distribution for autocorrelation test, both for first-order autocorrelation and second order of autocorrelation. Both the AR(1) and AR(2) test are above the significant level, indicated by the probability > chi2, meaning no autocorrelation in the model. The model fulfills the null hypothesis of System – GMM regarding no second-order autocorrelation and effective instrumental variables.

## Results

From 2000 to 2014, foreign tourist arrivals to Indonesia increased by nearly 90%. Nine countries accounted for 80% of the total foreign tourists; three are Asian countries (Singapore, Malaysia and Japan), four are European countries (Italy, England, Germany and the Netherlands), as well as Australia and the United States. Although the largest number of visitors arrive from nearby countries (Singapore, Malaysia, Australia and Japan), the presence of far-away nations on the sample suggests the need to look at distance from Indonesia together with other factors.

High-income countries dominate tourist arrivals to Indonesia. Average real GDP per capita in 2014 is US\$48,654 per year, excluding Malaysia (US\$10,398) and Italy that contracted its GDP per capita by -7% during the 2000–2014 period. The GDP per capita of Indonesia increased from US\$780 in the year 2000 to US\$3,500 in 2014.

### -----TABLE 3 TOURISM INDICATORS

In the 2017 Travel & Tourism competitiveness report, Indonesia ranked 5<sup>th</sup> on price competitiveness, strongly suggesting that price is an essential driver for tourism (WEF, 2017). Although competitive in price, the consumer price index of Indonesia (CPI) increased from 44 to 124,39 (2010=100 Value) suggesting a negative impact on tourism, or at least, a diminished role of prices in tourism demand. In addition, the real foreign exchange rate

1  
2  
3 between Indonesian Rupiah (IDR) versus the currencies the foreign tourists mainly favored  
4  
5 tourist purchasing-power versus the Rupiah during the period. Nevertheless, in three  
6  
7 particular periods, most currencies experienced fluctuations (drop in value versus  
8  
9 Indonesian Rupiah), namely in 2002, 2008-2010, and 2013-2014. The British pound and the  
10  
11 Euro were the most volatile currencies.  
12

13  
14 Although Indonesia is competitive in price, for tourism service infrastructure, Indonesia  
15  
16 ranks poorly at 96<sup>th</sup> place, and 69<sup>th</sup> in ground and port infrastructure. The government made  
17  
18 outstanding efforts; however, more initiatives and commitment to execution are needed  
19  
20 (Ollivaud & Haxton, 2019). Indonesia moved fast in prioritization of tourism and travel  
21  
22 (12<sup>th</sup> in the ranking in 2017) suggesting that although still underdeveloped, investments and  
23  
24 improvement within tourism may benefit the sector by attracting more visitors and  
25  
26 improving the quality of the trips. Policy efforts to promote tourism reflect a certain anxiety  
27  
28 and desire of the nation to further benefit from the cultural and natural collection of  
29  
30 attractions distinguished by the World Heritage Cultural / Natural Sites by the UNESCO.  
31  
32

33  
34 From the supply variables included in the study, the number of available rooms  
35  
36 (accommodation capacity) increased from 252,984 in 2000 to 469,288 in 2014. Tourism  
37  
38 experienced a drop in demand in 2002-2003, and 2005-2006, probably associated with  
39  
40 terrorist attacks in 2002 and 2005, as well as the devastating tsunami at the end of 2004.  
41  
42 External factors associated with the economic crisis of 2008 could also impact tourism  
43  
44 demand (choices and behavior) as evident in Lu, Chen & Kuo (2018) for several Asian  
45  
46 countries, and for instance, cause adjustments on the supply side.  
47  
48  
49

50  
51 Public investment in Indonesia experienced a substantial increase between 2000 and 2014,  
52  
53 suggesting a positive impact on the infrastructure supporting tourism in the country. Total  
54  
55 investment to GDP increased from 25% in 2000 to 34.6% in 2014, with a year-on-year  
56  
57 average growth rate of 7.66%. However, the most massive expansion of infrastructure  
58  
59 investment targeting tourism started in 2015.  
60



## *Results and Analysis*

This section presents the estimates for tourism demand in Indonesia in equation (4). The results indicate that all independent variables (except for public investment and the dummy for year 2005 -Tsunami) are significant.

### *-----TABLE 4. ESTIMATES*

The elasticity of the lagged variable introduced to capture the word-of-mouth (persistence of tourists) is positive and significant, signaling that either tourists tend to return or that references given to new travelers influence larger tourist inbounds and expenditure as suggested in Gallego et al., (2019). As for the demand-side variables, per capita real income of the country of origin ( $Y_{it}$ ) it is significant at the 1% level, proposing a decisive role in demand (as expected). The results suggest that an increase in per capita income of inbound countries has a statistically significant influence on the expenditure of trans-border travelers visiting Indonesia. The income level is one of the main factors driving the consumption of tourism goods/services in Indonesia. However, tourism demand is income inelastic as the demand grows at a lower speed than the change in income. It is worth noting that average tourism expenditure per visitor in Indonesia is rather low (nearly \$1,000 per arrival) versus other countries. Still, it is noticeable that among the nine countries included in this study, the allocation of income (and time) to tourism abroad is large. The estimator for income per capita is smaller than other studies (Habibi, 2017; A. Liu et al., 2018) but within the same direction (positive) and inelastic.

Pujiharini and Ichihashi (2016) report inbound tourist in Indonesia as income elastic as the magnitude of the effect of income in expenditure in tourism in Indonesia is larger than one. This study reports an inelastic relationship as a 1% increase in GDP in foreign partners leads to less than 1% in tourism expenditure in Indonesia. Nevertheless, Pujiharini and Ichihashi

(2016) apply a fix-effect model where the presence of endogeneity may cause an overestimation of coefficients. Also, nearly 30% of tourists in Indonesia are below 35 years old, an age group which is often associated with lower income per capita, and for instance, lower allocation for tourism expenditure.

The relative price is expected to have a negative sign. However, the results indicate that the weakening relative price in Indonesia has a statistically positive (although small) effect on tourist expenditure. An increase in 1% of relative prices (ratio of Indonesia to partner country adjusted by exchange rate) is associated with an increase of 0.049% in tourism expenditure. A positive value indicates that tourism is inelastic as an increase in prices leads to a lower increase in expenditure. Prices of Indonesia were indeed low in relation to other countries, also reflected in the Travel and Competitiveness Index, where Indonesia ranks Top 6<sup>th</sup> (WEF, 2017). The positive sign may indicate that the adjustment in prices affects total expenditure, not necessarily because of a higher volume of services delivered but due to higher prices. As all eight countries have higher standards of living than Indonesia, prices do not necessarily discourage tourist arrivals. Tourism demand might not follow the negative price-volume relationship in demand, either because there is an adjustment of prices (still low relative to foreign countries) or because tourism could be considered a luxury good. The estimator of relative prices is small (below 0.05) to suggest that tourism in Indonesia is not a Luxurious good, as noted in the literature (Proenca & Soukiazis, 2005). More details of expenditure allocation could help to better explain the role of prices as tourism is not related to the activities taking place at a destination alone, or only associated with the prices offered during the stay. Travel, transportation and sometimes accommodation costs from the native country to the destination may play a more significant role than the cost during the stay in the destination country.

The results of this study contrast with findings of tourism determinants in the USA where

1  
2  
3 income elasticity, prices, and real exchange rate hurt tourist arrivals (Yazdi & Khanalizadeh,  
4  
5 2017). Similar adverse effects of prices to tourism are present in most cases, as in Malaysia  
6  
7 (Habibi, 2017) or China (Y. Liu, Li & Li, 2018).  
8  
9

10 The next variable is the accommodation capacity. This variable has a strong influence on  
11  
12 driving larger foreign tourist demand, in line with Mahadevan et al., (2017) who estimate  
13  
14 that accommodation services receive nearly half of foreign expenditure. The availability of  
15  
16 rooms then suggests paying more attention to the development of the sector. The number of  
17  
18 available rooms increased, suggesting a change in the services offered in the country, in  
19  
20 both number and perhaps in quality of services. The length of time spent in Indonesia is  
21  
22 rather low (3.1 days in 2014 versus 2.84 in 2017), and accommodation capacity fluctuates  
23  
24 around 60%. Findings on the role played by accommodation capacity (rooms) are similar  
25  
26  
27 in sign and magnitude to those of the Malaysian case (Habibi, 2017).  
28  
29  
30

31 Facilities and hospitality in Indonesia are satisfactory both in terms of the number of  
32  
33 available rooms and the quality. Facilities in addition to the rooms are restaurants, sports  
34  
35 facilities, and business centers. Various hotel classifications, ranging from inns and low-  
36  
37 priced hotels to star-rated hotels, exist in almost all tourist destinations in Indonesia. From  
38  
39 the supply side, Indonesia is not experiencing shortages in terms of the number of rooms;  
40  
41 instead, it is possible that Indonesia has an oversupply of rooms and facilities calling for  
42  
43 more supporting government programs for the sector. Additional rooms are accompanied  
44  
45 by larger and more qualified human capital. In the year 2000, only 8.79% of workers within  
46  
47 tourism had a vocational, technical or tertiary level of education. By 2014, the share  
48  
49 increased to 18.7%, suggesting an improvement in the quality of services as well.  
50  
51  
52  
53

54  
55 Another supply factor considered in this study is public investment. The results indicate that  
56  
57 public investment in Indonesia has a negative relationship in tourism demand, however, it  
58  
59 is not statistically significant. The results are the opposite of the expected positive  
60

1  
2  
3 association in a country where infrastructure ranks low, and in the case where the  
4  
5 government is actively improving public infrastructure (WEF, 2017). Results on the effect  
6  
7 of public infrastructure in tourism literature is instead mixed, as in the case of Portugal,  
8  
9 researched by Proenca and Soukiazis (2005), where public investment has no effect on  
10  
11 tourism demand in Portugal, while tourism transport infrastructure in the USA plays a  
12  
13 decisive role in tourist arrivals (Yazdi & Khanalizadeh, 2017). The literature on Indonesia's  
14  
15 tourism sector within the period of the analysis suggests a deficient level in infrastructure  
16  
17 (Ollivaud & Haxton, 2019), meaning that low levels of public investment may not play a  
18  
19 significant role in demand. Since 2015, the new administration launched ambitious public  
20  
21 infrastructure projects, expected to support the tourism sector throughout.  
22  
23  
24

25  
26 The distance factor indicates a negative relationship to demand. Distance plays a vital role,  
27  
28 perhaps explaining why the largest inbound tourist numbers are from within Asia. Literature  
29  
30 on gravity models suggests considering distance, together with factors capturing  
31  
32 attractiveness, accessibility, and other sets of factors to avoid unbiased estimators (Harb &  
33  
34 Bassil, 2018; Tóth et al., 2014). Although distance alone lacks conclusive results on other  
35  
36 empirical evidence (Harb & Bassil, 2018; Tóth et al., 2014), the coefficient in this study  
37  
38 suggests the importance of accessibility and connectivity to attract tourists from far-away  
39  
40 regions.  
41  
42  
43

44  
45 This study also includes dummy variables to capture possible effects arising from terrorism  
46  
47 in Bali, which is the largest tourist destination of Indonesia. An additional dummy captures  
48  
49 natural disasters (Tsunami 2004), and the global financial crisis of 2008. In addition, the  
50  
51 study also includes a variable to capture the effects of a free entry visa launched in 2003.  
52  
53 The results for the Bali bombings of 2002 and 2005 suggest a significant decline in tourism  
54  
55 as demand dropped by nearly 16% in 2003 (a year after the 2002 Bali bombing) and 23.6%  
56  
57 in 2006 (after the 2005 attack). Other studies into the effects of terrorism in Indonesia  
58  
59  
60

1  
2  
3 captured significant adverse effects, as well as suggesting the vulnerability of the sector to  
4  
5 terrorism (Pambudi et al., 2009; Smyth et al., 2009). The global financial crisis of the year  
6  
7 2008 also seemed to cause a negative impact on tourism demand in Indonesia, causing a  
8  
9 drop of more than 11% in demand. Studies such as that of Song and Lin (2010) signal a  
10  
11 drop in both inbound and outbound tourism for Asia during 2009, in line with this finding.  
12  
13  
14 Finally, the study also incorporates a dummy variable to capture a free entry visa policy  
15  
16 implemented in 2003, mainly for Asian countries (e.g. Singapore, Malaysia, Thailand,  
17  
18 Philippines and Hong Kong). The results indicate a positive effect on tourism demand in the  
19  
20 year of implementation, in line with other studies capturing the effects of the free entry visa  
21  
22 policy in Indonesia in 2003 (Pujiharini & Ichihashi, 2016). In other regions, the findings are  
23  
24 also in line (Balli et al., 2013; Lee et al., 2010). While more details may be needed to analyze  
25  
26 the precise effects, the signs suggest that tourism policy tools could be implemented to  
27  
28 create a friendlier environment for tourism and a more competitive sector. A more recent  
29  
30 scheme of on-arrival-visas for a large number of countries (169) is ongoing, together with  
31  
32 the addition of more countries to the free-entry-visa plan. The evidence support the  
33  
34 expansion of free entry visas as it can help drive up tourist numbers.  
35  
36  
37  
38  
39  
40

41 This study is limited to analyzing certain factors promoting tourism demand in Indonesia.  
42  
43 For instance, it is not possible to conclude evidence of the tourism led-growth-model  
44  
45 (available in Mahadevan et al., 2017), as it is beyond the scope of this paper. Nevertheless,  
46  
47 the large growth of tourism expenditure in the country, together with larger numbers of  
48  
49 tourists, an increase in prices (possibly indicating higher value-added services), may  
50  
51 propose that the sector is driving economic growth. When comparing with other countries  
52  
53 in the region like Singapore (Zhu, Lim, Xie, & Wu, 2018), Thailand (Y. Liu, Li, & Parkpian,  
54  
55 2018) and Malaysia (Habibi, 2017), the growth of tourism in Indonesia seems to be slow,  
56  
57 pointing out the need for more effective policy efforts to promote the sector.  
58  
59  
60

1  
2  
3 As previous literature has noted, countries can increase their tourism revenue by improving  
4 the tourism offerings (Sokhanvar, Çiftçioğlu, & Javid, 2018), often requiring stronger policy  
5 efforts to increase the quality of services, the infrastructure and security, among other factors  
6 which appear to be critical for tourism development.  
7  
8  
9  
10

### 11 12 **Policy Implications (Major initiatives for tourism development in Indonesia)**

13  
14  
15 The most recent policies to promote tourism in Indonesia are expected to support inbound  
16 tourism in the foreseeable future. It is only more recently that the national budget for tourism  
17 promotion has increased by nearly four times (still less than 1% of GDP). The most recent  
18 national plan to develop tourism covering 2015 to 2019 includes support policies within five  
19 main blocks: infrastructure to enhance connectivity, skill development, tourism promotion,  
20 development of an integrated destination master plan, and a more strict system to implement  
21 the programs. The government aims to double arrivals, revenue, contribution to national  
22 GDP, and competitiveness in tourism. Although this study does not cover such new policies,  
23 it opens up the opportunity for further empirical studies where the new infrastructure  
24 projects and non-economic aspects are taken into account. As an example, nearly 30% of  
25 the national tourism budget after 2014 aims to increase tourism promotion efforts. While  
26 the international tourism brand “Wonderful Indonesia“ substantially improved, the  
27 campaign is not attracting the expected number of tourists.  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45

46 New efforts in infrastructure and connectivity may highly support the development of  
47 tourism, although this study does not find evidence as investment during 2000 - 2014 was  
48 low. Tourism infrastructure in Indonesia needs further development as connectivity remains  
49 underdeveloped (Ollivaud & Haxton, 2019). It is only recently (the 2015 to 2019 program)  
50 that the government launched national infrastructure projects including the construction of  
51 24 new seaports, 15 new airports, upgrading of 27 airports, 2,650 km of new roads, 3,258  
52 km of railways, among many other efforts in urban transportation (Bus and Mass Rapid  
53  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 Transit), energy, water, and an extensive national coverage of the 4G signal. In 2016, a new  
4  
5 policy allowed cruise liners to disembark in Indonesia, opening new tourism lines.  
6

7  
8 Enhancing the skills for tourism-related populations could also help to create a more diverse  
9  
10 touristic destination (Ollivaud & Haxton, 2019). In the year 2015, nearly 60% of workers in  
11  
12 the tourism-related sector had a primary education or less. The government is launching a  
13  
14 national effort to increase the share of vocational and technical students to improve human  
15  
16 resources in tourism and tourism-related skills, a possible driver of demand.  
17  
18

19  
20 As commonly proposed in the literature, tourism in Indonesia is underdeveloped  
21  
22 considering the large potential of the archipelago. Indonesia ranks 14<sup>th</sup> in the WEF (2017)  
23  
24 regarding natural resources. However, the country ranks poorly in sustainability (below  
25  
26 130<sup>th</sup>), suggesting that a number of efforts are needed to turn the rich natural landscapes into  
27  
28 a more attractive place for holidays (Ollivaud & Haxton, 2019).  
29  
30

### 31 32 **Conclusion**

33  
34 The main objective of this study is to estimate factors affecting the demand for tourism  
35  
36 expenditure in Indonesia, including variables capturing effects from the demand side  
37  
38 (income and relative prices), as well as two variables from the supply side (accommodation  
39  
40 capacity and public investment). In addition, the paper includes distance within the gravity  
41  
42 model as well as five dummy variables to capture effects of terrorist attacks in 2002 and  
43  
44 2005, the Tsunami of 2004, the financial crisis of 2008, and the effect of a free-entry visa  
45  
46 implemented in 2003. The paper covers the period from the year 2000 to 2014 and employs  
47  
48 a dynamic panel data including the nine top countries of tourists entering Indonesia (nearly  
49  
50 80% of travelers). Tourism arrivals increased by nearly 90% during the period of study. The  
51  
52 demand function including per capita income of country of origin, relative price, and  
53  
54 accommodation capacity indicate a positive effect in demand for tourism goods/services in  
55  
56 Indonesia. The persistence of travelers captured through a lagged expenditure variable  
57  
58  
59  
60

1  
2 indicates a strong word-of-mouth effect. As expected, income plays an important role,  
3  
4 nevertheless the empirical case of Indonesia finds a lower role for tourist incomes than in  
5  
6 other countries. Income elasticity is positive, although below one, signaling that tourism  
7  
8 grows with income but at a lower speed. Prices play a positive determinant role in demand,  
9  
10 contrary to what is expected; nevertheless, it is in line with the strength that Indonesia  
11  
12 displays in global tourism ranking as a country with price advantage. Prices may be  
13  
14 adjusting (increasing) leading to higher expenditures without signals of detriment in demand  
15  
16 for goods/services. Available rooms play a sizeable decisive role, proxying the expansion  
17  
18 of tourism facilities. The broad effect of accommodation suggests that most of the impacts  
19  
20 of tourism may be allocated in lodging, possibly minimizing effects on other sectors.

21  
22 The country remains vulnerable to terrorism, as the events of 2002 and 2005 significantly  
23  
24 affected tourism arrivals. Tourism in Indonesia also declined due to the global financial  
25  
26 shocks. However, the shocks on the aftermath of the events seem to be short term (one year).  
27  
28 The dummy for free-entry-visa suggests a positive effect on tourism arrivals, signaling space  
29  
30 for government promotional tools to increase tourist arrivals.  
31  
32  
33  
34  
35

36  
37 Contrary to expectations, public infrastructure investments are not significant in the  
38  
39 proposed tourism demand model, either due to low investment (more efforts by the  
40  
41 government are required), or the effects were not captured by the model. Nevertheless, the  
42  
43 results, (prices, accommodation, and infrastructure), are in line with the achievements of the  
44  
45 country in tourism competitiveness reflected in the ranking (WEF).

46  
47 A further examination of variables which are non-strictly economic (related to quality,  
48  
49 experience, appreciation to culture – nature, safety, and human resources) may allow the  
50  
51 discovery of more determinants of tourism demand. The large diversity of tourism options  
52  
53 and motivations in Indonesia imposes essential challenges in further studies. The most  
54  
55 recent support policy programs for tourism (2015-2019) open a field for further research.  
56  
57 The ambitious infrastructure program, the branding of "Wonderful Indonesia," upgrading  
58  
59  
60



in human skills and vocational education, and the promotion of ten new top destinations, “New Balis”, in Indonesia are some examples. Recent government policies under implementation could be new drivers of tourism in the country, leading to higher growth in jobs, income and foreign currency.

## References

- Assaf, A. G., Josiassen, A., & Agbola, F. W. (2015). *Attracting international hotels: Locational factors that matter most*. *Tourism Management*, 47, 329–340.
- Brida, J. G., Cortes-Jimenez, I., & Pulina, M. (2016). *Has the tourism-led growth hypothesis been validated? A literature review*. *Current Issues in Tourism*, 19(5), 394–430.
- Cohen, S. A., Prayag, G., & Moital, M. (2014). *Consumer behaviour in tourism: Concepts, influences and opportunities*. *Current Issues in Tourism*, 17(10), 872–909. <https://doi.org/10.1080/13683500.2013.850064>
- Damanik, J., & Weber, H. F. (2006). *Perencanaan ekowisata: Dari teori ke aplikasi*. Yogyakarta: Puspar UGM Dan Andi.
- De Vita, G., & Kyaw, K. S. (2016). *Tourism development and growth*. *Annals of Tourism Research*, 60, 23–26. <https://doi.org/10.1016/j.annals.2016.05.011>
- Dogru, T., & Bulut, U. (2018). *Is tourism an engine for economic recovery? Theory and empirical evidence*. *Tourism Management*, 67, 425–434. <https://doi.org/10.1016/j.tourman.2017.06.014>
- Ghaderi, Z., Saboori, B., & Khoshkam, M. (2017). *Does security matter in tourism demand?* *Current Issues in Tourism*, 20(6), 552–565. <https://doi.org/10.1080/13683500.2016.1161603>
- Habibi, F. (2017). *The determinants of inbound tourism to Malaysia: a panel data analysis*. *Current Issues in Tourism*, 20(9), 909–930. <https://doi.org/10.1080/13683500.2016.1145630>
- Harb, G., & Bassil, C. (2018). *Gravity analysis of tourism flows and the ‘multilateral resistance to tourism’*. *Current Issues in Tourism*, 0(0), 1–13. <https://doi.org/10.1080/13683500.2018.1544612>
- Hung, W.-T., Shang, J.-K., & Wang, F.-C. (2013). *A multilevel analysis on the determinants of household tourism expenditure*. *Current Issues in Tourism*, 16(6), 612–617. <https://doi.org/10.1080/13683500.2012.725714>
- Isaac, R. K., & Eid, T. A. (2018). *Tourists’ destination image: an exploratory study of alternative tourism in Palestine*. *Current Issues in Tourism*, 0(0), 1–24. <https://doi.org/10.1080/13683500.2018.1534806>
- Kim, J., Lee, C.-K., & Mjelde, J. W. (2018). *Impact of economic policy on international tourism demand: the case of Abenomics*. *Current Issues in Tourism*, 21(16), 1912–1929. <https://doi.org/10.1080/13683500.2016.1198307>

- 1  
2  
3 Kinseng, R. A., Nasdian, F. T., Fatchiya, A., Mahmud, A., & Stanford, R. J. (2018).  
4 *Marine-tourism development on a small island in Indonesia: blessing or curse?*  
5 *Asia Pacific Journal of Tourism Research*, 23(11), 1062–1072.  
6 <https://doi.org/10.1080/10941665.2018.1515781>  
7
- 8 Kožić, I. (2014). *Detecting international tourism demand growth cycles*. *Current Issues in*  
9 *Tourism*, 17(5), 397–403. <https://doi.org/10.1080/13683500.2013.808607>  
10
- 11 Liu, A., Sanshan Lin, V., & Song, H. (2018). *Analysing and Forecasting Tourism*  
12 *Demand*. The SAGE Handbook of Tourism Management, 202.  
13
- 14 Liu, Y., Li, Y., & Li, L. (2018). *A panel data-based analysis of factors influencing market*  
15 *demand for Chinese outbound tourism*. *Asia Pacific Journal of Tourism Research*,  
16 23(7), 667–676. <https://doi.org/10.1080/10941665.2018.1486863>  
17
- 18 Liu, Y., Li, Y., & Parkpian, P. (2018). *Inbound tourism in Thailand: Market form and*  
19 *scale differentiation in ASEAN source countries*. *Tourism Management*, 64, 22–36.  
20 <https://doi.org/10.1016/j.tourman.2017.07.016>  
21
- 22 Lu, C.-L., Chen, S.-T., & Kuo, H.-I. (2018). *International tourism demand in Asia: before*  
23 *and after the economic crisis*. *Asia Pacific Journal of Tourism Research*, 23(11),  
24 1073–1085. <https://doi.org/10.1080/10941665.2018.1524774>  
25
- 26 Mahadevan, R., Amir, H., & Nugroho, A. (2017). *Regional impacts of tourism-led growth*  
27 *on poverty and income inequality: A dynamic general equilibrium analysis for*  
28 *Indonesia*. *Tourism Economics*, 23(3), 614–631.  
29 <https://doi.org/10.5367/te.2015.0534>  
30
- 31 Mahendradhata, Y. (2019). *Proceed with caution: Potential challenges and risks of*  
32 *developing healthcare tourism in Indonesia*. *Global Public Health*, 14(3), 340–350.  
33 <https://doi.org/10.1080/17441692.2018.1504224>  
34
- 35 Mello, M. de, Pack, A., & Sinclair, M. T. (2002). *A system of equations model of UK*  
36 *tourism demand in neighbouring countries*. *Applied Economics*, 34(4), 509–521.  
37
- 38 Proenca, S. A., & Soukiazis, E. (2005). *Demand for tourism in Portugal: A panel data*  
39 *approach*. Coimbra, Portugal: Escola Superior Agrária, Instituto Politécnico de  
40 Coimbra.  
41
- 42 Sokhanvar, A., Çiftçiöğlü, S., & Javid, E. (2018). *Another Look at Tourism-Economic*  
43 *Development Nexus*. *Tourism Management Perspectives* 26, 97–106.  
44
- 45 Tan, A. Y. F., McCahon, C., & Miller, J. (2002). *Modeling Tourist Flows to Indonesia and*  
46 *Malaysia*. *Journal of Travel & Tourism Marketing*, 13(1–2), 61–82.  
47 [https://doi.org/10.1300/J073v13n01\\_05](https://doi.org/10.1300/J073v13n01_05)  
48
- 49 Tang, C. F., & Tan, E. C. (2015). *Does tourism effectively stimulate Malaysia's economic*  
50 *growth?* *Tourism Management*, 46, 158–163.  
51
- 52 Tóth, G., Dávid, L. D., & Vasa, L. (2014). *The role of transport in European tourism*  
53 *flows*. *Acta Geographica Slovenica*, 54(2).  
54
- 55 Wray, M. (2015). *Drivers of change in regional tourism governance: A case analysis of*  
56 *the influence of the New South Wales Government, Australia, 2007–2013*. *Journal*  
57 *of Sustainable Tourism*, 23(7), 990–1010.  
58  
59  
60

- 1  
2  
3 Yang, L., & Wall, G. (2009). *Authenticity in ethnic tourism: domestic tourists’*  
4 *perspectives*. *Current Issues in Tourism*, 12(3), 235–254.  
5 <https://doi.org/10.1080/13683500802406880>  
6  
7 Yazdi, S. K., & Khanalizadeh, B. (2017). *Tourism demand: a panel data approach*.  
8 *Current Issues in Tourism*, 20(8), 787–800.  
9 <https://doi.org/10.1080/13683500.2016.1170772>  
10  
11 Zhu, L., Lim, C., Xie, W., & Wu, Y. (2018). *Modelling tourist flow association for*  
12 *tourism demand forecasting*. *Current Issues in Tourism*, 21(8), 902–916.  
13 <https://doi.org/10.1080/13683500.2016.121882>  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

For Review Only

Table. Variable description and sources

Variable	Description	Source
$W_{i,t}$	Ratio of the total tourism expenditure of origin countries from total tourism expenditure in Indonesia	National Bureau of Statistics in Indonesia (BPS)
$W_{i,t-1}$	Lagged variable on tourism expenditure of origin country	
$Y_{i,t}$	Per capita GDP of the foreign's tourists country of origin	IMF, Economic Outlook
$P_{i,t}$	Relative price between destination country and country of origin (CPI adjusted by exchange rate)	
$A_t$	Accommodation capacity (number of available hotel rooms)	Ministry of Culture and Tourism of Indonesia.
$IP_t$	Public investment yearly	National Bureau of Statistics in Indonesia (BPS)
$Dis_i$	Distance between Indonesia and partner country	indonesia.distanceworld.com
Dummy <sub>2003</sub>	Dummy variable equal to one if the observation covers year 2003, zero otherwise (Bali Bombing 2002)	
Dummy <sub>2004</sub>	Dummy variable equal to one if the observation covers year 2004, zero otherwise (Free Entry Visa for selected Asian countries launched in 2003)	
Dummy <sub>2006</sub>	Dummy variable equal to one if the observation covers year 2006, zero otherwise (Bali Bombing 2005)	
Dummy <sub>2009</sub>	Dummy variable equal to one if the observation covers year 2009, zero otherwise (Global Financial Shock 2008)	

Table. Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max	Observation
Ln_Tourism Expenditure	1.952058	0.8257468	17.51299	21.32763	135
Ln_GDP Percapita	1.033459	0.6237943	8.2726	11.12142	135
Ln_Relative Price	7.774938	2.479.538	1.596968	10.56051	135
Ln_Accommodation	1.267255	0.1962059	12.44108	13.05895	135
Ln_Public Investment	1.107107	0.6636373	9.553575	12.1055	135
Ln_Distance	8.653372	0.918601	7.045777	9.613737	135

For Review Only

Table. International tourism Statistics (Largest ASEAN countries 2000 – 2017).

	IDN	MYS	PHL	THA	VNM
Growth expenditures % (2000-2017)	242%	321%	595%	260%	460%
Growth number of arrivals % (2000-2017)	177%	154%	232%	272%	504%
Expenditures (current Billion US\$) 2017	10.94	10.69	12.78	11.57	5.04
International tourism, number of arrivals 2017 (million)	14.04	25.94	6.62	35.59	12.92
International tourism, receipts (current Billion US\$)	14.11	18.35	8.34	62.15	8.89
Expenditures per tourist (current US\$) 2017	780	412	1.931	325	390
Receipts per tourist (current US\$) 2017	1.005,5	707,3	1.261,0	1.746,4	688,0

Note. IDN Indonesia, MYS Malaysia, PHL Philippines, THA Thailand, Vietnam VNM (VNM reference 2005 to 2017). Data from <https://data.worldbank.org>

For Review Only

Table. Estimation result of determinants of demand of tourists in Indonesia

Variable	Coefficient	P> t
L. $W_{i,t-1}$ – One Year lagged Tourism Arrivals	0,636	0,000***
$\ln Y_{it}$ per capita GDP	0,144	0,001***
$\ln P_{it}$ - Relative Prices	0,049	0,000***
$\ln A_t$ - Accommodation (Beds)	0,605	0,000***
$\ln IP$ - Public Investment / GDP	-0,015	0,571
$\ln Dist$ – Distance	-0,261	0,000***
Dummy Year 2003 (Bomb Bali 2002)	-0,161	0,018**
Dummy Year 2004 (Free-entry Visa)	0,113	0,065*
Dummy Year 2005 (Tsunami 2004)	-0,065	0,277
Dummy Year 2006 (Bomb Bali 2005)	-0,236	0,000***
Dummy Year 2009 (Financial Crisis 2008)	-0,118	0,076**
AR (1)	0,000	
AR (2)	0,793	
Sargan Test	0,589	
Hansen Test (GMM)	0,482	
Hansen Test (Diff GMM)	0,667	
Hansen (IV)	0,489	
Hansen (Diff IV)	0,783	
Prob > F	0,000	

Note. Regression estimates \*\*\*, \*\*, \* indicates significant level at 1%, 5%, 10%

## Reviewer Comments

### Reviewer 1

*The model used double log model and the demand side factors were included in the demand function. The coefficient for income, cross price can be explained as cross price elasticity, income elasticity for demand function but there were not discussed in the discussion.*

- Some points on the effects of income and prices on the demand for tourism services were explained using the price elasticity and income elasticity concept common in the literature but not included in our previous manuscript (*Thank you very much for the comments*).
- Based on previous studies, Five Dummy variables were added into the model to capture effects from Terrorism (two bombs in Bali on year 2002 and 2005), The Tsunami of year 2004, and the global financial crisis (2008). One additional Dummy captures possible effects of a free-entry-visa launched in 2003. No previous studies covered the different effects as the time covered was earlier.
- The variable for tourism expenditure was replace as new data was found from the ministry of tourism in Indonesia.
- Suggested by literature on the field, a dynamic relation between expenditure on previous years and current year was included, as the sector presents word-of-mouth effects, or persistence in tourist. A SYS-GMM method is then employed.
- Data on accommodation was also replaced as previous data presented a change in categorization of hotels that caused a sharp change in the data

### Reviewer 2

*The paper entitled "DETERMINANTS OF TOURISM DEMAND IN INDONESIA: A PANEL DATA ANALYSIS" is on a very interesting topic but the analysis carried out is not up to the level. Hence, I offer few comments which would improve the quality of the paper in my belief. I list my comments below:*

*(Thank you very much for the comments and suggestions)*

#### **(Comment 1 and 2)**

1. Authors may provide results panel unit root test may be data and variables are non-stationary.
2. If variables are non-stationary in level of stationary at first difference, they can use panel cointegration and error correction models.

*The data was first revised. Two variables were replaced (expenditure and accommodation capacity) due to some inconsistencies (or better quality of new sources). With old data the unit root test suggested that the data was non-stationary. However, after replacing the variables the unit-root test indicates that the data is stationary at first level.*



**(Comment 3 and 4)**

3. If variables are non-stationary, then they can not be used in Fixed/random effect regression models.

4. Authors may also try using GMM based estimations methods as robustness of their results.

As the model was replaced for a dynamic data including the variable of past expenditure ( $t-1$ ), the authors decided to use SYS-GMM, as literature on tourism also suggest (explained in the paper). Besides no previous empirical studies covering Indonesia employing dynamic panel (GMM) were found, suggesting a novelty. GMM appears to be superior to Fix/Random considering the specifics of the sector and the data.

**(Comment 5 and 6)**

5. Policy implications section is too weak.

6. Authors may insert some dummy variables in fixed effect and GMM equations to capture the policy break/announcements that might have influenced tourist arrivals in those 15 years period

The new model incorporates five dummy variables that help explain:

- Two Terrorist incidents (2002 and 2005) that literature suggest affected arrivals in Indonesia.
- One variable covering a policy of free-entry-visa for selected Asian countries on 2003.
- One variable covering Natural Disasters (Tsunami of December year 2004).
- One variable for the Global Financial Crisis (2008).

The dummy variables help to explain some vulnerabilities of the sector (terrorism, natural disaster, global slowdown), as well as policy tools that the government could implement (expand in the future)

- The article included comments regarding recent policies for the sector (year 2015 to 2019 under the new administration). However, due to the nature of the government initiatives (not short-term) and the period of implementation they were not covered in this study.
- Nevertheless, policy targets and initiatives are included as research gap as next year may allow including effects on infrastructure projects (main point), destination campaign (branding), new on-arrival-visa scheme, and 10 Top destinations selected and supported by the government (on progress). A sub-section under the Result section was added

**Other General Aspects**

- The article was *proofread*
- Some *new tables* are included (Variable Description, Descriptive Statistics, New Estimates, Unit root test added in supplementary files)
- *Additional references* were included, mainly in literature employing GMM, and other studies testing the shocks due to terrorism, natural disasters, financial crises, Free Visa

## DETERMINANTS OF TOURISM DEMAND IN INDONESIA: A PANEL DATA ANALYSIS

MURYANI MURYANI, MIA FAUZIA PERMATASARI, AND MIGUEL ANGEL ESQUIVIAS PADILA

Faculty of Economics and Business, Universitas Airlangga, Surabaya, Indonesia

---

By 2014 Indonesia registered 11.6 million inbound foreign tourists, 135% higher than the year 2000. Since then, government policies to promote tourism flourished. This article investigates the determinants of inbound tourism from the top nine mayor tourist origin countries into Indonesia covering the period of 2000 to 2014. This research employs a dynamic panel dataset to estimate the impact of per capita real income, relative prices, accommodation capacity, distance, and public infrastructure investment on international tourism demand in Indonesia, capturing demand- and supply-side effects. The results show that per capita income of tourists, relative price, and available rooms have a positive effect on tourism expenditure in Indonesia, while distance has a negative effect. Dummy variables capture large negative shocks in tourism arising from two terrorist attacks in 2002 and 2005, as well as from the global financial crisis in 2008. Income plays a positive but low impact on tourism demand compared to other nations. The positive effect of prices suggests an advantage of Indonesia in competitive tourism prices. Nevertheless, low prices also denote low value in tourism services. The substantial impact of accommodation may indicate that significant effects of tourism are allocated in lodging, minimizing the impact on other sectors.

**Key words:** Tourism demand; Inbound tourism; Dynamic panel model; Indonesia

---

### Introduction

In the last decades, tourism developed into one of the most dynamic and rapid growth sectors of the world. From 2000 to 2014, Indonesia also experienced vast expansion of foreign tourist arrivals from 5.06 million to nearly 9.43 million travelers. Besides, tourism revenues doubled to more than US\$11 billion. The rapid growth of the tourism

sector has reattracted the attention of Indonesian policymakers to launch tourism as a key sector to stimulate economic growth, create employment, increase foreign exchange income, encourage other supporting industries, and promote the natural beauty and culture of Indonesia, among others. The national government set an ambitious target of reaching 20 million international tourists by 2019, doubling the contribution of tourism to GDP to 8%,



and multiplying foreign revenues to nearly US\$16 billion.

However, by 2017, the share of tourism to Indonesia's GDP accounted for 5.8%, lower than the 9.1% share to GDP in the year 2000. By contrast, most Southeast Asian neighbors increased the share of tourism to total GDP. Although average receipts per traveler increased from US\$1,059 in 2007 to US\$1,226 in 2014, since 2010 the ratio fell year after year until US\$1,005 in 2017. Inbound tourism expanded by 155% (2007–2017), but total tourism expenditure only increased by 98%. Although the share of the tourism sector to GDP is shrinking and receipts per traveler fell, in 2017 the sector stills account for an essential source of employment, estimated at 10% of total employment—direct and indirect jobs—and it contributes to the balance of payments with nearly US\$20 billion on 2017.

Though previous empirical studies may support that the tourism sector could give a substantial contribution to the Indonesian economy (Mahadevan, Amir, & Nugroho, 2017), the challenge is to understand the drivers that influence tourism demand in the country to help policymakers design strategies in order to develop the tourism sector and to unleashed the potential of the archipelago. Several authors focus on demand aspects, leaving supply factors as secondary causes in determining tourism demand, opening a research gap. Besides, Indonesia is sensitive to terrorist attacks, to natural disasters, and global financial shocks, suggesting the need to capture how they affect tourism demand.

This article employs variables proxying both demand and supply factors that could trigger demand for tourism, offering insights of impacts that could help address policy efforts. This study includes an analysis of the influence of per capita income of the country of origin, accommodation capacity, relative price, and infrastructure development in Indonesia on transborder travelers' expenditure in Indonesia. The model incorporates five dummy variables to capture effects due to terrorism incidents (2002 and 2005), the 2004 tsunami (natural disaster), and the global financial shock (2008) that can help to measure the impact of events in tourism, constant threats to the country. Finally, the study tests a free entry visa scheme introduced in 2003 as a tourist promotion policy tool. An additional contribution of this article is that it

employs a dynamic data panel applying a Generalized Method of Moments (GMM) system to a set that covers nine main origin countries during the period 2000–2014, five possible explanatory variables, capturing country-specific factors. The use of GMM allows testing effects of lagged influence from previous tourism arrivals, addressing the presence of endogeneity in the data.

### Literature Review

The literature section deals with the demand function for tourism, and with factors that influence tourism demand. Understanding the dynamics of tourism demand help to design more effective policy tools and to build links towards evidence on tourism-led growth. Though the empirical evidence on the tourism-led growth is mixed (Brida, Cortes-Jimenez, & Pulina, 2016; De Vita & Kyaw, 2016), more often evidence suggests a positive contribution to the economy as tourism has the ability to increase employment, tax revenue, and national income, as well as provide wide and long linkages towards different sectors in the economy (Proenca & Soukiazis, 2005; Tang & Tan, 2015). In specific cases, tourism outstrips economic growth versus other sectors and plays a role of engine of economic recovery after periods of crisis (Dogru & Bulut, 2018). In Indonesia, evidence of tourism sector supports the presence of economic growth but not free of painful trade-offs as income inequality (Mahadevan et al., 2017), environmental degradation, and cultural and social distortion (Kinseng, Nasdian, Fatchiya, Mahmud, & Stanford, 2018).

### *Tourism Demand*

The demand function is the fundamental theory that illustrates tourism as an economic activity where the output represents the aggregate set of services/goods demanded by a visitor during a specific frame of time on a foreign location. People at the destination offer products and services to incoming visitors. The willingness of visitors to acquire those goods determines the demand for services/goods. While demand function more often illustrates output as a function of income (purchasing power of the tourist) and prices (relative to one another; e.g., Akis, 1998), there are economic and non-economic

factors that interact in the demand of tourism services (Habibi, 2017). Other factors influencing demand in tourism include government regulations, transportation technology, real exchange rate, interstate economic relations, among other (Gallego, Rodríguez-Serrano, & Casanueva, 2019; Kim, Lee, & Mjelde, 2018; A. Liu, Sanshan Lin, & Song, 2018; Wray, 2015).

What is generally common in the literature of tourism demand is that tourism activities have the potential to drive demand, for both consumption and investment, eventually leading to the direct and indirect effects on other sectors. Spillover effects triggered by the tourism sector can raise demand for capital goods and raw materials (investment-derived demand) with the potential to foster economic growth across sectors (transportation, communication, hospitality, handicraft industry, consumer products, services, restaurants, among others).

Within a general demand function, the wider availability of resources can trigger the willingness of travelers to spend. Nevertheless, other factors, as the accessibility of the products and attractions and quality of services, could contribute to the demand for tourism attractions (Harb & Bassil, 2018). Transportation infrastructure can capture accessibility, as it is influential in connecting visitors to tourist destinations.

Analysis covering behavioral forces are also gaining weight in the literature of tourism demand as behavioral factors can lead to significant variations depending on a full set of circumstances. Empirical studies covering destination image (Cohen, Prayag, & Moital, 2014; Isaac & Eid, 2019), expenditure behavior among tourists (Hung, Shang, & Wang, 2013), perception in destinations (Yang & Wall, 2009), market structures (Y. Liu, Li, & Parkpian, 2018), sentiment analysis (Önder, Gunter, & Scharl, 2019), among others, are an example.

The empirical study of Proenca and Soukiazis (2005) pointed out that the theory of demand and the theory of consumer behavior are the basis in determining tourism activities. Different approaches to tourism demand include tourist arrivals, length of the visit, and visitor expenditure (De Mello, Pack, & Sinclair, 2002; Proenca & Soukiazis, 2005). Nevertheless, the demand for tourism services is determined by a set of observable and nonobservable

factors, not always the same as demand functions for tradable goods.

#### *Factors Affecting Tourism Demand*

Per capita income of the country of origin, rooms, relative prices, and infrastructure development are often important drivers of tourism demand, both in developing and developed countries. However, the degree and direction often differ. Kim et al. (2018) found a significant effect of per capita GDP, relative prices, and exchange rates towards Japanese inbound tourism from Korea (the largest inbound market for Japan). In the Portugal case, Proenca and Soukiazis (2005) found that income per capita accounts for the largest effect driving demand, while accommodation capacity represents the largest supply variable in attracting more tourists. Habibi (2017) pointed out that income, hotel rooms, and political stability play a determinant role in larger tourism inflows in Malaysia. As for Thailand, distance appears as a driver of regional tourism; however, GDP per capita and population size is not conclusive as a driver of ASEAN tourist (Y. Liu, Li, & Parkpian, 2018).

In the case of the US, Yazdi and Khanalizadeh (2017) found that GDP, prices, real exchange rate, certain events, and transportation play a role in determining tourism demand.

Other factors often employed in tourism demand studies include distance and accessibility (A. Liu et al., 2018; Y. Liu, Li, & Parkpian, 2018), the role of location factors (Assaf, Josiassen, & Agbola, 2015), tourism cycles (Kozić, 2014), transportation infrastructure (Barman & Nath, 2019; Khadaroo & Seetanah, 2008; Tóth, Dávid, & Vasa, 2014), security (Ghaderi, Saboori, & Khoshkam, 2017), among others. Studies such as that of Khadaroo and Seetanah (2008) highlighted the positive role of transportation and infrastructure in tourism inflows in a large number of countries (28), with more significant coefficients for countries within Africa and Asia. The Indian case also supports the notion that transportation and communications play a crucial role in attracting tourist (Barman & Nath, 2019).

Effects of terrorism in tourism is attracting attention in the tourism literature, as in Indonesia (Pambudi, McCaughey, & Smyth, 2009; Smyth, Nielsen, & Mishra, 2009) where evidence suggests

that a bomb in 2002 caused a decrease in real GDP, employment, export prices, and consumer price index of Bali. The World Bank/UNDP also reported a fall in tourism arrivals of nearly 50% after the bombing attacks of 2002.

Other studies suggest that tourism is sensitive to economic and financial shocks (Khalid, Okafor, & Shafiullah, 2019). Song and Lin (2010) uncovered negative impacts on tourism in Asia as a result of the 2008 financial crisis, although with an expected rebound a year after the shock (2010). Purwomarwanto and Ramachandran (2015) found that Indonesia experienced a decrease on tourism arrivals on the aftershock of the 2008 financial crisis, with a slow down on arrivals on 2009 and a recovery in the following year. Smeral (2010) predicted a nearly 10% decrease in world total tourism expenditure as a consequence of the global financial crisis, although the recovery process was a rather short-term effect.

Some policy interventions can support tourism flows due to tools as free tourist visas. A free tourist visa in Turkey (Balli, Balli, & Cebeci, 2013) and in South Korea (Lee, Song, & Bendle, 2010) suggested a positive effect in arrivals.

Three points support the need for an analysis of factors influencing tourism within this article. First, the unachieved national goal of Indonesia related to tourism activities. Second, the potential that the tourism sector offers to support economic growth, still at a low level (Mahadevan et al., 2017). Third, the still unconcluded results on tourism determinant factors for Indonesia (Pujiharini & Ichihashi, 2016; Tan, McCahon, & Miller, 2002). A possible reason why Indonesia is below its targets level is related to tourism offerings, the so-called Triple-A (Damanik & Weber, 2006): attractions, accessibility, and amenity. Indonesia may have superior resources (natural beauty) but it may need to support its advantages with more qualified human resources, infrastructure, institutions, and security, among others.

Tourism led-growth hypothesis (TLGH) suggests that nations with a well-developed tourism sector could achieve higher economic growth, as concluded by Brida et al. (2016) in an exhaustive review on TLGH literature. The works on Indonesia TLGH support that tourism could help in reducing poverty, although not free of a trade-off

of income inequality (Mahadevan et al., 2017) and some negative social impacts (Kinseng et al., 2018; Mahendradhata, 2019) beyond the scope of this article. This work contributes to the literature of tourism demand, first addressing a gap due to unconcluded results in the Indonesian case. In addition, this article contributes by combining supply and demand factors to a model, supported by other studies but not yet incorporated into Indonesia.

#### Data and Methods

The purpose of this study is to analyze the factors that influence the demand of transborder tourists in Indonesia, including the nine major countries of origin that account for about 80% of the total inflows of tourism in Indonesia. Versus a large number of papers employing time series, this study employs a dynamic panel data to estimate the demand function of tourism in Indonesia for 15 years (2000–2014). A combination of time series and cross-sectional data enables higher degrees of freedom in the estimation process, providing the advantage of incorporating specific effects in the country, providing more data information, reducing multicollinearity effects, and enabling dynamic specification (Proenca & Soukiazis, 2005).

As a dependent variable, this study employs the total expenditure of travelers from each of the nine origin countries in Indonesia:

$$\omega_{i,t} = \frac{\text{average tourist expenditure of per country}}{\text{total arrivals per country}} \quad (1)$$

where  $i$  is 1, . . . , 9 ( $i$  nine main inbound countries), and  $t$  corresponds to the year of research (2000–2014).

The model includes a lagged variable of tourism arrivals proxied through the expenditure variable. The lagged variable captures the effect of previous tourist arrivals on current arrivals as tourist are likely to spread news about the destination. Besides, the effect of growing numbers of tourist from particular destinations may influence government and investors to increase the availability of services.

As independent variables, the proposed model includes the country of origin per capita real income, calculated as real gross domestic product (GDP) per capita. The income per capita is expected

to play a positive role with tourism demand as the income rises.

$$Y_{i,t} = \frac{\text{GDP}}{\text{CPI.POPULATION}} \quad (2)$$

The relative price between Indonesia and each of the nine origin countries of tourists reflects the level of prices consumed by foreign tourists in Indonesia against prices in the tourists' countries of origin. Goods/services consumed by international tourists are hotels, food, transportation, entertainment, and souvenirs, among others. Considering that the prices of goods consumed by foreign visitors are not available, this study uses consumer price index (CPI) data as a proxy. The weakness of employing CPI as a proxy is the possibility of finding differences in the group of goods used to compute the CPI and the group of goods consumed by transborder tourists. This study follows Dogru and Bulut (2018), who demonstrated the superiority of using relative price adjusted by exchange rates over other possible proxies (exchange rate or relative prices alone). The CPI captures the relative prices adjusted to the exchange rate:

$$P_{i,t} = \text{CPI}_{\text{Indonesia}} / (\text{CPI}_{\text{origin}} * \text{ER}_{\text{Indonesia/origin}}) \quad (3)$$

Accommodation capacity uses the number of hotel rooms available in Indonesia every year, considering that the readiness of accommodation is important for travelers. The hotel rooms include both star and nonstar hotels.

The variable of public investment is used as a proxy for connectivity and infrastructure, expected to be positively related to tourism expenditures. In a number of empirical studies (Magerman, Studnicka, & Van Hove, 2016) there is a negative impact between distance and tourism, commonly associated with transportation costs. Distance is not only associated with trade cost but also to sensitivity to policy modifications, or *weaker cultural affinity* (Baier, Yotov, & Zylkin, 2019). Distance represents the distance (kilometers) between the capital cities of the origin country and Indonesia (touristic destination).

The model incorporates a set of four dummy variables (years). Two dummies consider the effects of terrorist attacks expected to affect tourism

inbounds negatively after the 2002 and 2005 bombings in Bali (Pambudi et al., 2009; Smyth, Nielsen, & Mishra, 2009). The effects are likely to be short term (1 year) as suggested in Smyth et al. (2009). A dummy for year 2004 captures the impact from a free tourist visa launched in 2003 for selected Asian countries. A dummy for 2005 is expected to capture adverse effects from the devastating tsunami of 2004 (Kelman, Spence, Palmer, Petal, & Saito, 2008). An additional dummy (2009) covers the effect of the global economic slowdown of the year 2008, with impacts on 2009 as suggested in Smeral (2010).

### Model Specification

Based on tourism supply and demand theory, this study assumes that the tourism inflows received by Indonesia are equivalent to the "export receipts" and the "import costs" for the sending countries. Export revenues (tourism inflows) will depend positively on the purchasing power of the tourist sending countries (importers) and negatively to the relative price between the recipient country (exporter) and the tourist sending countries (importers). It is likely that the higher the purchasing power of the sending countries, the higher the demand for tourism. The higher the price of the recipient country, the lower the tourism demand for the recipient country. Other current factors may also influence demand (resistance factors), besides the possible effect of prior periods (word-of-mouth or persistent habits). Consequently, the tourism demand model is formulated as follows (see Table 1):

$$\begin{aligned} \ln W_{i,t} = & \alpha + \beta_1 W_{i,t-1} + \beta_2 \ln Y_{i,t} + \beta_3 \ln P_{i,t} + \beta_4 \ln A_t \\ & + \beta_5 \ln I P_t + \beta_6 \text{Dis}_i + \beta_7 \text{Dummy}_{2003} \\ & + \beta_8 \text{Dummy}_{2004} + \beta_9 \text{Dummy}_{2006} \\ & + \beta_{10} \text{Dummy}_{2009} + \mu_{i,t} \end{aligned} \quad (4)$$

The data panel includes the top nine tourist origin countries: Singapore, Malaysia, Australia, Japan, US, UK, Italy, Germany, and the Netherlands (see Table 2).

Gallego et al. (2019) suggested applying a GMM to deal with endogeneity problem, common in the sector, as well as to capture dynamic effects from previous years (e.g., word-of-mouth effect). The GMM is a model proposed by Arellano and

Table 1  
Variable Description and Sources

Variable	Description	Source
$W_{i,t}$	Ratio of the total tourism expenditure of origin countries from total tourism expenditure in Indonesia	National Bureau of Statistics in Indonesia (BPS)
$W_{i,t-1}$	Lagged variable on tourism expenditure of origin country	National Bureau of Statistics in Indonesia (BPS)
$Y_{i,t}$	Per capita GDP of the foreign's tourists country of origin	IMF, Economic Outlook
$P_{i,t}$	Relative price between destination country and country of origin (CPI adjusted by exchange rate)	IMF, Economic Outlook
$A_t$	Accommodation capacity (number of available hotel rooms)	Ministry of Culture and Tourism of Indonesia
$IP_t$	Public investment yearly	National Bureau of Statistics in Indonesia (BPS)
$Dis_i$	Distance between Indonesia and partner country	indonesia.distanceworld.com
Dummy <sub>2003</sub>	Dummy variable equal to one if the observation covers year 2003, zero otherwise (Bali Bombing 2002)	
Dummy <sub>2004</sub>	Dummy variable equal to one if the observation covers year 2004, zero otherwise (Free Entry Visa for selected Asian countries launched in 2003)	
Dummy <sub>2006</sub>	Dummy variable equal to one if the observation covers year 2006, zero otherwise (Bali Bombing 2005)	
Dummy <sub>2009</sub>	Dummy variable equal to one if the observation covers year 2009, zero otherwise (Global Financial Shock 2008)	

Bond (1991), which converts the original regression model by differencing the variables, securing the stationarity of the different variables that carry fixed effects (Lam & Shiu, 2010). Applying the Sargan diagnosis test is necessary to validate for possible overidentification of restrictions. The Arrellano–Bond test AR(1) also helps to validate for no autocorrelation in the model using the  $z$ -statistically distribution for autocorrelation test, both for first-order autocorrelation and second order of autocorrelation. Both the AR(1) and AR(2) test are above the significant level, indicated by the probability  $> \chi^2$ , meaning no autocorrelation in the model. The model fulfills the null hypothesis of the system (GMM) regarding no second-order autocorrelation and effective instrumental variables.

## Results

From 2000 to 2014 foreign tourist arrivals increased by nearly 90%. Nine countries account for 80% of total foreign tourists; three are Asian countries (Singapore, Malaysia, and Japan), four are European countries (Italy, England, Germany, and the Netherlands), as well as Australia and the US. Although the largest number of visitors arrive from nearby countries (Singapore, Malaysia, Australia, and Japan), the presence of far-away nations on the sample suggests the need to look at a distance together with other factors.

High-income countries dominate tourist arrivals to Indonesia. Average real GDP per capita in 2014 is US\$48,654 per year, excluding Malaysia

Table 2  
Descriptive Statistics

Variable	Mean	SD	Min	Max	Observation
ln_Tourism expenditure	1.952058	0.8257468	17.51299	21.32763	135
ln_GDP per capita	1.033459	0.6237943	8.2726	11.12142	135
ln_Relative price	7.774938	2.479.538	1.596968	10.56051	135
ln_Accommodation	1.267255	0.1962059	12.44108	13.05895	135
ln_Public investment	1.107107	0.6636373	9.553575	12.1055	135
ln_Distance	8.653372	0.918601	7.045777	9.613737	135

(US\$10,398) and Italy that contracted its GDP per capita by  $-7\%$  during the 2000–2014 period. The GDP per capita of Indonesia increased from US\$780 in the year 2000 to US\$3,500 in 2014 (Table 3).

On the 2017 travel & tourism competitiveness report (World Economic Forum, 2017), Indonesia ranked fifth on price competitiveness, highly suggesting that price is an essential driver for tourism. Although competitive in prices the CPI of Indonesia increased from 44 to 124.39 (2010 = 100 value), suggesting a negative impact on tourism, or at least a diminished role of prices in tourism demand. The real foreign exchange rate between Indonesian Rupiah (IDR) versus the currencies of a foreign tourist mainly favored tourists' purchasing power versus the Rupiah during the period. Nevertheless, in three particular periods, most currencies experienced fluctuations (drop in value versus Indonesian Rupiah), namely in 2002, 2008–2010, and 2013–2014. The British pound and the Euro were the most volatile currencies.

Although Indonesia is competitive in prices, tourism service infrastructure in Indonesia ranks poorly in the 96th place, and 69th in ground and port infrastructure. The government made outstanding efforts; however, more initiatives and commitment to execution are needed (Ollivaud & Haxton, 2019). Indonesia moved fast in prioritizing tourism and travel (12th in the ranking in 2017), suggesting that although still underdeveloped, investments and improvement within tourism may benefit the sector by attracting more visitors and improving the quality of the trips. Policy efforts to promote tourism reflect certain anxiety of the nation to further benefit from the cultural and natural collection

of attractions distinguished by the World Heritage Cultural/Natural Sites by the UNESCO.

From the supply variables included in the study, the number of available rooms (accommodation capacity) increased from 252,984 in 2000 to 469,288 in 2014. Tourism experienced a drop in demand in 2002–2003, and 2005–2006, probably associated with terrorist attacks on 2002 and 2005, as well as the devastating tsunami at the end of the year 2004. External factors associated with the economic crisis on 2008 could also impact tourism demand (choices and behavior) as evident in Lu, Chen, and Kuo (2018) for several Asian countries, and, for instance, causing adjustments in the supply side.

Public investment in Indonesia experienced a substantial increase between 2000 and 2014, suggesting a positive impact on the infrastructure supporting tourism in the country. Total investment to GDP increased from 25% in 2000 to 34.6% in 2014, with a year-on-year average growth rate of 7.66%. However, most massive expansion of infrastructure investment targeting tourism started in 2015.

### Results Analysis

This section presents the estimates for tourism demand in Indonesia shown in equation (4). The results indicate that all independent variables [except for public investment and the dummy for year 2005 (tsunami)] are significant (Table 4).

The elasticity of lagged variable introduced to capture the word-of-mouth (persistence of tourists) is positive and significant, signaling that either tourists tend to return or that references given to new travelers influence larger tourist inbounds and

Table 3  
International Tourism Statistics (Largest ASEAN Countries 2000–2017)

	IDN	MYS	PHL	THA	VNM
Growth expenditures % (2000–2017)	242%	321%	595%	260%	460%
Growth number of arrivals % (2000–2017)	177%	154%	232%	272%	504%
Expenditures (current Billion US\$) 2017	10.94	-10.69	12.78	11.57	5.04
International tourism, number of arrivals 2017 (million)	14.04	25.94	6.62	35.59	12.92
International tourism, receipts (current US\$ billion)	14.11	18.35	8.34	62.15	8.89
Expenditures per tourist (current US\$) 2017	780	412	1,931	325	390
Receipts per tourist (current US\$) 2017	1,005.5	707.3	1,261.0	1,746.4	688.0

Note. IDN, Indonesia; MYS, Malaysia; PHL, Philippines; THA, Thailand; VNM, Vietnam (VNM reference 2005–2017). Data from <https://data.worldbank.org>.



Table 4  
Estimation Result of Determinants of Demand of Tourists in Indonesia

Variable	Coefficient	$p >  t $
$\ln\_W_{i,t-1}$ (1 year lagged tourism arrivals)	0.636	0.000***
$\ln\_Y_{i,t}$ (per capita GDP)	0.144	0.001***
$\ln\_P_{i,t}$ (relative prices)	0.049	0.000***
$\ln\_A_{i,t}$ [Accommodation (beds)]	0.605	0.000***
$\ln\_IP$ (public investment/GDP)	-0.015	0.571
$\ln\_Dist$ (distance)	-0.261	0.000***
Dummy year 2003 (Bomb Bali 2002)	-0.161	0.018**
Dummy year 2004 (Free-entry Visa)	0.113	0.065*
Dummy year 2005 (Tsunami 2004)	-0.065	0.277
Dummy year 2006 (Bomb Bali 2005)	-0.236	0.000***
Dummy year 2009 (Financial Crisis 2008)	-0.118	0.076**
AR(1)	0.000	
AR(2)	0.793	
Sargan test	0.589	
Hansen test (GMM)	0.482	
Hansen test (Diff GMM)	0.667	
Hansen (IV)	0.489	
Hansen (Diff IV)	0.783	
Prob > F	0.000	

Note. Regression estimates.

\*\*\*, \*\*, \* indicate significant level at 1%, 5%, 10%.

expenditure as suggested in Gallego et al., (2019). As for the demand-side variables, per capita real income of the country of origin ( $Y_{i,t}$ ) it is significant at the 1% level, proposing a decisive role in demand (as expected). The results suggest that an increase in per capita income of inbound countries has a statistically significant influence on the expenditure of transborder travelers visiting Indonesia. The income level is one of the main factors driving the consumption of tourism goods/services in Indonesia. However, tourism demand is income inelastic as the demand grows at a lower speed than the change in income. It is worth to note that average tourism expenditure per visitor in Indonesia is rather low (nearly \$1,000 per arrival) versus other countries. Still, it is noticeable that among the nine countries included in this study, the allocation of income (and time) to tourism abroad is large. The estimator for income per capita is smaller than other studies (Habibi, 2017; A. Liu et al., 2018) but within the same direction (positive) and inelastic.

Pujiharini and Ichihashi (2016) reported inbound tourist in Indonesia as income elastic as the magnitude of the effect of income in expenditure in tourism in Indonesia is larger than 1. This study reports an inelastic relation as 1% increase in GDP

in foreign partners leads to less than 1% in tourism expenditure in Indonesia. Nevertheless, Pujiharini and Ichihashi (2016) applied a fix-effect model where the presence of endogeneity may cause an overestimation of coefficients. Nearly 30% of tourists in Indonesia are below 35 years old, often associated with lower income per capita and, for instance, lower allocation for tourism expenditure.

The relative price is expected to have a negative sign. However, the results indicate that the weakening relative price in Indonesia has a statistically positive (although small) effect on tourist expenditure. An increase of 1% in relative prices (ratio of Indonesia to partner country adjusted by exchange rate) is associated with an increase of 0.049% in tourism expenditure. A positive value indicates that tourist is inelastic as an increase in prices leads to a lower increase in expenditure. Prices of Indonesia were indeed low in relation to other countries, also reflected in the Travel and Competitiveness Index, where Indonesia ranks fifth (World Economic Forum, 2017). The positive sign may indicate that the adjustment in prices affects total expenditure, not necessarily because of a higher volume of services delivered but due to higher prices. As all eight countries have higher standards of living than

Indonesia, prices do not necessarily discourage tourist arrivals. Tourism demand might not follow the negative price–volume relationship in demand, either because there is an adjustment of prices (still low relative to foreign countries) or because tourism could be considered a luxury good. The estimator of relative prices is small (below 0.05) to suggest that tourism in Indonesia is not a luxurious good, as noted in the literature (Proenca & Soukiazis, 2005). More detail of expenditure allocation could help to explain the role of prices better as tourism is not related to the activities taking place at a destination alone, or only associated with the prices offered during the stay. Travel, transportation, and sometimes accommodation costs from the native country to the destination may play a more significant role than the cost during the stay in the country.

The results of this study contrast with findings of tourism determinants in the US where income elasticity, prices, and real exchange rate hurt tourist arrivals (Yazdi & Khanalizadeh, 2017). Similar adverse effects of prices to tourism are present in most cases, as in Malaysia (Habibi, 2017) or China (Y. Liu, Li, & Li, 2018).

The next variable is the accommodation capacity. This variable has a strong influence on driving larger foreign tourist demand, in line with Mahadevan et al. (2017) who estimated that accommodation services receive nearly half of foreign expenditure. The availability of rooms then suggests paying more attention to the developments of the sector. The number of available rooms increased, suggesting a change in the services offered in the country, in both number and perhaps in quality of services. The length of time spend in Indonesia is rather low (3.1 days in 2014 vs. 2.84 in 2017), and accommodation capacity fluctuates around 60%. Findings on the role played by accommodation capacity (rooms) are similar in sign and magnitude to those of the Malaysian case (Habibi, 2017).

Facilities and hospitality in Indonesia are satisfactory both in terms of the number of available rooms and quality. Facilities in addition to the rooms are restaurants, sports facilities, and business centers. Various hotel classifications, ranging from inns and low-priced hotels to star hotels, exist in almost all tourist destinations in Indonesia. From the supply side, Indonesia is not experiencing

shortages in terms of the number of rooms; instead, it is possible that Indonesia has an oversupply of rooms and facilities, calling for more supporting government programs for the sector. Additional rooms are accompanied by larger and more qualified human capital. In the year 2000, only 8.79% of workers within tourism had a vocational, technical, or tertiary level of education. By 2014 the share increased to 18.7%, suggesting an improvement in the quality of services as well.

Another supply factor considered in this study is public investment. The results indicate that public investment in Indonesia has a negative relationship on tourism demand; however, it is not statistically significant. The results are opposed to the expected positive association in a country where infrastructure ranks low, and in the case where the government is actively improving public infrastructure (World Economic Forum, 2017). Results on the effect of public infrastructure in tourism literature is instead mixed, as in the case of Portugal by Proenca and Soukiazis (2005), where public investment has no effect on tourism demand in Portugal, while tourism transport infrastructure in the US plays a decisive role in tourist arrivals (Yazdi & Khanalizadeh, 2017). The literature on Indonesia tourism sector within the period of the analysis suggests a deficient level in infrastructure (Ollivaud & Haxton, 2019), meaning that low levels of public investment may not play a significant role in demand. Since 2015 the new administration launched ambitious public infrastructure projects, expected to support the tourism sector through.

The distance factor indicates a negative relation to demand. Distance plays a vital role, perhaps explaining why the largest number of inbound tourists is from within Asia. Literature in gravity models suggests considering distance, together with factors capturing attractiveness, accessibility, and other sets of factors to avoid unbiased estimators (Harb & Bassil, 2018; Tóth et al., 2014). Although distance alone lacks conclusive results on other empirical evidence (Harb & Bassil, 2018; Tóth et al., 2014), the coefficient in this study suggests the importance of accessibility and connectivity to attract tourist from far-away regions.

This study also includes dummy variables to capture possible effects arising from terrorism in Bali, the largest tourist destination of Indonesia.

An additional dummy captures natural disasters (the tsunami in 2004), and the global financial crisis of 2008. The study also includes a variable to capture the effects of a free entry visa launched in 2003. The results for the Bali bombings of 2002 and 2005 suggest a significant decline in tourism as demand dropped by nearly 16% in 2003 (a year after the 2002 Bali bombing) and 23.6% in 2006 (after the 2005 attack). Other studies on the effects of terrorism in Indonesia captured significant adverse effects as well, suggesting the vulnerability of the sector to terrorism (Pambudi et al., 2009; Smyth et al., 2009). The global financial crisis of the year 2008 also suggests a negative impact on tourism demand in Indonesia, causing a drop of more than 11% in demand. Studies such as that of Song and Lin (2010) signaled a drop in both tourism inbound and outbound for Asia during 2009, in line with this finding.

Finally, the study also incorporates a dummy variable to capture a free entry visa policy implemented in 2003, mainly for Asian countries (e.g. Singapore, Malaysia, Thailand, Philippines, and Hong Kong). The results indicate a positive effect on tourism demand on the year of implementation in line with other studies capturing the effects of the free entry visa policy in Indonesia on 2003 (Pujiharini & Ichihashi, 2016). In other regions, the findings are also in line (Balli et al., 2013; Lee et al., 2010). While more details may be needed to analyze the precise effects, the sign suggests that tourism policy tools could be implemented to create a friendlier environment for tourism and a more competitive sector. A more recent scheme of on-arrival visa for a large number of countries (169) is undergoing, together with the addition of more countries to the free-entry visa plan. The evidence supports the expansion of free entry visas as it can help driving more tourist.

This study is limited to analyze certain factors promoting tourism demand in Indonesia. For instance, it is not possible to conclude evidence of tourism-led growth model (available in Mahadevan et al., 2017), as it is beyond the scope of this article. Nevertheless, the large growth of tourism expenditure in the country, together with larger number of inbound tourists and an increase in prices (possibly indicating higher value-added services), may propose that the sector is driving economic growth.

Comparing with other countries in the region like Singapore (Zhu, Lim, Xie, & Wu, 2018), Thailand (Y. Liu, Li, & Parkpian, 2018), and Malaysia (Habibi, 2017), the growth of tourism in Indonesia seem to be slow, pointing out the need for more effective policy efforts to promote the sector.

As previous literature has noted, countries can increase their tourism revenues by improving the tourism offer (Sokhanvar, Çiftçioglu, & Javid, 2018), often requiring stronger policy efforts to increase the quality of services, the infrastructure, and security, among other factors that appear to be critical for tourism development.

#### *Policy Implications: Major Initiatives for Tourism Development in Indonesia*

The most recent policies to promote tourism in Indonesia are expected to support inbound tourism in the nearby time. It is only more recently that the national budget for tourism promotion has increased by nearly four times (still less than 1% of GDP). The most recent national plan to develop tourism covering 2015 to 2019 includes support policies within five main blocks: infrastructure to enhance connectivity, skill development, tourism promotion, development of an integrated destination master plan, and a stricter system to implement the programs. The government aims to double arrivals, revenues, contribution to national GDP, and competitiveness in tourism. Although this study does not capture such new policies, it opens space for further empirical studies where the new infrastructure projects and non-economic aspects are taking into account. As an example, nearly 30% of national tourism budget after 2014 aims to increase tourism promotion efforts. While the international tourism brand “Wonderful Indonesia” substantially improved, the campaign is not attracting the expected number of tourist.

New efforts in infrastructure and connectivity may support the development of tourism, although investment during 2000–2014 in Indonesia were low with no evidence of positive impact on the sector. Tourism infrastructure in Indonesia needs further development as connectivity remains underdeveloped (Ollivaud & Haxton, 2019). It is just until recently (2015–2019 program) that the government launched national infrastructure projects

including the construction of 24 new seaports, 15 new airports, upgrading of 27 airports, 2,650 km of new roads, and 3,258 km of railways, among many other efforts in urban transportation (bus and mass rapid transit), energy, water, and an extensive national coverage of 4G signal. In 2016 a new policy allowed cruise liners to disembark in Indonesia, opening new tourism lines.

Enhancing the skills for tourism-related populations could also help to create a more diverse touristic destination (Ollivaud & Haxton, 2019). In the year 2015 nearly 60% of workers in the tourism-related sector have primary education or less. The government is launching a national effort to increase the share of vocational and technical students to improve human resources in tourism and tourism-related skills, a possible driver of demand.

As commonly proposed in the literature, tourism in Indonesia is underdeveloped considering the large potential of the archipelago. Indonesia ranks 14th in the World Economic Forum (2017) regarding natural resources. However, the country ranks poorly in sustainability (below 130th), suggesting that a number of efforts are needed to turn the rich natural landscapes into a more attractive place for holidays (Ollivaud & Haxton, 2019).

### Conclusion

The overall purpose of this study was to estimate factors affecting the demand for tourism expenditure in Indonesia, including variables capturing effects from the demand side (income and relative prices), as well as two variables from the supply side (accommodation capacity and public investment). The model includes distance within the gravity equation as well as five dummy variables to capture effects of terrorist attacks on years 2002 and 2005, the tsunami of 2004, the financial crisis of 2008, and the effect of a free-entry visa implemented in 2003. The dataset covers the years 2000–2014 and employs a dynamic panel data including the nine top countries of tourists entering Indonesia (nearly 80% of travelers). Tourism arrivals increased by nearly 90% during the period of study. The demand function including per capita income of country of origin, relative price, and accommodation capacity indicates a positive effect in demand for tourism goods/services in Indonesia. The persistence

of travelers captured through a lagged expenditure variable indicates a strong word-of-mouth effect. As expected income plays an important role; nevertheless, the empirical case of Indonesia finds a lower role in tourist incomes than in other countries. Income elasticity is positive, although below 1, signaling that tourism grows with income but at a lower speed. Prices play a positive determinant role in demand, contrary to what is expected; nevertheless, it is in line with the strength that Indonesia displays in global tourism ranking as a country with price advantage. Prices may be adjusting (increasing) leading to higher expenditures without signals of detriment in demand for goods/services. Available rooms play a sizeable decisive role, proxying the expansion of tourism facilities. The broad effect of accommodation suggests that most of the impact of tourism may be allocated in lodging, possibly minimizing effects on other sectors.

The country remains vulnerable to terrorism, as the events of 2002 and 2005 significantly affected tourism arrivals. Tourism in Indonesia also declined due to the global financial shocks. However, the shocks on the aftermath of the events seem to be short term (1 year). The dummy for free-entry visa suggests a positive effect in tourism arrivals, signaling space for government promotion tools to increase tourist arrivals.

Contrary to expectations, public infrastructure investments are not significant in the proposed tourism demand model, either due to low investment (more efforts by the government are required) or the effects were not captured by the model. Nevertheless, the results (prices, accommodation, and infrastructure) are in line with the achievements of the country in tourism competitiveness reflected in the ranking (World Economic Forum, 2017).

A further look to variables nonstrictly economic (related to quality, experience, appreciation of culture, nature, safety, and human resources) may allow finding more determinants on tourism demand. The large diversity of tourism options and motivations in Indonesia imposes essential challenges in further studies. The most recent support policy programs for tourism (2015–2019) open a field for further research. The ambitious infrastructure program, the branding of "Wonderful Indonesia," upgrading in human skills and vocational education, and the promotion of 10 new top destinations "New Bali"

in Indonesia are some examples. Recent government policies under implementation could be new drivers of tourism in the country, leading to higher growth in jobs, incomes, and foreign currency.

#### References

- Akis, S. (1998). A compact econometric model of tourism demand for Turkey. *Tourism Management*, 19(1), 99–102. doi: [https://doi.org/10.1016/S0261-5177\(97\)00097-6](https://doi.org/10.1016/S0261-5177(97)00097-6)
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, 58(2), 277. doi: <https://doi.org/10.2307/2297968>
- Assaf, A. G., Josiassen, A., & Agbola, F. W. (2015). Attracting international hotels: Locational factors that matter most. *Tourism Management*, 47, 329–340. doi: <https://doi.org/10.1016/j.tourman.2014.10.005>
- Baier, S. L., Yotov, Y. V., & Zylkin, T. (2019). On the widely differing effects of free trade agreements: Lessons from twenty years of trade integration. *Journal of International Economics*, 116, 206–226. doi: <https://doi.org/10.1016/j.jinteco.2018.11.002>
- Balli, F., Balli, H. O., & Cebeci, K. (2013). Impacts of exported Turkish soap operas and visa-free entry on inbound tourism to Turkey. *Tourism Management*, 37, 186–192. doi: <https://doi.org/10.1016/j.tourman.2013.01.013>
- Barman, H., & Nath, H. K. (2019). What determines international tourist arrivals in India? *Asia Pacific Journal of Tourism Research*, 24(2), 180–190. doi: <https://doi.org/10.1080/10941665.2018.1556712>
- Brida, J. G., Cortes-Jimenez, I., & Pulina, M. (2016). Has the tourism-led growth hypothesis been validated? A literature review. *Current Issues in Tourism*, 19(5), 394–430. doi: <https://doi.org/10.1080/13683500.2013.868414>
- Cohen, S. A., Prayag, G., & Moital, M. (2014). Consumer behaviour in tourism: Concepts, influences and opportunities. *Current Issues in Tourism*, 17(10), 872–909. doi: <https://doi.org/10.1080/13683500.2013.850064>
- Damanik, J., & Weber, H. F. (2006). *Perencanaan ekowisata: Dari teori ke aplikasi*. Yogyakarta, Indonesia: Puspas UGM Dan Andi.
- De Vita, G., & Kyaw, K. S. (2016). Tourism development and growth. *Annals of Tourism Research*, 60, 23–26. doi: <https://doi.org/10.1016/j.annals.2016.05.011>
- Dogru, T., & Bulut, U. (2018). Is tourism an engine for economic recovery? Theory and empirical evidence. *Tourism Management*, 67, 425–434. doi: <https://doi.org/10.1016/j.tourman.2017.06.014>
- Gallego, Á., Rodríguez-Serrano, M. Á., & Casanueva, C. (2019). Dynamic panel data models in tourism. *Current Issues in Tourism*, 22(4), 379–399. doi: <https://doi.org/10.1080/13683500.2018.1467386>
- Ghaderi, Z., Saboori, B., & Khoshkam, M. (2017). Does security matter in tourism demand? *Current Issues in Tourism*, 20(6), 552–565. doi: <https://doi.org/10.1080/13683500.2016.1161603>
- Habibi, F. (2017). The determinants of inbound tourism to Malaysia: A panel data analysis. *Current Issues in Tourism*, 20(9), 909–930. doi: <https://doi.org/10.1080/13683500.2016.1145630>
- Harb, G., & Bassil, C. (2018). Gravity analysis of tourism flows and the ‘multilateral resistance to tourism.’ *Current Issues in Tourism*. Advance online publication. doi: <https://doi.org/10.1080/13683500.2018.1544612>
- Hung, W.-T., Shang, J.-K., & Wang, F.-C. (2013). A multi-level analysis on the determinants of household tourism expenditure. *Current Issues in Tourism*, 16(6), 612–617. doi: <https://doi.org/10.1080/13683500.2012.725714>
- Isaac, R. K., & Eid, T. A. (2019). Tourists’ destination image: An exploratory study of alternative tourism in Palestine. *Current Issues in Tourism*, 22(12), 1499–1522. doi: <https://doi.org/10.1080/13683500.2018.1534806>
- Kelman, I., Spence, R., Palmer, J., Petal, M., & Saito, K. (2008). Tourists and disasters: Lessons from the 26 December 2004 tsunamis. *Journal of Coastal Conservation*, 12(3), 105–113. doi: <https://doi.org/10.1007/s11852-008-0029-4>
- Khadaroo, J., & Seetanah, B. (2008). The role of transport infrastructure in international tourism development: A gravity model approach. *Tourism Management*, 29(5), 831–840. doi: <https://doi.org/10.1016/j.tourman.2007.09.005>
- Khalid, U., Okafor, L. E., & Shafullah, M. (2019). The effects of economic and financial crises on international tourist flows: A cross-country analysis. *Journal of Travel Research*. Advance online publication. doi: <https://doi.org/10.1177/0047287519834360>
- Kim, J., Lee, C.-K., & Mjelde, J. W. (2018). Impact of economic policy on international tourism demand: The case of Abenomics. *Current Issues in Tourism*, 21(16), 1912–1929. doi: <https://doi.org/10.1080/13683500.2016.1198307>
- Kinseng, R. A., Nasdian, F. T., Fatchiya, A., Mahmud, A., & Stanford, R. J. (2018). Marine-tourism development on a small island in Indonesia: Blessing or curse? *Asia Pacific Journal of Tourism Research*, 23(11), 1062–1072. doi: <https://doi.org/10.1080/10941665.2018.1515781>
- Kozić, I. (2014). Detecting international tourism demand growth cycles. *Current Issues in Tourism*, 17(5), 397–403. doi: <https://doi.org/10.1080/13683500.2013.808607>
- Lam, P.-L., & Shiu, A. (2010). Economic growth, telecommunications development and productivity growth of the telecommunications sector: Evidence around the world. *Telecommunications Policy*, 34(4), 185–199. doi: <https://doi.org/10.1016/j.telpol.2009.12.001>
- Lee, C.-K., Song, H.-J., & Bendle, L. J. (2010). The impact of visa-free entry on outbound tourism: A case study of South Korean travellers visiting Japan. *Tourism Geographies*, 12(2), 302–323. doi: <https://doi.org/10.1080/14616681003727991>
- Liu, A., Sanshan Lin, V., & Song, H. (2018). Analysing and forecasting tourism demand. In C. Cooper, S. Volo, W. C. Gartner, & N. Scott (Eds.), *The SAGE handbook of*

- tourism management* (pp. 202–221). London, UK: SAGE Publications.
- Liu, Y., Li, Y., & Li, L. (2018). A panel data-based analysis of factors influencing market demand for Chinese outbound tourism. *Asia Pacific Journal of Tourism Research, 23*(7), 667–676. doi: <https://doi.org/10.1080/10941665.2018.1486863>
- Liu, Y., Li, Y., & Parkpian, P. (2018). Inbound tourism in Thailand: Market form and scale differentiation in ASEAN source countries. *Tourism Management, 64*, 22–36. doi: <https://doi.org/10.1016/j.tourman.2017.07.016>
- Lu, C.-L., Chen, S.-T., & Kuo, H.-I. (2018). International tourism demand in Asia: Before and after the economic crisis. *Asia Pacific Journal of Tourism Research, 23*(11), 1073–1085. doi: <https://doi.org/10.1080/10941665.2018.1524774>
- Magerman, G., Studnicka, Z., & Van Hove, J. (2016). Distance and border effects in international trade: A comparison of estimation methods. *Economics: The Open-Access, Open-Assessment E-Journal*. doi: <https://doi.org/10.5018/economics-ejournal.ja.2016-18>
- Mahadevan, R., Amir, H., & Nugroho, A. (2017). Regional impacts of tourism-led growth on poverty and income inequality: A dynamic general equilibrium analysis for Indonesia. *Tourism Economics, 23*(3), 614–631. doi: <https://doi.org/10.5367/te.2015.0534>
- Mahendradhata, Y. (2019). Proceed with caution: Potential challenges and risks of developing healthcare tourism in Indonesia. *Global Public Health, 14*(3), 340–350. doi: <https://doi.org/10.1080/17441692.2018.1504224>
- Mello, M. de, Pack, A., & Sinclair, M. T. (2002). A system of equations model of UK tourism demand in neighbouring countries. *Applied Economics, 34*(4), 509–521. doi: <https://doi.org/10.1080/00036840110049310>
- Ollivaud, P., & Haxton, P. (2019). Making the most of tourism in Indonesia to promote sustainable regional development. *Organisation for Economic Co-Operation and Development*. <https://doi.org/10.1787/c73325d9-en>
- Önder, I., Gunter, U., & Scharl, A. (2019). Forecasting tourist arrivals with the help of web sentiment: A mixed-frequency modeling approach for big data. *Tourism Analysis, 24*(4), 437–452. doi: <https://doi.org/10.3727/108354219X15652651367442>
- Pambudi, D., McCaughey, N., & Smyth, R. (2009). Computable general equilibrium estimates of the impact of the Bali bombing on the Indonesian economy. *Tourism Management, 30*(2), 232–239. doi: <https://doi.org/10.1016/j.tourman.2008.06.007>
- Proenca, S. A., & Soukiazis, E. (2005). Demand for tourism in Portugal: A panel data approach. Retrieved from <https://pdfs.semanticscholar.org/a5e6/ba6d66aabd-c15332a029ed75284cb419dce2.pdf>
- Pujiharini, F., & Ichihashi, M. (2016). *The impact of visa-free entry on the determinants of inbound tourism demand in Indonesia* (IDEC DP2 series 6–5). Hiroshima University, Graduate School for International Development and Cooperation (IDEC). Retrieved from <https://ideas.repec.org/p/hir/idecdp/6-5.html>
- Purwomarwanto, Y. L., & Ramachandran, J. (2015). Performance of tourism sector with regard to the global crisis—A comparative study between Indonesia, Malaysia and Singapore. *The Journal of Developing Areas, 49*(4), 325–339. doi: <https://doi.org/10.1353/jda.2015.0149>
- Smeral, E. (2010). Impacts of the world recession and economic crisis on tourism: Forecasts and potential risks. *Journal of Travel Research, 49*(1), 31–38. doi: <https://doi.org/10.1177/0047287509353192>
- Smyth, R., Nielsen, I., & Mishra, V. (2009). ‘I’ve been to Bali too’ (and I will be going back): Are terrorist shocks to Bali’s tourist arrivals permanent or transitory? *Applied Economics, 41*(11), 1367–1378. doi: <https://doi.org/10.1080/00036840601019356>
- Sokhanvar, A., Çiftçioğlu, S., & Javid, E. (2018). Another look at tourism-economic development nexus. *Tourism Management Perspectives, 26*, 97–106. doi: <https://doi.org/10.1016/j.tmp.2018.03.002>
- Song, H., & Lin, S. (2010). Impacts of the financial and economic crisis on tourism in Asia. *Journal of Travel Research, 49*(1), 16–30. doi: <https://doi.org/10.1177/0047287509353190>
- Tan, A. Y. F., McCahon, C., & Miller, J. (2002). Modeling Tourist Flows to Indonesia and Malaysia. *Journal of Travel & Tourism Marketing, 13*(1–2), 61–82. doi: [https://doi.org/10.1300/J073v13n01\\_05](https://doi.org/10.1300/J073v13n01_05)
- Tang, C. F., & Tan, E. C. (2015). Does tourism effectively stimulate Malaysia’s economic growth? *Tourism Management, 46*, 158–163.
- Tóth, G., Dávid, L. D., & Vasa, L. (2014). The role of transport in European tourism flows. *Acta Geographica Slovenica, 54*(2). doi: <https://doi.org/10.3986/AGS54205>
- Wray, M. (2015). Drivers of change in regional tourism governance: A case analysis of the influence of the New South Wales government, Australia, 2007–2013. *Journal of Sustainable Tourism, 23*(7), 990–1010. doi: <https://doi.org/10.1080/09669582.2015.1042482>
- World Economic Forum. (2017). The travel & tourism competitiveness report 2017. Retrieved from [http://www3.weforum.org/docs/WEF\\_TTCR\\_2017\\_web\\_0401.pdf](http://www3.weforum.org/docs/WEF_TTCR_2017_web_0401.pdf)
- Yang, L., & Wall, G. (2009). Authenticity in ethnic tourism: Domestic tourists’ perspectives. *Current Issues in Tourism, 12*(3), 235–254. doi: <https://doi.org/10.1080/13683500802406880>
- Yazdi, S. K., & Khanalizadeh, B. (2017). Tourism demand: A panel data approach. *Current Issues in Tourism, 20*(8), 787–800. doi: <https://doi.org/10.1080/13683500.2016.1170772>
- Zhu, L., Lim, C., Xie, W., & Wu, Y. (2018). Modelling tourist flow association for tourism demand forecasting. *Current Issues in Tourism, 21*(8), 902–916. doi: <https://doi.org/10.1080/13683500.2016.1218827>

**PROOF**