Understanding post-pandemic travel behaviours – China's Golden Week

Abstract

This study provides a prompt understanding of actual travel behaviours during and after a real time pandemic building on an earlier published study of intended behaviours. Quantitative online survey data gathered during China's first national multi-day holiday - Golden Week (October, 2020) - since the lifting of the country's stringent travel restrictions triggered by the COVID-19 pandemic has allowed for actual post-pandemic travel behaviours to be investigated. The survey carried out for this purpose included decisions in favour or against travel, motivations, means of travel, as well as changes in terms of travel duration, travel distance and spending. A taxonomy is developed for actual tourist behaviours within a post-pandemic domestic tourism context to understand factors influencing these behaviours, including perceived risk, anxiety, trust and financial constraints.

1. Introduction

Travel and tourism have been among the hardest-hit sectors by the COVID-19 pandemic (UNWTO, 2021). In 2020, international tourist arrivals decreased by 72%, returning to levels not seen in 30 years (UNWTO, 2021), though domestic tourism has started a tentative recovery (OECD, 2021; UNWTO, 2021). China, where the COVID-19 outbreak originated, was one of the first countries to bring the pandemic under control (Burki, 2020) to a point whereby domestic tourism has largely returned to pre-COVID-19 levels (UNWTO, 2021). In this context, 1st-8th October 2020 "Golden Week" was effectively China's first multi-day national holiday following on from a long national lockdown with severe restrictions on domestic travel. During this week, 637 million people engaged in domestic tourism (PRC State Council, 2020).

Whilst domestic tourism is staging a tentative recovery, the same cannot be said about the behaviours of those travelling. Recent studies have found that inter-pandemic planned

travel behaviours are likely to change due to heightened perceptions of risk and fear of travel (Kim and Lee, 2020; Li *et al.*, 2020; Zheng *et al.*, 2021; Yu *et al.*, 2021; Volgger *et al.*, 2021). However, this has not been validated yet. In fact, whilst most research relevant to tourist behaviours during or after the pandemic has focused on intentional behaviours (e.g. Li *et al.*, 2020; Isaac & Keijzer, 2021; Xie *et al.*, 2021; Rastegar *et al.*, 2021), there remains a discrepancy between intentions and actual behaviours (Sultan *et al.*, 2020; Lanzini & Khan, 2017). This research note seeks to address this discrepancy by building on an earlier study of intentional behaviours in China at the height of the pandemic in January-February 2020 (Li *et al.*, 2020) and analyse instead actual behaviours in the same geographical context, though with the COVID-19 pandemic largely under control in that country. In order to achieve this, a survey of actual travel behaviours was carried out during China's Golden Week holiday, including decisions in favour or against travel, motivations, means of travel, as well as changes to travel duration, travel distance and spending. Moreover, as research has shown that travellers tend to have differing behaviours and perceptions, this study aims at providing a segmentation based on travellers' perceptions and behaviours, thus delivering a better understanding of these differences leading to an overall taxonomy for post-pandemic domestic travel behaviours. This taxonomy provides a better understanding of factors influencing these behaviours, including perceived risk, anxiety, trust and financial constraints (Reisinger & Mavondo, 2006; Wang *et al.*, 2019).

2. Data and methodology

The data for this study was collected using a self-administrated online questionnaire launched during China's Golden Week holiday. Overall, 667 responses were received, of which 627 were useable questionnaires. The data was then analysed using SPSS.

Following on from this, a cluster analysis was performed on the data to segment the respondents (see methodological details in Appendix). Guided by the EFA results as well as the theoretical framework adopted, 5 cognitive variables were used: Perceived Risk, Trust, Financial Constraints, Motivation, and Anxiety.

Respondents' demographic information was collected in the survey. Those variables provide insights for identifying the distinct features and characteristics of the segments. As a result, the following hypothesis are proposed here:

- Hypothesis 1 (H1) - The segments are significantly different in terms of age.
- Hypothesis 2 (H2) - The segments are significantly different in terms of gender.
- Hypothesis 3 (H3) - The segments are significantly different in terms of household size.
- Hypothesis 4 (H4) - The segments are significantly different in terms of living with dependents.
- Hypothesis 5 (H5) - The segments are significantly different in terms of education level.
- Hypothesis 6 (H6) - The segments are significantly different in terms of household income.

Chi-square tests were adopted to examine the differences amongst the segments identified.

The cognitive variables were examined in One-way Analysis of Variance (ANOVA) amongst the segments in order to identify whether the segments display significant differences in Perceived Risk (H7), Trust (H8), Financial Constraints (H9), Motivation (H10), Anxiety (H11) and Intention to engage domestic travel further (travellers only, H12).

Within this sample, 312 respondents (49.8%) reported engaging in domestic tourism during the Golden Week, whilst the rest (50.2%) decided not to travel. This ratio is broadly in line with what the Chinese government reported – 637 million domestic visitors (44% of China's population) during Golden Week (PRC State Council 2020).

3. Results

A published study of this same population during China's nation-wide lockdown in January-February 2020 (see Li *et al.*, 2020), referred to as "study 1" in Table 1 below, reported a variety of planned travel behaviour intentions using the Theory of Planned Behaviour (TPB) as a theoretical framework. During the lockdown, the modified TPB

model used in study 1 explained 71.9% of variances of post-pandemic travel intentions (Li *et al.*, 2020). Now, although earlier studies have found gaps between intended and actual behaviours within the TPB model, indicating that intentions do not always materialise into actual behaviours (e.g., Sultan *et al.*, 2020; Lanzini & Khan, 2017), none of these studies have ever been carried out in the context of a global pandemic. In line with this, the post-pandemic data gathered in October 2020, shown in Table 1 as "study 2", represents a follow-on from Li *et al.* (2020) and investigated actual post-pandemic travel behaviours in order to address this gap between intended (study 1) versus actual (study 2) travel behaviours in the context of a global pandemic.

Table 1. Demographic analysis of respondents in pre/intra-pandemic survey (study 1) versus post-pandemic survey (study 2) with same population.

	Study 2						Study 1					
	Non-Traveller	%	Traveller	%	F or χ^2 value	P value	Non-Intender	%	Intender	%	χ2 value	P value
Gender					12.77	0.00					1.42	0.23
Male	147	46.7%	190	60.9%			178	61.4%	254	57.0%		
Female	168	53.3%	122	39.1%			112	38.6%	192	43.0%		
Household size					14.26	0.03					10.79	0.10
1	26	8.3%	26	8.3%			23	7.9%	24	5.4%		
2	59	18.7%	89	28.5%			43	14.8%	82	18.4%		
3	90	28.6%	96	30.8%			75	25.9%	142	31.8%		
4	71	22.5%	59	18.9%			66	22.8%	89	20.0%		
5	36	11.4%	23	7.4%			46	15.9%	75	16.8%		
6	22	7.0%	14	4.5%			22	7.6%	20	4.5%		
7 or more	11	3.5%	5	1.6%			15	5.2%	14	3.1%		
Live with dependent					2.41	0.12					0.34	0.56
No	136	43.2%	154	49.4%			116	40.0%	188	42.2%		
Yes	179	56.8%	158	50.6%			174	60.0%	258	57.8%		
Age					22.34	0.02					9.64	0.47
18 and under	14	4.4%	5	1.6%			9	3.1%	9	2.0%		
18-24	73	23.2%	59	18.9%			16	5.5%	9	2.0%		
25-29	59	18.7%	64	20.5%			80	27.6%	125	28.0%		
30-34	50	15.9%	50	16.0%			65	22.4%	99	22.2%		
35-39	40	12.7%	57	18.3%			51	17.6%	88	19.7%		
40-44	23	7.3%	37	11.9%			20	6.9%	32	7.2%		
45-49	36	11.4%	20	6.4%			16	5.5%	22	4.9%		
50-54	9	2.9%	9	2.9%			16	5.5%	28	6.3%		
55-59	5	1.6%	3	1.0%			11	3.8%	17	3.8%		
60-64	2	0.6%	5	1.6%			5	1.7%	14	3.1%		
65-69	0	0.0%	2	0.6%			1	0.3%	3	0.7%		
70+	4	1.3%	1	0.3%			0	0.0%	0	0.0%		
Education					20.36	0.00					34.32	0.00
Junior high school or under	27	8.6%	5	1.6%			25	8.6%	13	2.9%		
Senior high school	52	16.5%	46	14.7%			76	26.2%	86	19.3%		
College	75	23.8%	63	20.2%			70	24.1%	115	25.8%		
University degree	120	38.1%	146	46.8%			103	35.5%	155	34.8%		
Master or above	41	13.0%	52	16.7%			16	5.5%	77	17.3%		
Income					19.15	0.00					24.49	0.00
Under 30k	41	15.4%	20	7.1%			49	19.3%	56	14.2%		
30-80k	73	27.3%	59	20.8%			85	33.5%	89	22.6%		
80-150k	89	33.3%	99	35.0%			73	28.7%	118	29.9%		
150-800k	56	21.0%	88	31.1%			45	17.7%	112	28.4%		
800k-2m	6	2.2%	13	4.6%			2	0.8%	17	4.3%		
More than 2m	2	0.7%	4	1.4%			0	0.0%	2	0.5%		
Cognitive												
Financial Constraints	3.45	19.8%	3.92	23.0%	30.46	0.00						
Trust	3.84	22.0%	4.14	24.3%	19.18	0.00						
Anxiety	3.20	18.4%	2.45	14.4%	65.41	0.00						
Motivation	3.84	22.0%	4.16	24.4%	25.41	0.00						
Perceived Risk	3.09	17.7%	2.36	13.9%	74.40	0.00						

Whilst 60.6% of respondents stated that they intended on travelling once the COVID-19 outbreak was brought under control with 39.4% deciding against travel (study 1), only 49.8% actually ended up engaging in travel several months later during the Golden Week

holiday (study 2). In this respect, levels of Educational attainment (χ^2 =34.32 p<0.05) and Household income (χ^2 =24.49 p<0.05) were the most important variables in study 1 to distinguish travel respondents intent on travelling from those with no plans to travel. Study 2 echoed this finding: travellers and non-travellers were significantly different with regards to their education (χ^2 =20.36 p<0.05) and household income (χ^2 =19.15 p<0.05). Gender was also a major factor – only 42.1% of female respondents travelled (study 2) versus the 63.2% who expressed this intention originally (study 1). Also, 36% of all travellers (study 2) were respondents from smaller households (1-2 people) compared to 23.8% expressing an intention to travel (study 1). Age was also important, with only 4.0% of those under the age of 25 intending on travelling (study 1), whilst paradoxically this group accounted for 20.5% of actual travellers (study 2). Similarly, whilst 45.8% of people planned to reduce the duration of their next long holiday (study 1), only 27.6% actually did so (study 2). Also, only 31.4% of respondents reduced their travel distance and 25.0% reduced their spending. These differences between planned and actual behaviours, which were expected within the TPB framework, could be explained by the travel craving concept investigated by Mitev & Irimiás (2020), though further research is required to gain a better understanding of the factors involved in this process.

In terms of transport (see Table 2), private car travel experienced a rise from 41.2% of respondents intending on using their car (study 1) to 53.2% of them actually using it (study 2). Public transport use declined compared to inter-pandemic intentions. Air travel also dropped from 28.2% (intention) to 13.1% (actual behaviour). These differences between intended and actual use of modes of transport may have been influenced by physical distancing requirements and a general tendency to avoid crowded places (WHO, 2021).

Table 2. Intra-pandemic versus post-pandemic travel behaviour comparison.

	Actual behaviour before the pandemic (study 1)	Intention during the lockdown (study 1)	Actual behaviour post pandemic (study 2)
Rail/Bullet train	38.5%	25.4%	26.6%
Aeroplane	28.5%	28.2%	13.1%
Car	25.4%	41.2%	53.2%
Coach	7.1%	4.3%	6.7%
Ferry	0.5%	0.9%	0.3%

In order to investigate further the actual post-pandemic behaviours sought by study 2, a taxonomy of post-pandemic domestic tourist behaviours was developed from a two-step cluster analysis, which delivered a 3-cluster solution (see Table 3). ANOVA and Chi square analyses were also used to explore the characteristics of these 3 clusters, including cluster 1 (anxious ponderers), cluster 2 (laid back travellers) and cluster 3 (young free spirits). The test of significance amongst the three clusters showed the hypotheses outlined earlier were partially supported, where Age (H1, $p<0.05$), Living with dependents (H4, $p<0.05$), Education level (H5, $p<0.05$), and Household Income (H6, $p<0.05$) with Perceived Risk (H7, $p<0.05$), Trust (H8, $p<0.05$), Financial Constraints (H9, $p<0.05$), Motivation (H10, $p<0.05$), Anxiety (H11, $p<0.05$), and Intention to engage domestic travel further (travellers only, H12, $p<0.05$). On the other hand, Gender (H2, $p=0.67$) and Household size (H3, $p=0.90$) showed no difference across the three clusters.

These clusters displayed distinctive demographic characteristics and travel behaviours, where anxious ponderers (cluster 1) were mostly non-travellers with the highest level of anxiety and perceived risk. On the other hand, laid-back travellers (cluster 2) had the highest level of travel motivation. However, the youngest cluster - i.e., young free spirits (cluster 3) - and arguably the most valuable segment for tourism recovery, did not report any changes in travel spending as well as distances travelled. A more detailed discussion on the characteristics and behaviours of these clusters as well as a direct comparison are provided below.

Table 3. Cluster characteristics

Clusters	Cluster 1 - Anxious Ponderers	Cluster 2 - Laid back travellers	Cluster 3 – Young free spirits	F or $\chi 2$ value	p-value
Gender				0.81	0.67
Male	77	135	125		
Female	70	106	114		
Household size				18.94	0.90
1	16	21	15		
2	27	62	59		
3	42	77	67		
4	28	51	51		
5	22	17	20		
6	7	11	18		

7 or more	5	2	9		
Live with dependent				7.15	0.03
No	70	96	124		
Yes	77	145	115		
Age				53.17	0.00
18 and under	6	2	11		
18-24	33	45	54		
25-29	34	31	58		
30-34	32	32	36		
35-39	12	55	30		
40-44	14	27	19		
45-49	10	27	19		
50-54	4	11	3		
55-59	1	3	4		
60-64	0	6	1		
65-69	0	1	1		
70+	1	1	3		
Education				28.12	0.00
Junior high school or under	12	6	14		
Senior high school	36	26	36		
College	34	50	54		
University degree	52	111	103		
Master or above	13	48	32		
Income				55.72	0.00
Under 30k	22	9	30		
30-80k	38	31	63		
80-150k	40	83	65		
150-800k	29	79	36		
800k-2m	0	10	9		
More than 2m	0	2	4		
Cognitive					
Financial Constraints	4.00	4.35	2.83	199.87	0.00
Trust	4.17	4.47	3.39	133.16	0.00
Anxiety	4.42	4.34	3.39	163.62	0.00
Motivation	4.04	1.92	2.72	354.28	0.00
Perceived Risk	4.34	1.99	2.75	369.27	0.00
Intention					
INT 1 domestic holiday again	4.17	4.46	3.65	24.43	0.00
INT 2 (rev) reduce frequency	2.37	3.92	3.30	32.71	0.00
INT 3 domestic holiday even oversea travel is open	4.49	4.34	3.65	13.21	0.00
Behaviour					
Non-Traveller	106	62	147	98.19	0.00
Traveller	41	179	92		
Duration not reduced	25	137	64	4.58	0.10
Duration reduced	16	42	28		

Spending not reduced	31	128	75	3.26	0.20
Spending reduced	10	51	17		
Travel distance not reduced	27	123	64	0.18	0.91
Travel distance reduced	14	56	28		

Cluster 1 (anxious ponderers) consisted of 147 respondents (23.4% of total sample). This cluster contained the greatest proportion of non-travellers (72.1%), but interestingly it demonstrated the strongest motivation to travel (4.42) among the three clusters. At the same time, this cluster showed a high level of anxiety related to travel (4.34), perceived a high level of risk (4.04), though with a relatively high level of trust in public authorities. Despite this, this cohort perceived a low level of financial constraint for taking holiday (4.00), with 47% of respondents' annual household income in this cohort lower than 80k RMB. Also, notably more than half of the respondents in this cohort did not hold tertiary education qualifications, with the lowest average education attainment level in the three clusters.

Cluster 2 (laid back travellers) was the largest cohort (38.4% of total sample) and the most valuable segment for analysing post-pandemic tourism recovery. This cohort demonstrated the lowest levels of anxiety (1.99) and perceived the lowest risk (1.92) of all three cohorts. Yet, individuals in this cluster had high levels of travel motivation (4.34), they trusted public authorities (4.47) and displayed low levels of financial constraint (4.35). A significant number of respondents in this segment were between 30 and 39 years of age (36.1%) and most lived with a dependent (60.2%). By comparison, this age group represented less than 30% of the population in the other two segments. Notably the average education level in this segment was very high, with 66.0% of individuals in this cohort holding a university degree. Also, only 18.7% reported an annual household income less than 80k. A large proportion of this segment was represented by what has been referred to as China's "post-80s generation", born during the country's contested One Child policy. This cohort enjoyed better education opportunities and living standards than earlier generations due in part to a national reforms to China's economy and education (Cheng & Foley, 2018). This segment had the largest proportion of travellers (74.3%). They also took longer holidays, with only 23.5% reducing the duration of their holiday. However, 28.5% of travellers in this segment reported spending less money compared to

the previous (pre-pandemic) long holiday. This proportion is higher than travellers from other segments, despite a low level of significance.

Cluster 3 (young free spirits) included 239 respondents (38.1% of total sample). This cluster showed the lowest levels of trust in public authorities (3.39) and the lowest motivation for post-pandemic travel (3.39). Similarly, they displayed the highest perception levels of financial constraints (2.83) of all three clusters. However, this was offset by relatively low levels of anxiety (2.75) and low perceptions of risk (2.72). The profile of this cohort is among the youngest across all three clusters, with 51% younger than 30 years of age. Crucially, more than half (52%) of respondents in this segment did not live with dependents. Although the average education level was lower than for cluster 2, this may be due to this group's younger age. As many as 44.9% reported an income level that was lower than 80k per annum, which would explain this segment's high level of perceived financial constraints. Despite this, of those who decided to travel, 81.5% reported not spending less than during their last (pre-pandemic) long holiday, which represented the highest proportion among all three clusters. Also, 69.6% of travellers from this segment claimed they did not reduce their travel distance compared to their previous long holiday – a proportion also higher than the other two clusters.

4. Discussion and conclusions

This taxonomy is not the only one developed in the context of the current COVID-19 pandemic. Neuburger and Egger (2020) have provided segmentation of travellers in Europe, also based on travellers' perceptions and behaviours. However, as a result of different samples, contexts - i.e., China versus Europe - and scales, a comparison of clusters between the taxonomy developed here and that of Neuburger and Egger (2020)'s might not be valid and meaningful. Nonetheless, it is worth noting that while the anxious group in Neuburger and Egger (2020) accounted for 65% of their sample, our anxious ponderers were less than 23.4% of the sample. This could be explained by the fact that Neuburger and Egger's (2020) study was conducted in Europe at the beginning of the pandemic (March, 2020), whereas the one outlined here was carried out in China at a later stage, when the pandemic was largely under control. This suggests that different contexts and stages of a crisis are likely to yield disparate findings. In line with this, similar

segmentations should be developed in other contexts and at different stages of this on-going crisis in order to provide a more comprehensive taxonomy of actual behaviours. Additionally, the current study only provided a data-driven segmentation, which is based on travellers' perceptions and behaviours, and thus may not include all the significant segments. Other methods of segmentations, such as based on demographic characteristics of age, gender, income, etc., are recommended for future studies to provide a more comprehensive assessment of segments and their differences.

All in all, the issues affecting our understanding of the gap between intended behaviours versus actual ones remain a complex field of inquiry likely to attract attention from tourism scholars in the future (Zopiatis *et al.*, 2021). This is perhaps particularly pertinent to the effects of global pandemics on tourism, particularly given our still deficient understanding of the pathogen's mutation and contagion mechanisms. It also remains to be established to what extent these gaps in our scientific knowledge about the virus may affect society's level of trust in government advice, which would account for some variances between inter-pandemic travel intentions and actual post-pandemic behaviours. Inevitably, the implications of these knowledge gaps for policy making in tourism and beyond are considerable at a time when post-pandemic economic recovery is a priority for most countries.

This study was conducted in a single context. It took place in China in October 2020, at a stage when the COVID-19 pandemic was largely under control, even if the pandemic continued to affect most other countries around world. While this context provides a valuable and early example of post-pandemic travel, its geographical focus may limit the generalization of its findings elsewhere. Future studies on other contexts where and when the pandemic is brought under control are highly recommended and comparisons made would provide a more comprehensive understanding of the taxonomy proposed here as well as the intention-behaviour gap. Similarly, research on international travel behaviours would also contribute significantly to this area of knowledge. Finally, as the samples in the two compared studies are not the same, this is not a true longitudinal research. Therefore, the comparison could not provide the statistical significance of the differences and thus may have limited explanatory power to the intention - behaviour gap. Future studies with longitudinal approach would provide a more realistic conclusion on this gap.

5. References

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