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Towards Advancing Theory and Methods on Tourism Development from Residents' Perspectives: Developing a Framework on the Pathway to Impact

Abstract

This study argues that method should work hand-in-hand with theory to be able to generate impactful outcomes. This study provides *three* methodological, theoretical and practical contributions to the current body of knowledge on tourism development from residents' perspective. *First*, five analytical approaches—namely, covariance based-structural equation modelling (CB-SEM), partial least squares structural equation modelling (PLS-SEM), multiple regression analysis (MTA), simple regression analysis (SRA), fuzzy set Qualitative Comparative Analysis (fsQCA), and analysis of necessary conditions (ANC)—are applied to test a model to predict support for tourism development from local residents' perspective. It critically discusses the results of analytical approaches to researching support for tourism development. A guideline for conducting a symmetrical approach is provided. *Second*, this study presents a classification of theories on residents' support of tourism, which helps to tackle the complexity of this complex social phenomenon by advancing theories and highlighting the importance of a theory-method match in future research. *Third*, beyond method and theory, there is a need for an informative framework that illustrates the 'pathway to impact' of research on residents' support for sustainable tourism development. Using the theory of change, this study fills this research gap by developing a logical model demonstrating outputs, actor groups, outcomes, and impacts of residents' support for tourism development.

Keywords: tourism development; resident behaviour; pathway to impact; symmetrical and asymmetrical modelling; analysis of necessary condition

1. Introduction

The sustainability of tourism development depends on the support of local communities and their residents. Resident's attitude toward tourism is a well-researched area of tourism studies (Sharpley, 2014). The perceived positive and negative impacts of tourism, personal benefits from tourism, power in tourism, community attachment, community involvement, knowledge of tourism, and trust in the government are all predictors of residents' support for tourism development (Nunkoo & So, 2015; Lee, 2013; Woo et al., 2015). Despite extensive research, a more innovative approach in the application of theories and methods is needed to tackle the complexity of residents' attitude toward tourism.

Most of the relevant studies have relied on symmetrical methods (e.g., SEM) for model testing. However, the applicability of these approaches and the credibility of the results for providing a complete picture from the study phenomena have been questioned by scholars (e.g., Armstrong et al., 2001; Olya & Mehran, 2017; Woodside, 2013). Westland has indicated that symmetrical methods "were disappointingly inadequate, but the best we had at the time. Statistical power has always lagged [in terms of] the size and complexity of the networks under analysis, and as a result generated unreliable, simplistic, and inapplicable results" (Westland, 2005, p. 161). The critique of the functionality of different symmetrical methods (e.g., CB-SEM vs PLS-SEM) appears in business and management research (e.g., Guide & Ketokivi, 2015; Rönkkö et al., 2016). For example, Rönkkö et al. (2016) have argued that the use of an incorrect estimator leads to biased (inaccurate – invalid) results. The many problems that arise from using PLS can be overcome and avoided by using a less controversial estimator (e.g., AMOS, LISREL, MPLUS).

Meanwhile, Woodside (2014, p. 2502) has argued that there are 'serious problems with the near-total reliance by most researchers on symmetric statistical tests and difficulties in achieving theory advances relying on such tools. [These approaches] will end during the second decade of the 21st century'. This study contends that neither being 'the best we have at the time' nor 'know[ing] how to use it' is a decent rationale for using these methods. In fact, research methods should go hand-in-hand with theory to address a study's research questions and objectives. Olya, Bagheri and Tumer et al. (2019) have contended that an extension and modification of the theory of planned behaviour (TPB) may potentially contribute to the literature; however, researchers need to revisit the analytical approaches in order to present

different insights from models developed based on the TPB. This could aid the justification of heterogeneous results from asymmetrical methods.

Most research on residents' behaviours and tourism development relies on a few theories (e.g., the social exchange theory and social identity theory) which are insufficient for explaining the heterogeneity of the model's testing results. In this vein, Olya and Gavylian (2017) have found that residents who have experienced negative impacts from tourism still express their support for tourism development. This indicates that social exchange theory is insufficient in explaining complex attitudes of residents. Olya and Gayylien (2017) have thus deduced that the complexity theory can explain such complex behaviours of residents toward tourism development. In this regard, Boley et al. (2014) have used Weber's theory of formal and substantive rationality as a complementary theory of social exchange theory to model residents' support for tourism development. To these ends, there is a paucity of research discussing the falsification or corroboration of the above theories in different contexts. Specifically, in residents' attitudes toward tourism research, there is the need for a classification of theories to guide how different theories can fit the appropriate analytical techniques.

Beyond theory and method, one must also think of how research outputs can be translated into practice to ensure benefits for the economy and the wider society. A review of the literature shows that tourism scholars have recommended such practical implications. Nonetheless, it is imperative to develop a pathway for the sustainable implementation of the proposed practical implications. Drawing on the theory of change, this study designs a framework illustrating the transformation of research outputs to their impacts. This study critically evaluates results from four symmetrical approaches and provides a guideline of standard practices for conducting symmetrical modelling. It also conducts asymmetrical modelling using fsQCA to explore solutions for high and low scores of residents' support for tourism development. This study is a first attempt to identify the necessary conditions for residents' support for tourism development. This study also develops a classification of theories that discusses the relevant theories and methods which could potentially deepen the understanding of residents' complex behaviours towards tourism development.

2. Methods

This study uses data from the research by Olya and Gavylian (2017) to test the proposed model (Figure 1). Drawing on complexity theory, used a range of predictors, namely, personal benefits of tourism, satisfaction with quality of life, power to influence tourism, knowledge of tourism, negative tourism impacts, positive tourism impacts, trust in government, community involvement, and community attachment to stimulate residents' support for tourism development. To avoid redundancy, this study refers to Olya and Gavylian's (2017) research for detailed information on the sample, data collection procedures, measurement model testing (common method bias, reliability, and validity), and existence of contrarian cases.

Place Figure 1 here

This study conducted both symmetrical and asymmetrical approaches to predict support for tourism development from residents' perspectives. Symmetrical approaches (e.g., SEM and regression) aim to investigate the sufficiency of the independent variable (X) in predicting the dependent variable (Y). In symmetrical approaches, a high score of X is most likely associated with a high score of Y and a low score of X is related with a low score of Y. In asymmetrical approaches (e.g., fsQCA), a high score of X (the solution) is not necessarily linked with a high score of Y (the outcome variable). In other words, a low score of X could be associated with a high score of Y (Feng et al., 2019; Khan et al., 2018; Olya et al., 2020b). This study performed four symmetrical approaches (namely CB-SEM, PLS-SEM, MRA, and SRA) and compared their results to understand the net effect of the predictors on residents' support for tourism development. As an asymmetrical approach which functions based on Boolean Algebra, fsQCA was used to explore sufficient solutions (i.e., a combination of the predictors) to stimulate residents' support for tourism development. fsQCA helps explore solutions for low scores of residents' support, which are not opposite to solutions for high scores of residents' support for tourism development.

This study conducted an analysis of necessary conditions (ANC) to identify the necessary predictors to achieve the outcome variable. Support of tourism development is not achievable in the absence of necessary predictors. Results of the ANC are important for prioritising the plans to provide critical conditions for attaining a desired outcome (e.g., residents' support for tourism development). An overview of the aforementioned analytical approaches — including the definitions, advantages, and disadvantages of six techniques — are presented in Table 1.

Place Table 1 here

The normality of the data is assessed using the two measures of skewness and kurtosis (Table A1, Appendix). The values of skewness and kurtosis fell within the commonly-accepted range of ±3, which indicates the data are normally distributed (Taheri et al., 2019). As this study conducts a symmetrical analysis (e.g. SEM, MLR, and SRA), multicollinearity should not be a concern. According to the results of multicollinearity tests, the variance inflation factor (VIF) and tolerance values are less than 4 and larger than 0.25, respectively (O'Brien, 2007).

3. Results

3.1. Symmetrical modelling: sufficiency of the factor

This study has conducted multiple analyses to provide a deeper insight into analytical approaches used for modelling residents' support for tourism development. The sufficiency of factors (i.e., the net effect) is investigated using four model testing methods (CB-SEM, PLS-SEM, SRA, and MRA) (Table 2). The results from CB-SEM and PLS-SEM are similar (except for the power to influence tourism); however, the results of the other two analytical approaches (MRA and SRA) are not the same, indicating the importance of using appropriate statistics to avoid decision-making based on misleading results. In four analyses, personal benefit, the positive impact of tourism, and community involvement significantly and positively affect residents' support for tourism development. Unlike personal benefit, satisfaction with the quality of life, knowledge of tourism, trust in the government, and the negative impact of tourism do not appear to be significant predictors of residents' support for tourism development (Table 2).

According to the CB-SEM results, the power to influence tourism plays a negative role in driving residents' support for tourism development. However, the results of the PLS-SEM, MRA, and SRA show that the effect of the power to influence tourism on residents' support for tourism development is not significant. These heterogeneous results have been reported in previous research. For example, Látková and Vogt (2012, p. 62) state that 'inconsistent with social exchange theory and Madrigal's (1993) findings, power was not found to be a significant predictor of tourism impacts … [and it] does not guarantee that a person will see solely the positive or negative side of the tourism industry'. Similarly, Kayat (2002) has found that the

net effect of power in tourism is not sufficient for a resident to support the tourism industry, suggesting its interactive effect with other predicates—such as the level of their dependency on tourism and the willingness to adapt to changes—should be included in the model indicating residents' attitudes and behaviours. The heterogeneous roles of these factors can be addressed using fsQCA that explores solutions (recipe: a combination of factors) for understanding how power—in combination with other predictors rather than alone—behaves in predicting residents' support for tourism development.

Unlike the SEM and MRA, the results of the SRA indicate that community attachment significantly increases residents' support for tourism development (β = .215, p < .01). This accords with residents' attitude toward tourism research, which has found that community attachment influences support for tourism development positively (e.g., Lee, 2013). By contrast, Gannon et al. (2020) have found that community attachment has no impact on support for tourism development. Comparing the results of the four analytical methods in this study prompts scepticism about the accuracy of results obtained from the SEM and MRA approaches. Similar to this study's findings, community attachment plays a significant role in predicting support for tourism development in Gannon et al.'s (2020) study with the latter using SRA for hypothesis testing. The SRA results fit with the Weber's theory of substantive and formal rationality (Boley et al., 2014; Gannon et al., 2020). Furthermore, SRA is a powerful, rigorous, and valid approach that satisfies the research objective in terms of investigating the net effect of predictors (sufficient factors) on the model outcome (Mehran et al., 2020). Further arguments on the scepticism of SEM outputs are discussed in subsection 4.1., titled *SEM: A building with no walls or roof*.

Place Table 2 here

3.2. Analysis of necessary conditions: Necessity of factors

The necessary factors to achieve residents' support for tourism development are identified using ANC (Table 3). Negative and positive tourism impacts and community attachments are necessary to achieve support for tourism development (consistency >. 90). The role of sufficient and necessary factors in predicting support for tourism development is presented in Table 3. According to SRA and ANC results, personal benefit is sufficient but unnecessary to stimulate residents' support of tourism. Additionally, satisfaction with the quality of life, the

power to influence tourism, knowledge of tourism, and trust in the government are insufficient and unnecessary predictors of support for tourism development. Community involvement is sufficient but unnecessary in predicting support for tourism development, while the positive impacts of tourism and community attachment are both sufficient and necessary predictors of support for tourism development (Table 3).

Place Table 3 here

3.3. Asymmetrical modelling: fsQCA

While both SRA and ANC show the net effect of factors predicting the outcome, the fsQCA explores the combined effect of factors that receive different names, such as 'recipe', 'solution', 'causal model', 'algorithm', and 'configuration'. For example, the negative impact of tourism appears as an insufficient but necessary factor in predicting the support for tourism development. The fsQCA can provide a deeper insight into the role of each predictor, in combination with other predictors of the outcome (Table 4). The fsQCA outputs include three types of solutions, namely 'complex', 'parsimonious', and 'intermediate', described by Pappas as follows:

> The complex solution presents all the possible combinations of conditions when traditional logical operations are applied. In general, because the number of configurations identified can be very large, the number of complex solutions can be large and these may include configurations with several terms. This makes the interpretation of the solutions difficult and in most cases impractical.... For this reason, they are usually simplified further into parsimonious and intermediate solutions. (Pappas 2019, p. 654)

Unlike Olya and Gavylian's (2017) study, which concentrated on complex solutions, this study focuses on parsimonious and intermediate solutions, not only to integrate the results of current knowledge on support for tourism development but also to improve readings of fsQCA results.

As evident in Table 4, four solutions for both high (S1-S4) and low (L1-L4) levels of support for tourism respectively are calculated. Consistency, which is similar to correlation, represents the proportion of cases consistent with the desired outcome (support for tourism development). 99% of cases follow S1-S4 solutions that explain conditions in which residents support tourism development; 55% of cases do not support tourism development in conditions matched with L1-L4. Coverage, which is analogous to R^2 in a symmetrical analysis, is

relatively high (.49 and .87). This means solutions S1-S4 explain 49% of the variation in residents' support for tourism development and solutions L1-L4 explain 87% of the variation in low levels of support for tourism development (Table 4). The unique coverage meanwhile shows the relative importance of solution in predicting the outcome (high or low support). As shown in Table 4, among the solutions for predicting high support, S2 receives unique coverage of .03, while among solutions for low support, L1 has unique coverage of .045. These results indicate that relative to other solutions, S2 and L1 are more important in explaining the conditions for predicting high and low levels of residents' support respectively. Table A2 in appendix as presents different types of community groups (%) correspondence with the solutions.

S1 indicates that in both the lack of trust in the government and the presence of negative impacts of tourism, residents who are satisfied with their quality of life and are knowledgeable about tourism would support tourism development if they were attached to and involved in a community and perceive potential personal benefits. S2 explains a condition in which there is a lack of trust in the government, knowledgeable residents who are satisfied with their quality of life would support tourism development if they are attached to and involved in a community, feel the power to influence tourism, and perceive positive impacts of tourism. According to the third solution (S3), tourism development is supported by knowledgeable residents who are happy with their quality of life as well as the perceived personal benefits and positive impacts from tourism. These residents are attached to and involved in a community and feel the ability to influence tourism, however, perceive the negative impacts of tourism. Solution 4 explains a condition for tourism development support by residents who are not satisfied with their quality of life, feel no power to influence tourism, and do not perceive the negative impacts of tourism. Nonetheless, they have knowledge about tourism and trust the government, and perceive personal benefits and positive impacts of tourism; they are also attached to and involved in a community.

Unlike symmetrical modelling, which considers the models for low outcomes and mirror opposites of models for high outcomes (e.g., low personal benefit → low support level and high personal benefit → high support level), fsQCA explores solutions for low scores of support which are unique and different from the mirror opposites of solutions for high scores (c.f. Table 4). Solutions for low levels of support are important to consider in preventing anti-

tourism community groups. According to L1, residents would not support tourism development if they do not trust in the government and are not attached to a community. Alternatively, residents who do not perceive personal benefits and positive impacts from tourism most likely would not support tourism development (L2). According to L3, residents would not support tourism development if they do not perceive personal benefits and perceive the negative impacts of tourism. The responses from residents matched with L2 and L3 are well explained by social exchange theory. Another solution (L4) that explains the conditions of not supporting tourism development represents the view of residents who are not satisfied with their quality of life and are not involved in a community (Table 4).

Place Table 4 here

The results of asymmetrical modelling show that stimulating the residents' behaviours to support tourism is rather complex, as the fsQCA results confirm the 'equifinality' tenet of complexity theory. This tenet postulates that more than one solution explains conditions in which the expected outcome can be achieved. In this study, the fsQCA explores four solutions to high or low support for tourism development, in which each solution represents the voices of different groups of local residents. As Olya et al. (2018) have noted, this is important for including views of residents with different backgrounds and interests, whose voices should be heard in order to achieve sustainable tourism development. Otherwise, anti-tourism community groups opposing tourism development may begin to form (Olya et al., 2019a). Furthermore, the fsQCA results confirm the 'causal asymmetry' tenet of complexity theory, which indicates that solutions for achieving support for tourism development do not merely depend on the presence or absence of a specific predictor. For example, the fsQCA offers a solution for residents who do not trust in the government, are not happy with their quality of life, feel no power to influence tourism, and are not attached to and involved in a local community.

From a theoretical perspective, the fsQCA results reveal that predictors can play both negative and positive roles in stimulating support for tourism development. This helps justify heterogeneous results reported in the literature (McCool & Martin, 1994; Látková & Vogt, 2012; Sharpley 2014). The fsQCA calculates configurations (solutions) that show the combinational effect of the factors in which the role of one factor may vary, depending on the attributes (absence or presence) of other factors. Practically speaking, residents as individuals may consider the combinational effects of predictors simultaneously, in order to come to a

decision or take action (Olya & Al-Ansi, 2018; Olya & Han, 2020). Sharpley (2014) has argued that residents support tourism development as positive impacts may outweigh the negative impacts of tourism. Therefore, as a pragmatic approach, fsQCA helps to explore solutions describing complex conditions in which residents support sustainable tourism development and prevent anti-tourism local community groups from emerging.

4. Discussions and implications

This section includes discussions on the methodological and theoretical advances in modelling residents' behaviours to support sustainable development. It also presents common good practices for conducting symmetrical analytical approaches (e.g., regressions and SEM). To maximise the impacts of tourism research, this section ends with a framework illustrating the transformation of research outputs into social, economic, and ecological impacts.

4.1. SEM: A building with no walls or roof

A review of the discourse on analytical approaches shows that there are different views on the functionality of symmetrical techniques. For example, Sarstedt et al. (2020) highlight the superiority of PLS-SEM over the PROCESS approach proposed by Hayes (2017), emphasising the advantages of PLS-SEM (e.g., the flexibility of testing a complex model that includes formative observed variables and estimating smaller standard errors and functionality using a small sample size). They believe these advantages can address the pitfalls of symmetrical modelling, such as the limitation on generating interaction terms, the need for a large sample size, and the assumption of linearity of association between predictor and outcome variables (Sarstedt et al., 2020). Furthermore, SEM provides flexibility for the model's specifications and options in dealing with missing data (Hayes et al., 2017). However, a number of scholars have questioned the advantages of PLS-SEM. For example, Guide and Ketokivi (2015, p. vii) indicated that "use of PLS is (incorrectly) justified by saying that PLS is suitable for small samples, that it should be used when one has formative indicators in a measurement model, or that it is suitable when the Maximum Likelihood estimator fails to converge to a solution. All are poor excuses for using PLS. Claiming that PLS fixes problems or overcomes shortcomings associated with other estimators is an indirect admission that one does not understand PLS."

This study attempts to analyse the credibility of the aforementioned advantages of SEM from different angles. First, researchers are encouraged to test the structural model with a large

sample size as it most likely represents a more accurate picture of a normal population. Furthermore, the most common estimation technique of SEM (i.e., maximum likelihood, or ML) requires a large sample. As Hayes et al. (2017) indicate, using a small sample to test structural models by ML computes standard errors that tend to be biased downwards. Therefore, 'the apparent advantage of SEM evidenced by the smaller standard errors is likely illusory in this case and similar ones. Smaller standard errors are not better when they are wrong' (Hayes et al. 2017, p. 79). There are other estimation techniques (e.g., generalised least squares, asymptotically distribution-free, unweighted least squares, and consistent PLS) in which a large sample size is not the key assumption for running the model. However, selecting the estimation approach does not necessarily rely on the size of the sample; rather, it does depend on the research objective (such as testing a theory or structure or investigating key predictors), access to SEM software (e.g. AMOS or PLS-SEM), and researchers' statistical literacy and skills (Dijkstra, 2014; Hair et al., 2017; Reinartz et al., 2009).

Second, it seems that amidst such contestations on the superiority of applying techniques to work with a small sample size, we almost neglect the importance of large sizes of data as a requirement for satisfying generalisability—one of the key quality criteria for quantitative research. Many researchers of applied symmetrical approaches acknowledge the small sample size as a limitation of their research. Suggestions to test the model using a larger sample is not a solution, as it questions the basis of the research process used. Furthermore, in the case of residents' perceptions, justifying generalisability criteria can be addressed by collecting multi-source data (i.e., regions with various contextual conditions) from residents with different profiles.

Third, 24.14% of research applied PLS-SEM aimed at using this approach as a technique to develop theory (e.g. Ali et al., 2019). A reality check on the claim of PLS-SEM functionality for theory development is hence required. As grounded theory is recognised as a well-established qualitative approach for theory development (Patten & Newhart, 2017), this study calls for a clarification on how PLS-SEM—as a quantitative analytical approach—can contribute to theory development. Indeed, what are the differences between these two approaches for theory development? This study contends that such assertions (i.e. PLS-SEM is a method for theory development) may mislead junior researchers to incautiously develop and test a conceptual model with poor (or no) theoretical underpinnings. As an editor and

reviewer, I have handled and reviewed some manuscripts that mainly reference misleading information, and fail to develop a theoretically-sound model. Due to a lack of theory, researchers are either confused about the cause-effect role of factors and the flow of the conceptual model (namely, the sequence—e.g., cognitive stimulus → affective stimulus → behaviours), or end up with many rejected hypotheses. Using irrelevant theory can yield the same outcome. For example, one study that had developed a structural model based on social exchange theory had to ultimately drop 18 hypotheses from the model due to either non-significant results or model fitness issues (Gursoy & Rutherford, 2004). The present study argues that using relevant theories (e.g., the collaboration theory and distributive or restorative justice theory) and analytical approaches which satisfy the study's objective (e.g., the net effect of the predictors on the outcome) can provide more accurate results about residents' behaviours toward tourism development.

The fourth objection relates to the name 'structural equation modelling'. According to the Oxford dictionary, 'structure' is defined as 'the state of being well organized or planned with all the parts linked together; a careful plan', while 'structural' means 'connected with the way in which something is built or organized' (Oxford English Dictionary, 2020). This point may seem pedantic, but a review of tourism and hospitality studies using SEM shows that R^2—an indicator of the predictive power of the model—varies from .07 (Altinay et al., 2019) to .41 (Rasoolimanesh et al., 2015). This means that factors used to craft the structure of a model can explain 7 to 41% of the variation of the model's given outcomes. That percentage could increase if either more factors, or more effective factors, were added into the model. Nonetheless, it is less likely that a model produces R^2 over .9 (90%). Due to the complexity of this social phenomena, it is not realistic that researchers could identify, measure, and include all outcome predictors into a structural model. If they do so, there is no guarantee that software can run such a complex model. To this end, it is not the fault of researchers who make significant efforts to develop implications according to SEM results, but this may mislead practitioners that are supposed to rely on a structure demonstrating incomplete insight into a phenomenon. In other words, the present study argues that with so-called 'structural' equation modelling, we are overselling a building with no roof or walls to the potential beneficiaries. Nonetheless, this study acknowledges that the functionality of SEM in testing models involves

mediation factors. By all means, mediation hypotheses aim at investigating a sequence (e.g., X → M → Y) that can be considered a structure and can be investigated using SEM.

To summarise: this study appreciates the merits of SEM as a technique enabling the inclusion of formative and reflective constructs along with observed variables and measurement models into the model, as well as providing a rigorous factor analysis for measurement model testing (Hair et al., 2013). Furthermore, SEM software (e.g., PLS-SEM and AMOS) are more user-friendly and efficient, especially in the case of complex models (Sarstedt et al., 2020). Nonetheless, the primary objective of a cause-effect analysis is the investigation of the net effect of the independent variable (X) on the dependent variable (Y). The ontological position of the quantitative paradigm is based on the objectivity and generalisability of the research. Therefore, rather being method-driven, positivist researchers should use analytical approaches as a means of addressing the research objectives. It is worth noting that one tourism researcher was keen to use a new version of a statistical package because it was considered a trendy approach; their rationale was '*I should run the model using this technique as now all using this*'. Using the correct analytical approach and appropriate package should be based on reasonable criteria such as 1) meeting the research objective, 2) fitting the data and design of the research, 3) calculating accurate, reliable, and valid outputs, 4) having the knowledge and skills to conduct the analysis and interpretation of the results, and 5) accessing the resources (having availability to the package licence). This study recommends 10 steps for ensuring common good practices when conducting a symmetrical approach, outlined in Table 5.

A recent study by Ryan (2020) provides a series of suggestions for reviewers assigned to review manuscripts using SEM. He recommends that the reviewer should check the source of the scale items and the adaptation process (a copy of the survey should be available), the details of the data and methods (e.g., date of data collection, target groups, sampling techniques, justification of sample size), and the descriptive statistics (i.e., the means, standard deviation, and normality tests).

Place Table 5 here

4.2. Methodological innovations

This study argues that results from a symmetrical analysis are necessary but insufficient to develop policy implications based on a comprehensive view of residents' behaviours towards sustainable tourism development. A series of complementary analytical approaches should be conducted to deepen the understanding of the complex interactions between predictors of the residents' perceptions and behaviours. The fsQCA is a set-theoretic technique that explores recipes for predicting residents' support for sustainable tourism development (Olya & Gavylian, 2017). The symmetrical analysis (e.g., SEM/SRA) and fsQCA show the net effect of predictors and solutions for predicting the residents' support for sustainable tourism development, respectively. Nonetheless, the necessary predictors (those factors whose outcome is less likely to occur in their absence) are unknown. This is the first empirical study that uses an analysis of the necessary conditions to identify the necessary predictors of residents' behaviour toward tourism development.

Residents' behaviours toward sustainable tourism development in each destination or tourist attraction are highly related to their geographical location. For example, residents that are living near to the tourist attraction or heritage site may rate the socio-economic and environmental impacts of tourism development differently. For example, Alipour et al. (2017) have used a geographical information system (GIS) to show the spatial variation of environmental impacts of religious tourism from the residents' perceptions. As the residents' preferences and expectations may change by location and time (Olya et al. 2018), a spatial-temporal analysis of tourism's impacts can help prioritise plans for sustainable tourism development (Olya et al., 2019a). Similarly, Bayesian spatial modelling can demonstrate the variation of residents' viewpoints and predict their behavioural changes based on their vicinity to the attraction or heritage site (Shaddick et al., 2013).

A majority of the quantitative research on residents' attitude toward tourism mainly focuses on self-reported data obtained from surveys that are subject to various types of common method biases (Olya et al., 2020a). Furthermore, model testing results are based on residents' perceptions or intentions—which might be different from their actual behaviours. The intention-behaviour gap among residents related to an event (Lee et al., 2014) and pro-environmental practice (Echegaray & Hansstein, 2017) have been identified. One solution to address this gap is to measure the actual behaviours of residents associated with tourism development initiatives, using an experimental research design in which residents have the

opportunity to evaluate actual or projected scenarios on tourism development initiatives. The difference in the estimation method is also recommended to measure the actual impacts of implementing an intervention or policy on residents' behaviours toward tourism development (Romero, 2009).

As sustainable development of tourism with the involvement of residents is a complex social phenomenon, soft computing techniques such as fuzzy cognitive maps contribute to tackling the complexity of the residents' behavioural modelling (Olazabal, & Pascual, 2016). The application of a fuzzy-set-based model enables the translation of linguistic terms expressed by residents to numerical data—a key step in conducting advanced modelling of residents' behaviours (Olya & Alipour, 2015). Artificial intelligence and neural network analyses are recommended for modelling the behaviours of residents (Olya & Alipour, 2015). Data from real cases can be obtained and used for machine learning to predict future behaviours of residents towards sustainable tourism development. Future research on modelling residents' behaviours towards sustainable tourism could follow innovative mixed- and multi-method approaches (e.g., social design for the visualization of tourism planning outcomes, data mining, eye-tracking technology, LEGO Serious Play)—a recent proposal in a special issue of the International Journal of Contemporary Hospitality Management (Olya et al., 2020c).

4.3. Theoretical advances

Tourism development and residents' perceptions thereof are among the well-studied research areas in the tourism field. Social exchange theory is frequently used to explain the residents' perceptions and responses towards tourism development. However, there is a need for theoretical advances through both applying different theories and pruning theory to tackle the complexity of tourism development from the lens of stakeholders (including residents). In this vein, Olya and Gavilyan (2017) have argued that social exchange theory is unable to explain the connections of residents' perceptions with their behaviours towards tourism development. This is in line with Boley et al. (2014, p. 36), who have referred to McGehee and Andereck's (2004) critique characterising social exchange theory "as harbouring two incorrect assumptions: first, that individuals always make decisions with personal gain in mind as a top priority, and second, residents may think they are making the most prudent choice at the time, but will later come to realize that certain choices were not beneficial. Woosnam et al. (2009) critique SET for treating the relationship between residents and tourists as solely economic and

not including other factors affecting the relationship." Therefore, similar to this research, the application of complexity theory explains the complex behaviours of residents who consider the negative impacts of tourism along with other factors (e.g., personal benefits, positive impacts of tourism, community involvement, and community attachment) and ultimately support tourism development. An alternative theory to the complexity theory is Bronfenbrenner's (1994) ecological systems theory, which includes both factors at individual levels (e.g., demographics and perceived personal benefit) and a wider range of environmental and situational levels (e.g., community attachment, socio-economic impacts) as predictors of residents' behaviours (Kline et al., 2013; Olya et al., 2020b).

As residents can be categorised in various community groups based on different criteria (e.g., jobs), theories that focus on including key actor groups' perspectives should be used to ensure inclusivity and sustainable tourism development. Social identity theory and collaboration theory are examples of theories that can potentially support models that involve views of different community groups (Jamal & Getz, 1995; Olya et al., 2018). In places where there is a lack of interest among community groups, nudge theory can enable those communities to rethink and revisit their outlooks toward tourism development. Nudge theory focuses on re-designing the individuals' thinking systems and generating conditions in which residents instinctively make decisions towards supporting tourism development (Murakami & Tsubokura, 2017). In other words, according to the nudge theory, residents choose to support tourism development as they have been influenced to both include human beings (not just their personal benefit) in their decision-making system and to think about the common interests of broader society (i.e., the sustainability of the social, economic, and ecological impacts of tourism development).

In places where there is a conflict of interest among the community groups, the theory of justice can explain models for mitigating conflict escalation (Rawls, 2009). According to the multilevel distributive justice theory, 'individuals form judgments about the propriety of reward allocations based upon social comparisons across individuals, groups or standards, and that all such comparisons are potential sources for feelings of injustice and justice-restoring behaviors' (Markovsky, 1985, p. 822). Inequalities and injustice cause anti-tourism community groups to emerge. This theory can be used to address socio-economic inequalities—a key barrier against sustainable tourism development.

This study presents a classification of theories on residents' attitude towards tourism development based on two criteria of the level and function of theory (Figure 2). The two levels of theories are pragmatic and syntactic/semantic. In terms of the level of theory, the pragmatic view focuses on observing the attitude and behaviour of residents toward tourism development. By contrast, the syntactic paradigm relies on logical thoughts with a set of assumptions (e.g., number and types of local communities) and semantic viewpoint represents theories that used to explain real-world events (e.g., economic benefits encourage residents to support tourism development). The function of these theories — which connects to the ontological and epistemological assumptions of the research — involves positive and interpretive approaches. In the positivistic approach, reality is objective and can be investigated using deductive methods (e.g., developing and testing hypotheses on social impact has a negative effect on residents' support). In the interpretive approach, reality is to some extent subjective, emphasizing an individual's interpretations of residents' attitudes toward tourism development, and which can be explored through inductive methods.

As illustrated in Figure 2, social exchange theory and social identity theory are recognised as part of the syntactic/semantic and positive class (c.f., Gannon et al., 2020; Olya et al., 2018), while stakeholder theory (Nicholas et al., 2009; Retolaza et al., 2014) and collaboration theory (Jamal & Getz, 1995) represent the syntactic/semantic and interpretive approach. Nudge theory and Justice theory are classified in the pragmatic and interpretive category. To the best of our knowledge, there is no study that uses these two theories to study residents' attitudes toward sustainable tourism development. This study recommends applying these two theories to advance our knowledge on residents' attitudes due to recent changes (e.g., the growth of anti-tourism community groups and social and economic equalities in tourism development) (Alipour et al., 2017 Olya et al., 2019a). The ecological systems theory (Kline et al., 2013), Weber's theory of formal and substantive rationality (Boley et al. 2014; Gannon et al., 2020), and the complexity theory (Olya & Gavilyan, 2017) are three theories that follow the pragmatic and positivistic approach in studies on the attitudes of residents towards tourism development. These theories value the inclusion of multiple factors — ranging from personal (e.g., quality of life and demographics) to external (e.g., social and environmental impacts of tourism) — into the research model. Therefore, the results of model testing provide a comprehensive and accurate insight into residents' attitudes toward tourism development.

To tackle the complexity of resident's support for sustainable tourism development, future research needs to move beyond the syntactic/semantic outlook by using a mixed-method approach to pragmatically study this social complex phenomenon. This study encourages researchers to apply new theories (e.g., the nudge theory and justice theory) to address the socio-economic and environmental challenges of tourism development by involving residents. Future research can contribute to the advancement of theory within the field in three ways: 1. developing new theories using a grounded theory approach; 2. using key theories that match with exploratory research methods (e.g., the complexity theory with fsQCA); and 3. pruning theories and advocating for a rival theory based on the results of empirical studies (i.e., the corroboration/falsification of theory).

Place Figure 2 here

4.4. Pathway to impact

Tourism scholars need to go beyond developing theoretical and managerial implications by ensuring the impacts of their own research outputs. As shown in Figure 3, scholars need to ensure the impacts of their research by developing a logical model that illustrates the sequence of achieving the desired impacts (outputs → outcomes → impacts) (Alvarez et al., 2010). Research articles, book chapters, conference proceedings, workshops, seminars, blogs, social media posts, broadcasts, and a media/press presence are all examples of outputs produced by tourism researchers. According to the theory of change, to secure the practicality of the logical model, key actor groups should be identified and involved in the co-design, co-production, and co-delivery of outputs, outcomes (e.g., support of development and policy or intervention in it), and impacts of the research. The theory of change represents a causal framework illustrating why and how a cause (e.g., research outputs) lead to a desired change (e.g., social impacts) in a particular context (e.g., residents' support for sustainable tourism development).

Researchers need to conduct the stakeholder mapping analysis to develop a matrix of internal and external stakeholders (including local residents, businesses and services, DMOs, governments, NGOs, universities, and research centres) (Olya et al., 2019a). The extent of communication, involvement, and collaboration of key actor groups should be prioritised based on their interests and level of influence. According to the results of the stakeholder mapping analysis, more time, effort, and resources should be allocated to key actor groups to engage the

latter in co-producing the outcomes and outputs (in the form of policies or interventions), as well as co-implementing the impacts. Apart from the power and interests of key actor groups, gender and social equalities should also be considered criteria for involving the actor groups throughout the research project.

Place Figure 3 here

5. Conclusion

This study has contributed to the current knowledge of residents' support for tourism development in several ways. First, this is the first attempt to identify the necessary conditions for residents' support for tourism development. It provides an overview of the most frequent analytical approaches for model testing in the area of residents' attitudes toward sustainable tourism development. Second, four symmetrical analytical approaches have been used to investigate the net effect (sufficiency) of the predictors on residents' support for tourism development. The results of four techniques have been critically assessed. This study raises a red flag with respect to the precarious claims (e.g., a tool for theory development) and critiques (e.g., accuracy of estimator) of PLS-SEM. This study calls for further clarifications on the purpose and functionality of this tool in quantitative research, as it may offer misleading information and inaccurate results. A 10-step guideline for using a symmetrical analysis is presented. In addition to sufficiency and necessity, it has used fsQCA to explore the sufficient combinations of the predictors (i.e., solutions) for high and low scores of residents' support for tourism development. This study argues that each analytical approach (symmetrical and asymmetrical methods) provides different insights into the support for tourism development from residents' viewpoints. In fact, the results of the analytical approaches used in this study are complementary, providing a deeper understanding of sustainable support for tourism development. Third, this study has discussed methodological and theoretical innovations to advance research on residents' support for tourism development. This study proposes a classification of theories on residents' support for tourism development which highlights the importance of a theory-method fit in conducting impactful research. Fourth, drawing upon the theory of change, it develops a logical model demonstrating the pathways to impact. It encourages tourism scholars to focus on the pathways to impact to highlight the significance of research activities in improving tourism's impacts on society.

Olya, H. (2020), Towards Advancing Theory and Methods on Tourism Development from Residents' Perspectives: Developing a Framework on the Pathway to Impact, *Journal of Sustainable Tourism,* Doi: 10.1080/09669582.2020.1843046.

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Table 1. Overview of symmetrical and asymmetrical modelling approaches

Approach	Technique	Definition/purpose	Benefits	Limitations
Symmetrical	SRA	It is a predictive statistical analysis to estimate the effect of one independent variable on a dependent variable.	✓ Assesses the net effect of the independent variable on the dependent variable ✓ Easily Implemented (fairly simple to understand and interpret)	▪ Ignores data error in estimation ▪ Requires a large sample size ▪ Requires normality of data ▪ Excludes the observed variables ▪ Ignores the contrarian cases ▪ Lacks calculation of models for low score of dependent variable
	MRA	It is an extension of SRA to investigate the impacts of two or more independent variables on a dependent variable.	✓ Predicts a more complicated model (effects of more than one variable responsible for a dependent variable)	▪ Ignores data error in estimation ▪ Requires a large sample size ▪ Requires normality of data and residuals ▪ Requires absence of multicollinearity ▪ Excludes the observed variables ▪ Ignores the contrarian cases ▪ Lacks calculation of models for low score of dependent variable
	CB-SEM	It uses a maximum likelihood (ML) estimation method to achieve a good model fit for a complex structural model through reproducing the covariance matrix.	✓ Assesses error in the structural model ✓ Deals with the complex models ✓ Facilitates the assessment of direct, indirect and total effects	▪ Requires a substantially larger sample size ▪ Requires normality of data ▪ Requires absence of multicollinearity ▪ Ignores contrarian cases ▪ Lacks calculation of models for low score of dependent variable
	PLS-SEM	It aims at predicting key target variables or investigating key "driver" variables. It uses a regression-based ordinary least squares (OLS) estimator to minimise the	✓ Uses composites that represent formatively-measured latent factors ✓ Incorporates single-item measures in a structural model ✓ Uses the latent variable scores in subsequent analyses.	▪ Distrusts the accuracy of results based on small sample size ▪ Unreliable on use of correct estimator (OLS) ▪ Doubts the ability of PLS-SEM for theory development ▪ Requires absence of multicollinearity

		error terms and maximise the R^2 of the endogenous variables in a complex structural model.		▪ Ignores the contrarian cases ▪ Lacks calculation of models for low score of dependent variable
Asymmetrical	fsQCA	It is a set-theoretical approach that explore complex combination of the predictors (solution or recipe) explain condition leading to the outcome.	✓ Works efficiently with small, medium and large sample size ✓ Computes multiple solutions to predict the outcome ✓ Includes the contrarian cases in the model testing ✓ Addresses the heterogeneous role of predictors in stimulating the outcome ✓ Calculates solutions for low score of the outcome	▪ Ignores data error in estimation ▪ Excludes the observed variables ▪ Requires prior knowledge to refine the solutions ▪ Requires software development to test the measurement model and mediation effect
	ANC	It aims at identifying necessary predictors to achieve the outcome.	✓ Works efficiently with small to large sample size ✓ Provides pragmatic results for practitioners to know what are the critical conditions to attain the outcome ✓ Calculates necessary conditions for low score of the outcome	▪ Ignores data error in estimation ▪ Excludes the observed variables ▪ Requires software development to test measurement model

Note: CB-SEM: covariance-based structural equation modelling, PLS-SEM: partial-least-squares structural equation modelling, MRA: multiple regression analysis, SRA: simple regression analysis, fsQCA: fuzzy set Qualitative Comparative Analysis; ANC: analysis of necessary conditions.

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Table 2. Results of symmetrical analysis to investigate sufficient predictors

Predictors	**Outcome**: support for tourism development									
	CB-SEM (R^2= .18)		PLS-SEM (R^2=.30)		MRA (R^2= .22)			SRA (R^2= .38)		
	β	*p*	*β*	*t*	*β*	*t*	*p*	*β*	*t*	*p*
Personal benefits of tourism	**.177**	**.005**	**.226**	**1.559**	**.153**	**1.894**	**.060**	**.303**	**4.502**	**.000**
Satisfaction with life quality	.036	.575	.023	.165	.034	.400	.690	.017	.243	.808
Power to influence tourism	**-.131**	**.040**	-.141	.152	-.121	-1.597	.112	.017	.243	.808
Knowledge of tourism	-.096	.132	-.063	.470	-.087	-1.131	.259	.035	.492	.624
Negative tourism impacts	-.082	.196	-.027	.135	-.079	-1.228	.221	-.094	-1.329	.185
Positive tourism impacts	**.222**	**.000**	**.246**	**2.367**	**.220**	**3.166**	**.002**	**.320**	**4.771**	**.000**
Trust in government	-.019	.761	-.066	.881	-.011	-.163	.871	.064	.903	.368
Community involvement	**.242**	**.000**	**.240**	**1.716**	**.241**	**3.269**	**.001**	**.314**	**4.675**	**.000**
Community attachment	.097	.130	.120	.7665	.094	1.298	.196	**.215**	**3.114**	**.002**

Note: CB-SEM: covariance-based structural equation modelling, PLS-SEM: partial-least-squares structural equation modelling, MRA: multiple regression analysis, SRA: simple regression analysis. Bolded values represent sufficient predictors that significantly affect the outcome.

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Table 3. Results of analysis of necessary conditions (ANC)

Antecedent condition	**Outcome**: support for tourism development		**Synthesis of results of SRA and ANC** (sufficiency vs necessity)
	Coverage	Consistency	
Personal benefits of tourism	.882	.201	*Sufficient* but unnecessary
Satisfaction with quality of life	.788	.227	Insufficient and unnecessary
Power to influence tourism	.840	.265	Insufficient and unnecessary
Knowledge of tourism	.809	.297	Insufficient and unnecessary
Negative tourism impacts	.904	**.231**	Insufficient but *necessary*
Positive tourism impacts	.907	**.203**	*Sufficient* and *necessary*
Trust in government	.877	.241	Insufficient and unnecessary
Community involvement	.881	.204	*Sufficient* and unnecessary
Community attachment	.904	**.207**	*Sufficient* and *necessary*

Note: bolded values represent necessary condition (consistency >.09).

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Table 4. The fsQCA results to predict high and low levels of support for tourism development

Solutions for *high* support of tourism development	**Raw coverage**	**Unique coverage**	**Consistency**
S1:stqulf*psim*ngim*cminv*cmatch*pbt*~trgov*knwt	0.326	0.029	0.996
S2: stqulf*psim*cminv*cmatch*pwr*pbt*~trgov*knwt	0.325	0.030	0.994
S3: stqulf*psim*ngim*cminv*cmatch*pwr*pbt*knwt	0.402	0.108	0.995
S4:~stqulf*psim*~ngim*cminv*cmatch*~pwr*pbt*trgov*knwt	0.158	0.180	0.993
Solution coverage: 0.491; *Solution consistency*: 0.992			
Solutions for *low* support of tourism development	**Raw coverage**	**Unique coverage**	**Consistency**
L1: ~cmatch*~trgov	0.734	0.045	0.593
L2: ~psim*~pbt	0.667	0.007	0.715
L3: ~ngim*~pbt	0.617	0.012	0.667
L4: ~stqulf*~cminv	0.728	0.041	0.633
Solution coverage: 0.875; *Solution consistency*: 0.506			

Note: stqulf: satisfaction with quality of life, psim: positive tourism impacts, ngim: negative tourism impacts, cminv: community involvement, cmatch: community attachment, pwr: power to influence tourism, pbt: personal benefits of tourism, trgov: trust in government, knwt: knowledge of tourism. *: and, ~: negation.

Table 5. Common good practices for symmetrical modelling

Step	Description
1. Develop hypotheses and/or model based on solid theory and/or theoretical reasoning	Theory helps researchers to understand how social phenomena behave and how influential factors can be related and/or affected to predict an outcome. 'A theory should be generalizable; in other words, it should apply in a range of specified contexts and settings' (Wilkins et al., 2019. p 4). Ideally, researchers can support the proposed model using an overarching theory. In some cases, researchers employ more than one theory to explain different interactions within the conceptual model.
2. Scanning and screening data	Researchers can scan and screen data to identify 'yea-saying or nay-saying' responses, which indicate cases that have rated the questions carelessly and just responded to all questions with either a 1 or 7 (assuming items are gauged using the 7-Likert scale). These cases can be dropped as they are an indication of acquiescence biases. The next step is treating missing data. To calculate an accurate estimation, cases with more than 15% missing values should be dropped from further analysis (Sarstedt et al., 2017). If the percentage of missing values across the factors used to build the model is less than 5%, they can be treated using replacement techniques such as mean substitution, regression imputation, expectation maximisation, tree imputation, and multiple imputation (Mohd Jamil, 2013; Taheri et al., 2020).
3. Normality of data and linearity of the associations between predictors and outcomes	The Kolmogorov-Smirnov (K-S) and Shapiro-Wilk (S-W) tests identify the normality of data (the results of K-S and S-W should not be significant, which means the data is normally distributed). Moreover, skewness and kurtosis are two measures for a normality check, and values for the normal data should fall within the acceptable range of ±3. The linearity of the linkage predictor and outcome should be assessed before conducting the analytical approaches (e.g., SRA), and linearity is an assumption (Olya and Han, 2020).
4. Existence of contrarian cases	This is important in the contexts in which a minority community (e.g., a pressure group or influencers) can play a key role in sustainable tourism development. If contrarian cases represent the views of key actor groups, the study is less likely to rely on the results of symmetrical analysis (e.g., SEM). This is because it may disregard views of contrarian cases and calculate the results based on ratings obtained from the majority of the sample. This can be checked using Cramer's V test (Olya & Hashemi Nia, 2020).
5. Multi-collinearity issue	In a symmetrical analysis that aims to assess the net effect of independent factors on the dependent factors if two independent factors are highly correlated, the results most likely suffer from a multi-collinearity issue. This can be tested using the variance inflation factor (VIF); the rule of thumb for the VIF value is 5 (Hair et al., 2017) or 10 (Kutner et al., 2005). In interpretations of VIF, O'Brien (2007) has suggested that the influence of other predictors that stimulate the

		stability of the specific estimate of the regression coefficient should be considered in interpretations of multi-collinearity checks. Freund and Wilson (1998) have suggested that the overall fitness of the model (based on R^2) should be taken into account when assessing the multi-collinearity issue.
6.	Common method bias	Common method biases result from common rater effects (e.g., acquiescence bias), item characteristic effects (e.g., item social desirability), item context effects (e.g., context-induced mood) and measurement context effect (collecting data for dependent and independent variables from the same time/location/medium). There is a wider range of procedural and statistical remedies to control common method biases recommended by Podsakoff et al. (2003). Collecting data from different sources, times, and standard processes in the designing of surveys are examples of procedural recommendations for reducing biases caused by measurement context effects. Statistical remedies vary from simple approaches (e.g., Harman's one-factor test) to more advanced techniques (e.g., marker variables) that researchers need to verify, specifically if the data are obtained from a self-reported survey.
7.	Correct analysis and software	This is important to achieve accurate and reliable results for hypothesis testing. For example, the types of regression analysis depend on the number of independent variables, the pattern of the regression line, and the type of dependent variable(s). For instance, a linear regression analysis is used when the link of predictor and outcome is linear and the aim is to investigate the effect of one predictor on the model outcome. MRA is used when the association between the predictor and outcome is linear and the model involves more than one predictor. In MRA, the model outcome should be normally distributed. Probit regression and logistic regression is used when the outcome of the model is binary (i.e., dichotomous). Poison regression is used to test a model with count data. For example, poison regression can be used to predict numbers of tourism businesses and services around heritage sites as an outcome of the model or numbers of jobs created by a series of experiential tourism projects. There are other types of regression analyses that researchers may use based on the aforementioned criteria.
8.	Assessment of results with theory	Much of tourism research's well-described theory—and its application in the theoretical background and hypothesis development sections of the paper—misses the opportunity to examine the statistical results with the theory. This is important in ensuring that the theory fits with the proposed conceptual model (Olya et al., 2019b). Furthermore, it is important to reflect on the justification of using the appropriate analytical approach to test the research objectives. For example, CB-SEM is suitable for 'theory testing, theory confirmation, or comparison of alternative theories', whereas PLS-SEM is

	appropriate for 'predicting key target constructs or identifying key "driver" constructs' (Hair et al., 2011, p. 144).
9. Cautious development of implications	Researchers need to develop implications based on the study results. Some studies may focus on generic suggestions related to study subjects. For example, if a study develops and tests a model that involves social-related factors for sustainable tourism development, the implications should be proposed based on social factors—and not economic and environmental factors, which are not measured and involved in the conceptual model. If researchers believe there is a connection between the social factors with other dimensions of sustainability, they should develop the implications with caution and justify their approach in their recommendation of development. Furthermore, the implications should be insightful, practical, cost-effective, and workable.
10. Acknowledgement of the study's limitations with honesty and integrity	Researchers should follow the code of practice and acknowledge the theoretical and methodological drawbacks of their research. This highlights the significance of conducting research responsibly and sustainably. It is also important to conduct impactful research in a way that policymakers and managers can rely on the research outputs while being aware of the limitations of the study.

Olya, H. (2020), Towards Advancing Theory and Methods on Tourism Development from Residents' Perspectives: Developing a Framework on the Pathway to Impact, *Journal of Sustainable Tourism,* Doi: 10.1080/09669582.2020.1843046.

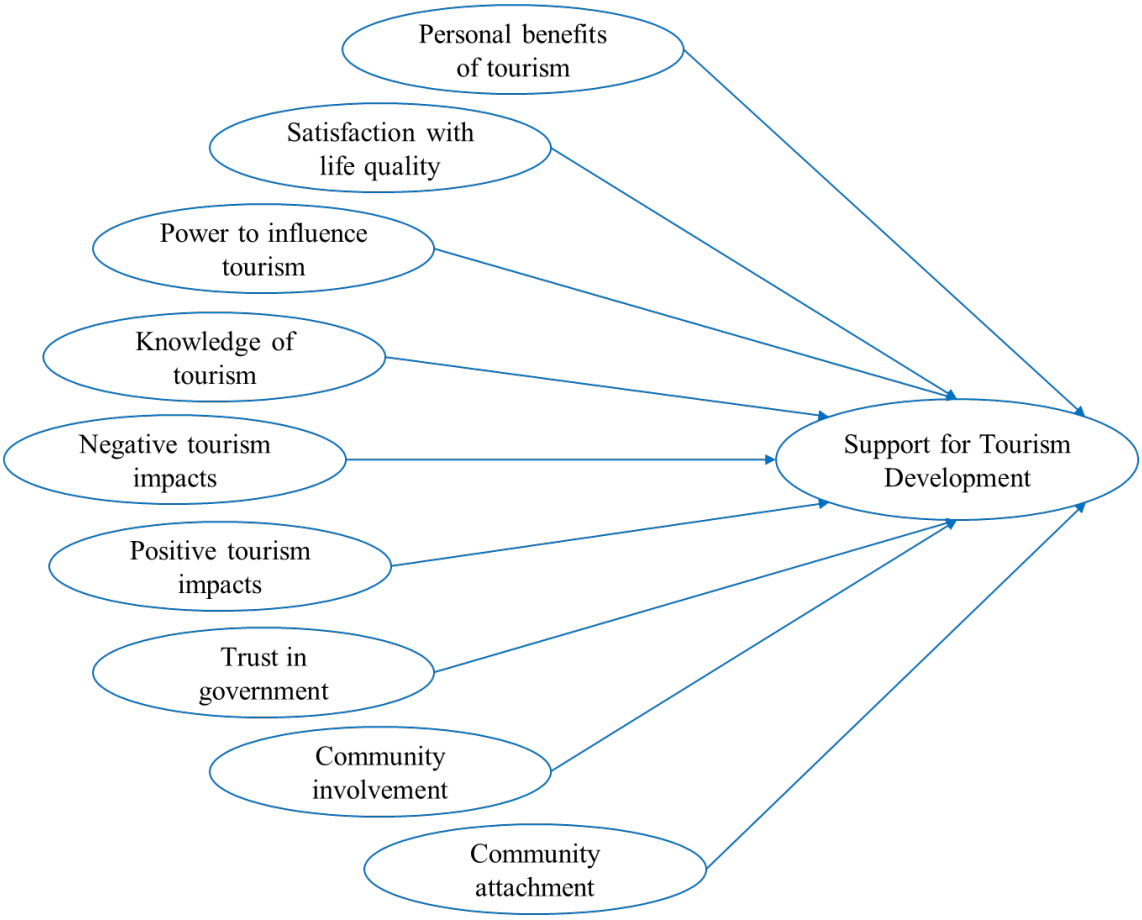

Figure 1. The research model

Olya, H. (2020), Towards Advancing Theory and Methods on Tourism Development from Residents' Perspectives: Developing a Framework on the Pathway to Impact, *Journal of Sustainable Tourism,* Doi: 10.1080/09669582.2020.1843046.

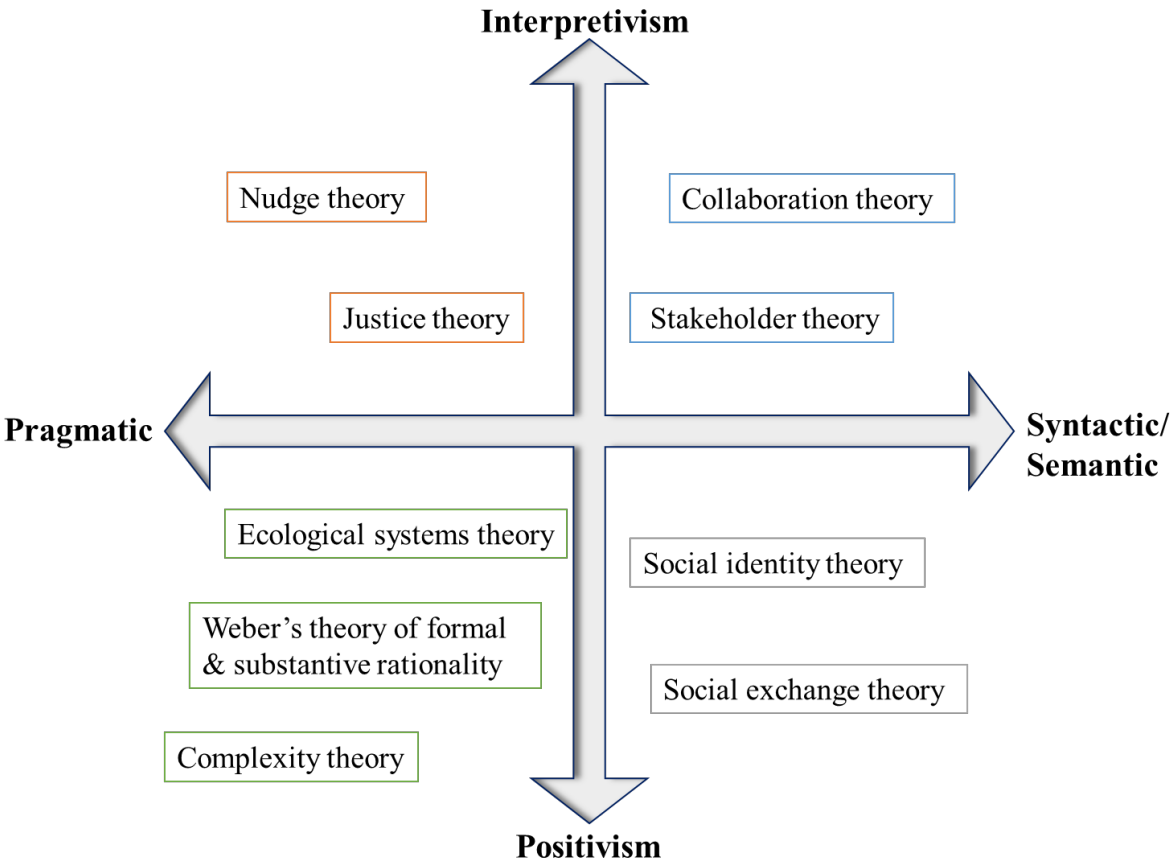

Figure 2. A classification of theories on residents' support for tourism research

Olya, H. (2020), Towards Advancing Theory and Methods on Tourism Development from Residents' Perspectives: Developing a Framework on the Pathway to Impact, *Journal of Sustainable Tourism,* Doi: 10.1080/09669582.2020.1843046.

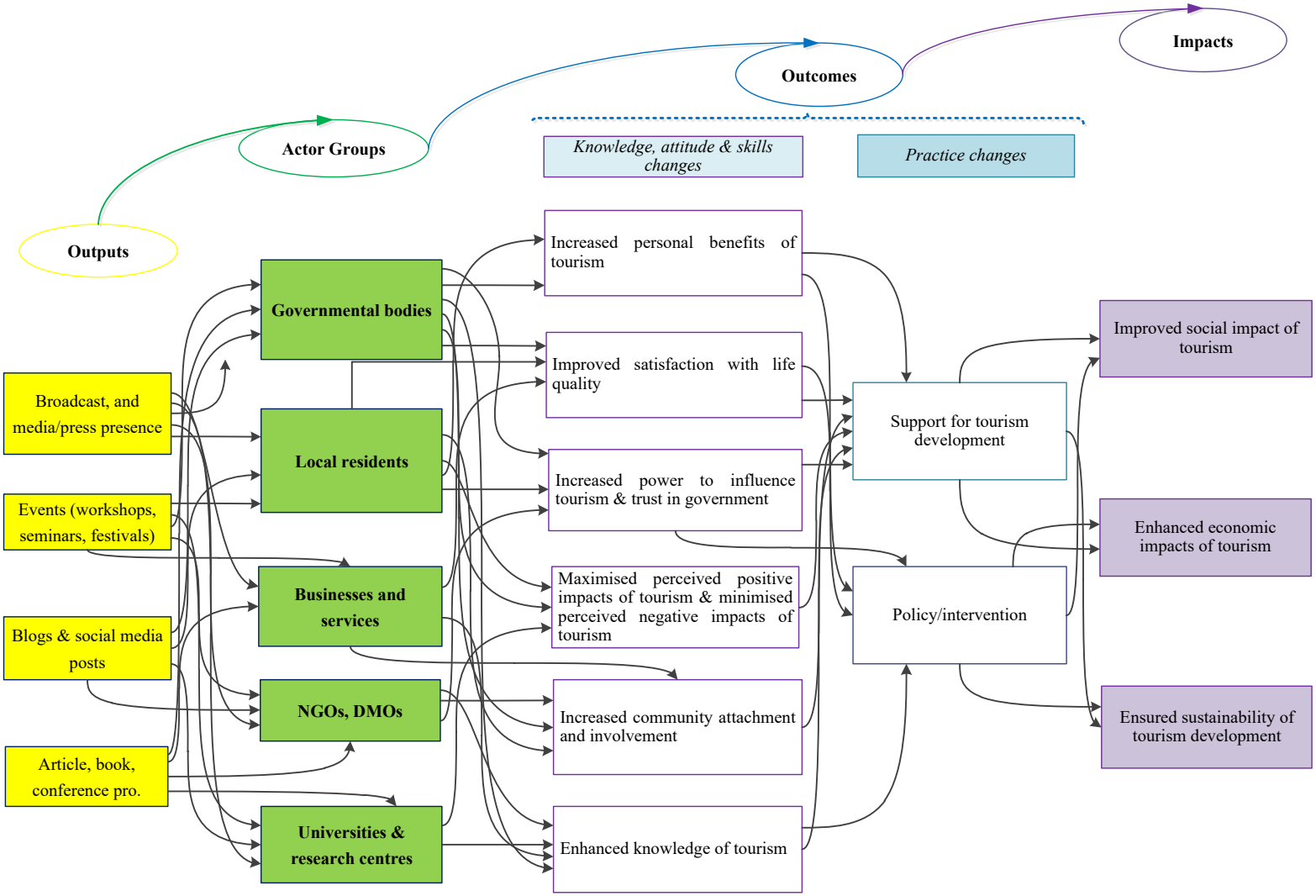

Figure 3. The logical model of the pathway to impact

Olya, H. (2020), Towards Advancing Theory and Methods on Tourism Development from Residents' Perspectives: Developing a Framework on the Pathway to Impact, *Journal of Sustainable Tourism,* Doi: 10.1080/09669582.2020.1843046.

Table A1. Results of normality test

Factors	**Item**	**Normality measures**		**Collinearity statistics**	
		Skewness	*Kurtosis*	*Tolerance*	*VIF*
Support for Tourism Development				0.574	1.742
	Sptd1	-1.899	1.635		
	Sptd2	-1.064	1.219		
	Sptd3	-1.380	1.614		
	Sptd4	-1.605	1.873		
	Sptd5	-1.777	1.400		
	Sptd6	-1.141	1.390		
	Sptd7	-1.547	1.694		
Community attachment				0.684	1.461
	Cmatch1	-0.645	-0.143		
	Cmatch2	-0.982	0.767		
	Cmatch3	-1.041	0.813		
	Cmatch4	-0.851	0.506		
	Cmatch5	-1.060	0.880		
Community involvement				0.510	1.960
	Cminv1	-0.822	0.130		
	Cminv2	-0.981	1.233		
	Cminv3	-0.724	0.019		
	Cminv4	-1.023	0.704		
Power to influence tourism				0.845	1.183
	Pwr1	-0.263	-0.515		
	Pwr2	-0.116	-0.880		
Knowledge of tourism				0.789	1.268
	Knwt1	-0.288	-0.744		
	Knwt2	-0.494	-0.447		
	Knwt3	-0.520	-0.367		
	Knwt4	-0.565	-0.537		
Trust in government				0.946	1.057
	Trgov1	-0.031	-0.954		
	Trgov2	-0.053	-0.773		
	Trgov3	-0.080	-0.879		
	Trgov4	0.083	-0.844		
Positive tourism impacts				0.656	1.524
	Psim1	-0.994	0.503		
	Psim2	-1.074	0.735		
	Psim3	-0.931	0.588		
	Psim4	-1.015	0.086		
Negative tourism impacts				0.692	1.446
	Ngim1	-0.580	-0.712		
	Ngim2	-0.820	-0.366		
	Ngim3	-0.574	-0.396		
	Ngim4	-0.401	-0.596		
Satisfaction with quality of life				0.552	1.810
	Stqulf1	-0.331	-0.927		
	Stqulf2	-0.469	-0.901		
Personal benefits of tourism				0.613	1.631
	Pbt1	-1.196	0.755		
	Pbt2	-0.970	0.271		
	Pbt3	-1.259	0.986		
	Pbt4	-0.847	-0.389		

Note: VIF is the Variance Inflation Factor.

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Table A2. Type of community groups (%) correspondence with the solutions from fsQCA

Solutions	Government-based community	Farmer-based community	Handicraft-based community	Business-based community
S1	21%	21%	26%	32%
S2	10%	15%	25%	50%
S3	15%	10%	25%	50%
S4	-	-	67%	33%
L1	8%	33%	33%	25%
L2	13%	25%	25%	38%
L3	13%	13%	25%	50%
L4	-	25%	42%	33%

Note: Solutions for high resident support (S) and low resident support (L) for tourism development are provided in Table 4. Remark findings: in S1, S2 and S3 cases of business-based community and handicraft-based community are dominant, S4 represents view of handicraft-based community. L1 represents views of farmer-based and handicraft-based community groups. L2 represents perspectives of business-based community followed by handicraft-based community and farmer-based community, L3 also represents the view of business-based community followed by handicraft-based community. However, it equally reflects views of government-based community and farmer-based community. L4 represents views of the handicraft-based community followed by business-based community and farmer-based community.

Bio

Dr. Hossein Olya is a Senior Lecturer in Consumer Behaviour and Director of Research Development for Marketing and CCI at the Sheffield University Management School, The University of Sheffield, United Kingdom (UK). His research has a dual focus: consumer behaviour and tourism marketing with a focus on complexity theory. In the last three years, Dr Olya had over 50 academic publications including 4* and 3* journals with high impact factors. He is currently serving as associate editor of the International Journal of Consumer Studies and as an editorial board member for other peer-reviewed journals such as Journal of Vacation Marketing and International Journal of Contemporary Hospitality Management. He is a regularly invited speaker at many prestigious international conferences in Italy, South Korea, Cyprus, Turkey, Kazakhstan, Africa and the UK.