International Tourism Consumption

And Its Economic Impact On Destinations:

Evidence From Chinese Outbound Tourists

by

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I. Introduction

Travel & Tourism has become one of the most influential sectors for the global economy with its large scale and rapid growth. According to World Travel & Tourism Council[1], in 2017, the sector contributed a total of US$8.3 trillion to the global economy, which is equal to 10.4% of the world's GDP. Meanwhile, global tourism has grown by $1.7 billion dollars over the past seven years with a growth rate of 4% per year. Looking from a global perspective, it is definitely a sector drives economic gains and job opportunities. However, when taking closer look on country-specific level data for measures like travel and tourism direct contribution to GDP[2], we can see the magnitude of contribution varies so differently from country to country. While there are natural differences in countries' competitive advantages for tourism sector, we want to find out whether fundamentally it could bring economic benefits to the local economy. In this paper, we examine the impact of tourism consumption specifically on locals' consumption and labor market using an empirical case study on Chinese outbound tourism. We make the focus on international tourism and intend to show whether the effects would be different for different types of countries.

Even though differences on natural and cultural resources make tourism sector complicated to utilize with a general principle, government all over the world have tried hard to develop their own strategies, especially for developing countries, as they can take full advantage of those resources by tourism specification. For example, Mexico tries to promote their own

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[1] "Power & Performance Rankings." WTTC. Accessed May 10, 2019. https://www.wttc.org/publications/2018/power-and-performance/.

[2]Source:https://tcdata360.worldbank.org/indicators/tot.direct.gdp?country=BRA&indicator=24650&viz=line_chart&years=1995,2028

kinds of medical tourism and United Arab Emirates brand on Dubai's luxury shopping. Unlike a lot of other sectors (i.e. agriculture or manufacturing), tourism is a more service kind sector which doesn't rely much on high industrialization or technology to increase productivity. Those features, align with other factors like low price level and less restrictions on Visa policy, bring comparative advantages for developing countries, which a lot of them have already leveraged on to gain economic benefits. Poverty alleviation could be one of the positive impacts--"just last year China announced it will move 12 million people out of poverty through tourism development programs that will provide jobs to more people in rural areas.[3]"

However, it is theoretically unclear whether the aggregate effect of international tourism on local economy is positive. The first way to understand the problem is through endogenous growth theory, which suggests two main factors, scale and productivity, to link with economic growth. Intuitively, international tourism brings direct revenues to local economy through receipts. Therefore the scale of those travel related sectors would expand and bring economic gains. However, connecting with productivity in general, if the expansion of those sectors use resources--for example, labor and capital resources, from other sectors that would ultimately be more beneficial, the aggregate effect would then be negative. Some literature would argue that services specialization would drag productivity growth[4] since tourism is not a high efficient sector related to high technology, while others propose that some services could act as intermediate goods which help the aggregate productivity growth rate to rise rather than fall.[5] It

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[3] World Travel & Tourism Council and World Travel & Tourism Council, "5 Ways Tourism Can Support Local Economies," Medium, July 21, 2017, , accessed May 10, 2019, https://medium.com/@WTTC/5-ways-tourism-can-support-local-economies-8cc8ded47370.

[4] Baumol, William. "Macroeconomics of Unbalanced Growth: The Anatomy of Urban Crisis." *American Economic Review* 57 (1967): 415-26.

[5] Oulton, Nicholas. "Must the Growth Rate Decline?: Baumol's Unbalanced Growth Revisited." *Oxford Economic Papers*53 (2001): 605-27.

is inconclusive which category tourism sector should fall into. Our paper, by looking at non-tourism related consumption of international travellers, might help propose a possible way to examine whether tourism serve more as a "final product" or an "intermediate product".

Another way to interpret the positive and negative effect is from the perspective of demand and supply. "International tourism as an individual consumption, from the economic point of view, can be differentiated from the domestic consumption and be shown as special economic category of the final demand.[6]" The local non-tradable goods or services like a meal in the restaurant or a fee to the taxi driver can now be considered as tradable due to tourism. Therefore, when international tourists consume in the host countries, we would expect an increase of demand for those travel related goods and services. People nowadays spend more and more--"Over the past seven years, international visitor spend has increased by $323 billion, a rate of 4.1% per year"[7]. Meanwhile, it is also true that tourism consumptions are nowadays not only restricted to only tourism related sectors. There are strong patterns showing that the consumptions could spill over to other goods and services. However, when looking at the supply correspondingly, it is possible that some host countries will run short of certain supplies at least in a short period of time. Then two potential outcome for them to satisfy those needs would be 1) resources reallocation from other sectors, which we already discussed in the last paragraph. 2) import from other countries, which could be leakages that reduce the economic impact of

[6] Kote, Dhonat. "The Tourism Consumption, a Special Economic Category of the Final Demand in Albania and in the Countries of the Region." CORE. January 01, 1970. Accessed May 10, 2019. https://core.ac.uk/display/44487581.
[7] "Power & Performance Rankings." WTTC. Accessed May 10, 2019.

tourism. Research finds that this effect seems to be "especially important in the case of small islands"[8].

Both approaches indicate that tourism specification is unique, which makes empirical research rather complicated to product. Eilat and Einav argues that the most important 'factors of production' for tourism are unique and hard to quantify or measure.[9] In addressing this question, Arezki, Cherif, and Piotrowski introduce an instrument for tourism based on the UNESCO World Heritage List and find a positive relationship between the tourism receipts (as a share of exports) and economic growth.[10] McGregor and Wills use natural experiments – surf breaks – to identify the contribution of natural amenity to economic growth.[11] Another challenge lies in the "lack of statistical sources for analysing tourism from a macroeconomic standpoint"[12]. This is due to the fact that "the character of the industry that, unlike most cases, is defined from the demand side"[13]. Our paper well address this issue by using a dataset supported by Union Pay that provides Chinese outbound consumption value in very specific categories.

The main findings of our paper suggest a overall positive relationship between local economy and tourist consumption, which is the opposite of Faber and Gaubert's results. They did an empirical case study on Mexico and finds that "tourism leads to greater local manufacturing,

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[8] "Impact of Tourism Consumption on GDP. The Role of Imports." Accessed May 10, 2019. https://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID504505_code114544.pdf?abstractid=504505&mirid=1.
[9] Eilat, Yair, and Liran Einav. "Determinants of International Tourism: A Three-dimensional Panel Data Analysis." *Applied Economics* 36, no. 12 (2004): 1315-327.
[10] Piotrowski, John M., Rabah Arezki, and Reda Cherif. "Tourism Specialization and Economic Development L4183: Evidence from the UNESCO World Heritage List." *IMF Working Papers* 09, no. 176 (2009): 1. doi:10.5089/9781451873238.001.
[11] Mcgregor, Thomas, and Samuel Wills. "Surfing a Wave of Economic Growth." *SSRN Electronic Journal*, 2017. doi:10.2139/ssrn.2955476.
[12] "Impact of Tourism Consumption on GDP. The Role of Imports." Accessed May 10, 2019. https://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID504505_code114544.pdf?abstractid=504505&mirid=1.
[13] Ibid.

but is largely offset by reductions in agglomeration economies among less touristic regions."[14] We also find that the relationship is stronger for countries that are highly industrialized, which contributes to the literature by focusing on different country patterns. Our results is similar with the research of Sequeiraa and Nunes, where they find "tourism is a positive determinant of economic growth both in a broad sample of countries and in a sample of poor countries" and "[it] is not more relevant in small countries than in a general sample"[15]. However, we conduct the research under a more complicated globalization setting, which could potentially be more beneficial for countries nowadays when it comes to policy insights.

Our paper proceeds as follows. Section II describes our sample and data . Section III outlines our econometric framework and results. Section IV concludes.

II. Data Sample & Variables

A. Sample Selection and Variable Description

The dataset this paper uses contains data of two parts, one is consumption data for Chinese tourists and the other is macroeconomic data of countries. For consumption data, we choose Chinese tourists as our sample group, which is based on their strong purchasing power and specific consumption pattern. For example, in 2017, the top three categories of expenses by Chinese tourists are shopping (25%), hotel accommodations (19%) and dining (16%); and Chinese tourists spent an average of USD 762 per person towards shopping each trip while

[14] Faber, Benjamin, and Cecile Gaubert. "Tourism and Economic Development: Evidence from Mexicos Coastline." 2016. doi:10.3386/w22300.
[15] Sequeira, Tiago Neves, and Paulo Maçãs Nunes. "Does Tourism Influence Economic Growth? A Dynamic Panel Data Approach." *Applied Economics* 40, no. 18 (2008): 2431-441.

non-Chinese tourists averaged USD 486.[16] What's more, it is also fast developing, which is parallel to the growing pattern of international tourism. Data shows that "China's T&T has grown over three times more than any other country over the last seven years"[17]. The unique dataset we use is the overseas credit and debit card transaction dataset provided by China UnionPay. Founded in 2002, China UnionPay is an association for China's banking card industry and plays as the major card scheme in mainland China. Since then, it quickly expanded globally in terms of size and network. According to UnionPay International, by the end of 2017, UnionPay acceptance network has expanded to 168 countries and regions, covering over 51 million merchants and 2.57 million ATMs. Those facts prove that "UnionPay cards have become a major payment option for daily consumption and cross-border travel of customers in many countries and regions.[18]" Besides that, it is also the only interbank payment network in China and the only agencies for RMB clearing and settlement approved by People's bank of China (the central bank of China). This means that as long as the consumers use a card issued by a (mainland) Chinese bank, all of its overseas card transactions would be captured in our dataset.

We use all the bankcard transactions happened in 156 countries from January of 2011 to April of 2018. We aggregate the value and volume of those transactions to country-month level and also on merchant categories--which depends on the specific industry that each merchant operate within, resulting a total of 267 merchant categories.There are 275,790 observations in total, and each observation records the year, month, value, volume, country and merchant

[16] According to a report, "Outbound Chinese Tourism and Consumption Trends", conducted by Nielsen Holdings company, which is a global performance management company that provides a comprehensive understanding of what consumers want and buy.
[17] "Power & Performance Rankings." WTTC. Accessed May 10, 2019. https://www.wttc.org/publications/2018/power-and-performance/.
[18]"UnionPay Holds All the Cards - Chinadaily.com.cn." Accessed May 10, 2019. https://global.chinadaily.com.cn/a/201812/24/WS5c203e9fa3107d4c3a002655.html.

category. In order to match with the macroeconomy measures, we later aggregate further to quarter level.

We examine two types of consumption for tourism, namely, travel-related consumption and non-travel related consumption. We define the former one as the type of consumption that satisfies minimum travelling needs, which intuitively includes accommodation, transportation, food, travel-related entertainment and shopping. Shopping here only includes consumption of convenience goods, which is described as "those consumers' goods which the customer usually purchases frequently, immediately, and with the minimum of effort" by the Definitions Committee of the American Marketing Association[19] in 1948. One of the most related examples in our case is grocery shopping. Other two types of consumer goods, namely shopping goods and specialty goods[20], fall into the categories of non-travel related consumption. Examples for each could be clothes and jewelry. One thing to notice is that we do not include atm transactions in our dataset as we can not specify which categories the consumption falls into.

This leads to the disadvantage of our data--we can't measure cash expenditure of tourists as we only have transactions over debit or credit cards. We also can't track how much is spent by consumers travelled in group through Chinese travel agencies, as their money are paid to agencies in RMB, which would be considered as domestic transactions. In order to check whether the value we get is meaningful and whether the classification is reasonable, we compare

[19] "Report of the Definitions Committee." *Journal of Marketing*13, no. 2 (1948): 202.

[20] Shopping goods are defined as "those consumers' goods which the customer in the process of selection and purchase characteristically compares on such bases as suitably, quality, price and style. Specialty goods are defined as "those consumers' goods on which a significant group of buyers characteristically insists and for which they are willing to make a special purchasing effort. Notice that the boundary of those classifications are not strictly defined but allows variations for different individuals. The general classification we are following depends upon the way in which the average or typical Chinese tourists purchase.

with data provided by authorities. According to data from the World Bank[21], Chinese tourists in total spent over $265.3 billion in 2017. If multiply this value by the average currency exchange rate of that year (6.89, also from the World Bank), we get a number of 1827.917 billion RMB. Compare with the total value of card transactions we get from UnionPay, 590.4 billion RMB, our data are likely to capture a considerable proportion of actual spending.

We also construct a variable called travel_over_nontravel ratio[22] to indicate how different tourist consumption patterns. We later will use this variable to generate graphs and divide subgroups.

For the other part of the dataset, we mainly use the global economy[23] as macroeconomic measures for the destinations. We focus on four variables: *Househod_consumption*, which is the market value of all goods and services, including durable products, purchased by households, in dollar values; *Consumption_growth*, which is the percent change in *Household_consumption* from the same quarter last year; *Economic_growth*, which is the percent change in the Gross Domestic Product from the same quarter last year using constant prices; and *Unemployment_rate*, which is the share of the labor force that is without work but available for and seeking employment. Even though the global economy cover most countries, the measures are all very broad terms. In that case, we add an OECD dataset[24] for further division in employment. The two variables we are focusing on are *EmploymentRate_age1*-- the number of employed people of 15-24 year-olds as a percentage of the total number of people in that age

[21]Source:https://tcdata360.worldbank.org/indicators/hb26ef750?country=BRA&indicator=24685&viz=line_chart&years=1995,2028

[22] travel_over_nontravel ratio=log(travel related consumption+1) - log(non-travel related consumption+1). We calculated the ratio in this way instead of simply taking fraction so that we can capture countries that might have zero value for the denominator.

[23] Source: https://www.theglobaleconomy.com/

[24] Source: https://data.oecd.org/

group; and *Unemploymentrate_youth*--the number of unemployed 15-24 year-olds expressed as a percentage of the youth labour force.

B. Summary Statistics and Trend Graphs

We summarize the key variables for both consumption data and macroeconomic measures in the Table I.

Table I. Consumption variables with macroeconomy measures

	Obs.	mean	sd	median	min	p25	p75	max
value	3328	1.26E+09	4.59E+09	1.17E+07	1.09	714173.9	2.05E+08	5.28E+10
travel_value	3328	3.99E+08	1.66E+09	5244936	0	297517	5.43E+07	2.31E+10
nontravel_value	3328	6.20E+08	2.30E+09	347082.8	0	0	7.72E+07	3.05E+10
nontravel_over_travel	3328	-4.266335	6.951935	-2.452605	-20.66861	-10.62023	0.4073679	19.54979
Household_consumption	1646	155.1244	408.0822	48.52215	0.1626196	17.80952	140.8826	3442.28
Consumption_growth	1656	6.430441	7.942915	4.38	-14.92	2.42	8.27	86.74
Economic_growth	2123	3.342881	3.413122	3.1	-14.15	1.5	5.18	29.26
Unemployment_rate	1671	7.530991	5.223586	6.333333	0.1	4.23	9.376667	27.86667
EmploymentRate_age1	844	39.24134	15.39294	40.96659	11.595	25.2712	51.26619	79.1232
Unemploymentrate_youth	800	19.83365	12.59885	15.7202	4.4	10.68058	23.94151	59.27732

We can see that the consumption level data are highly skewed. The means in general are much larger than the medians. Average total Chinese outbound expenditure is around 126 billion RMB, among which average travel related expenditures is 40 billion RMB and average non-travel related expenditures is 62 billion RMB. Even though it is almost double the value of travel related expenditures, the median for non-travel related expenditures is much smaller, suggesting that this variable is even more skewed than the others. This is in line with our assumption that people could go to certain kinds of countries only for travelling while they could go to others for shopping or other needs.

In order to further understand different country patterns, we generate histograms for top or bottom countries in those values. Figure 1 shows the top 10% countries in monthly average consumption value. We can see a clear pattern that countries in the top are either Asian countries,

which are geographically close to China, or developed countries, among which a lot are rich European countries like France, Switzerland, Germany etc.

Fig.1 Top countries for monthly average value

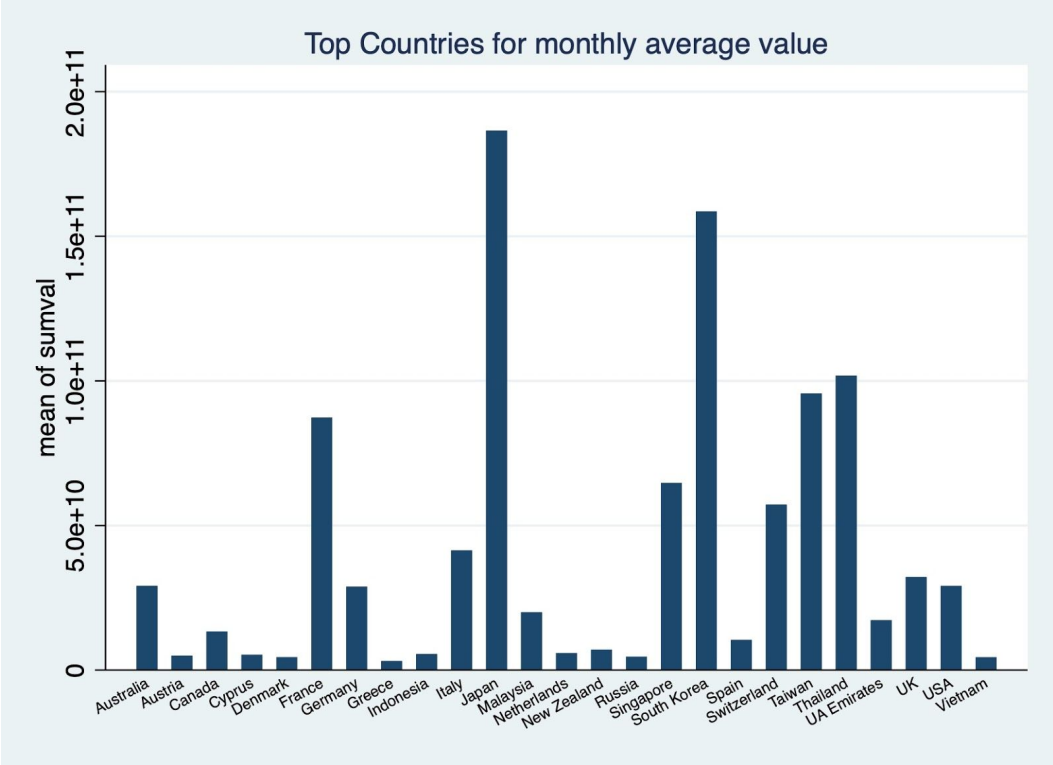
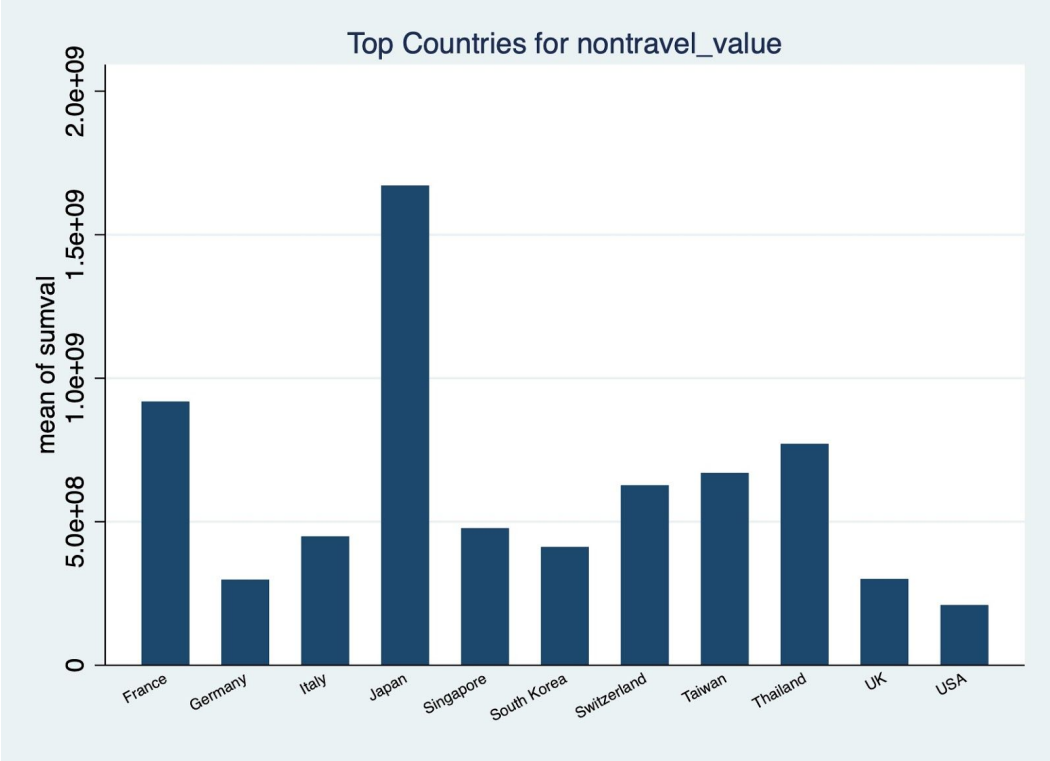


Figure 2 and 3 show the top countries for non-travel related consumption and travel-related consumption correspondingly. Results are both in line with the pattern we see from Figure 1 with only slight differences: Australia and Spain replace the positions of France and Germany in travel related consumptions. For Australia, the reason it shows up in top travel consumption countries might be the language. As its official language is English, it is easier for Chinese tourists to have independent trips instead of going with travel groups. For Spain, “it is a prime

example of a country whose transition to the ranks of the newly industrialising nations followed the path of a decline in agriculture and rise in tourism and construction activities.[25]"

Fig. 2 Top countries for non-travel related consumption



[25] Sinclair, M.T. and Bote Gomez, V, 1996, 'Tourism, the Spanish Economy and the Balance of Payments', in M. Barke, M. Newton and J. Towner (eds.), Tourism in Spain: Critical Perspectives, Wallingford: C.A.B. International.

Fig.3 Top countries for travel related consumption

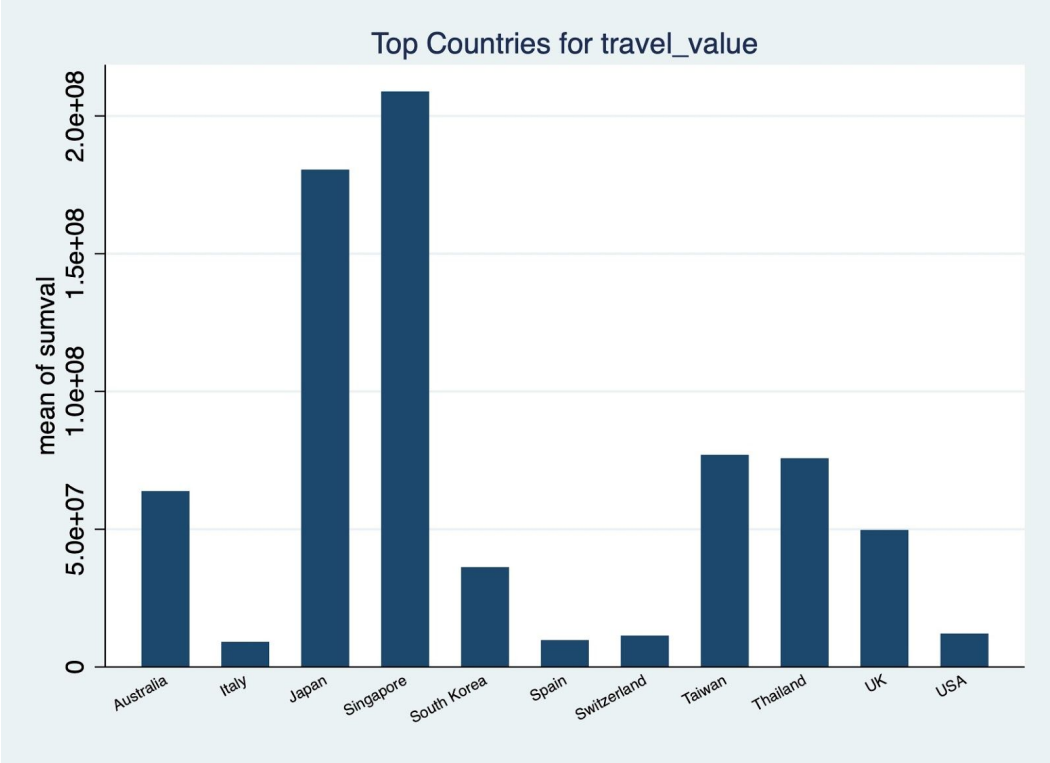


Fig.4.1 Top countries for travel_over_nontravel ratio

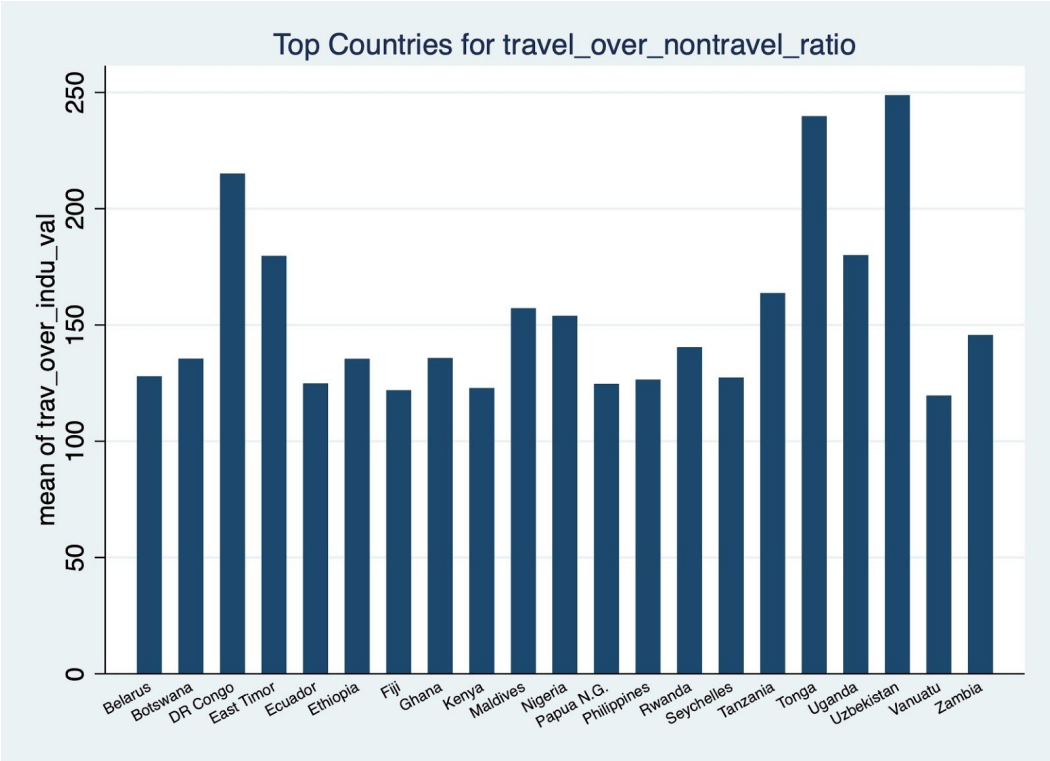


Fig.4.2 Bottom countries for travel_over_nontravel ratio

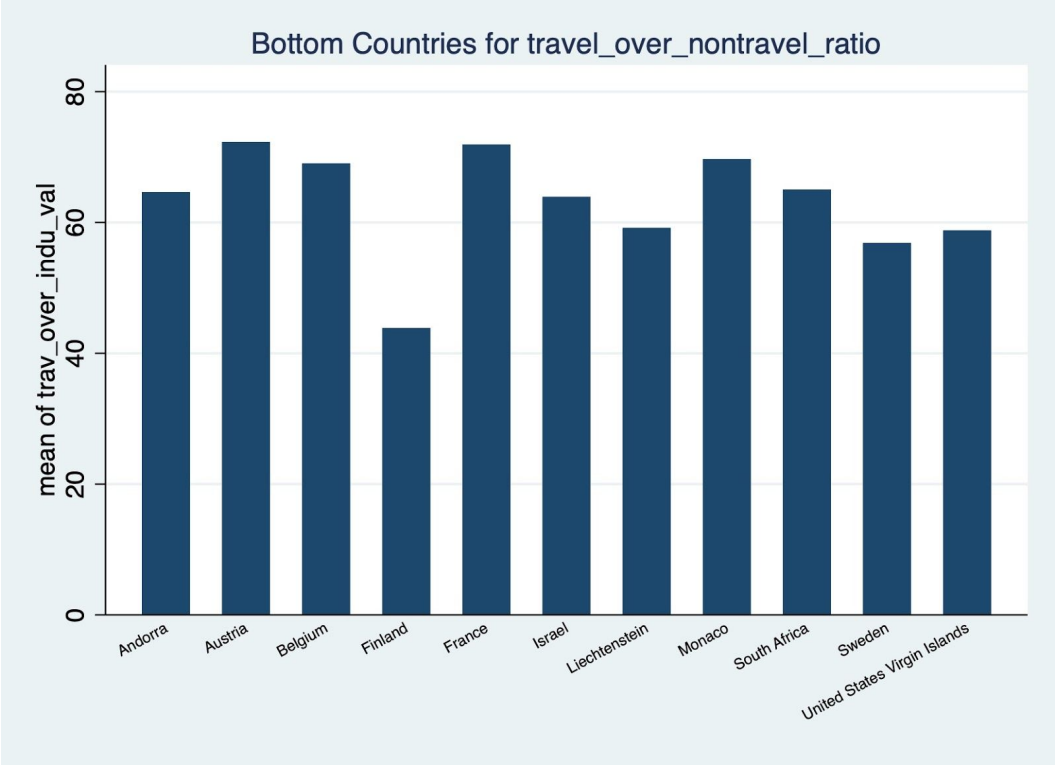
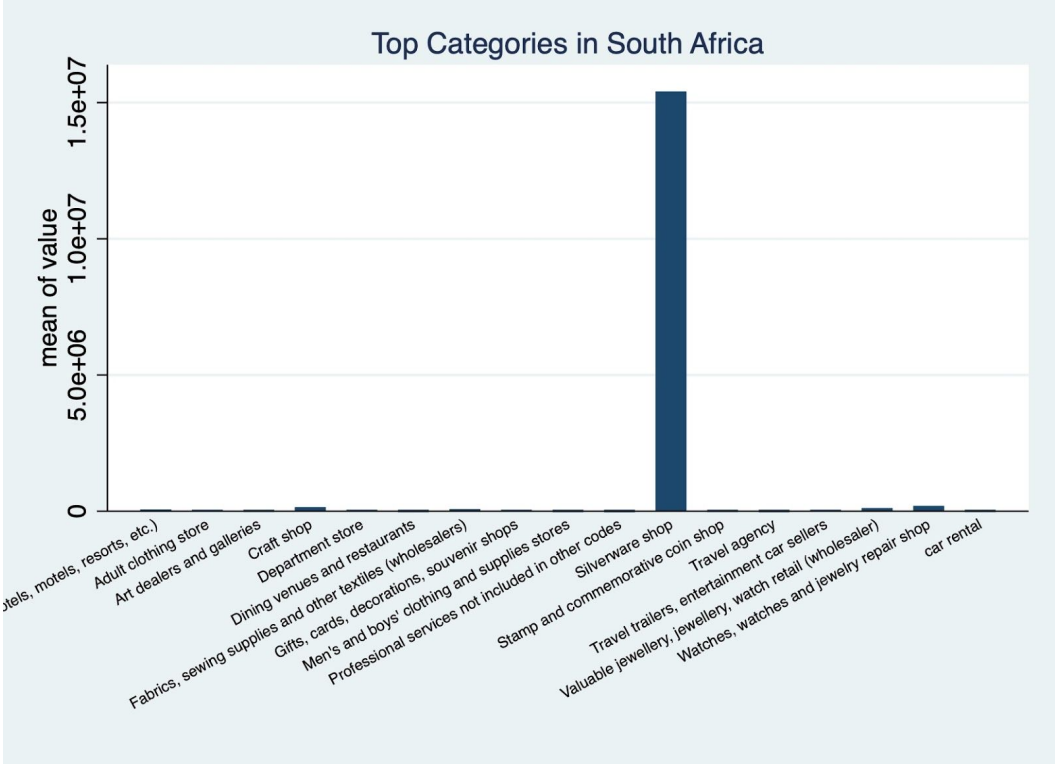


Figure 4.1 and 4.2 presents top and bottom countries for travel_over_nontravel ratio. As for the top countries, we find that most of them are developed countries in Africa, except for Fiji, Maldives and Philippines--which are well-known tourism places. Since those countries' economy rely mostly on their tourism industry, it makes sense for them to have a strong consumption pattern in the travel sector. For the bottom countries, we find that almost all of them are developed countries in Europe. The exception is South Africa, which is a country famous for diamond production. Since diamonds are very expensive in value, it is reasonable for the country to fall into the bottom categories. Figure 5, which shows the top categories in consumption for South Africa, supports our analysis. In general, we see a pattern that international tourists tend to consume more non-travel related products and services in developed countries.

Fig. 5 Top consumption categories in South Africa



III. Empirical Results

In this section, we examine the relationship between international tourism consumption and local economy using a panel fixed effect regression for the full global economy sample, a subsample of countries with high and low nontravel_over_travel ratio, a subsample of developed and developing countries and for the OECD countries.

1. Baseline Specification

We conduct an empirical analysis on the quarter aggregate level for the year that starts from January 2011 and ends in April 2018. In order to capture the difference effect of travel related consumption and non-travel related consumption, we take both values as the independent variables. Taking into account that the markets need some time to react, we use lagged term for

both independent variables. And we regress them on macroeconomy measures (would take logarithm if in dollar value) to analyze elasticity. We employ a panel fixed effect model as in Equation (1).

$$Y_{i,t} = \beta_0 + \beta_1 \log(nontravel\_value_{i,t-1}) + \beta_2 \log(travel\_value_{i,t-1}) + \alpha_i + \alpha_t + \varepsilon_{i,t} \quad (1)$$

where $Y_{i,t}$ is the macroeconomy measures. We take the log value for household consumption as it is the only one in dollar value. For all other measures that are ratios--consumption growth, economic growth and unemployment rate, we directly take them as the dependent variable. $log(nontravel\_value_{i,t-1})$ is the logarithm of lagged one quarter non-travel related consumption value. Similarly, $log(travel\_value_{i,t-1})$ is the logarithm of lagged one quarter travel related consumption value. α_i is an unobserved year quarter fixed effect and α_t is an unobserved country fixed effect. $\varepsilon_{i,t}$ is the error term. To address concerns about auto-correlated error terms for the same country over time, we cluster all standard errors at the country level.

The results are presented in Table II. Columns (1) and (2) shows that 1% increase in travel related consumption would make the local household consumption decrease by roughly 0.003%, even though the percentage change in household consumption from the same quarter last year is increased by 0.0016%. The opposite direction suggests that even though travel consumption in general helps the household consumption grow, at least in short-term it squeezes out the local household consumptions. One possible explanation for this effect is the change of price level. When the demands for certain products go up because of international tourists, the price could also go up if we assume the short-term supplies are stable, which then make the local people consume less. Column (3) shows that 1% increase in travel related consumption would increase the economy growth by 0.0024%, suggesting a positive correlation between the GDP

growth and international tourism in general. Column (4) shows that both travel related consumption and non travel related consumption would drive the unemployment rate down by roughly 0.001% but the former one has a slightly larger effect.

Table II. Consumption value regress on global economy measures

Dep. Var	(1) Household_consumption	(2) Consumption_growth	(3) Economic_growth	(4) Unemployment_rate
nontra_val	-0.00136	-0.0722	-0.0109	-0.0738**
	(0.00209)	(0.0780)	(0.0394)	(0.0328)
tra_val	-0.00284*	0.164**	0.236**	-0.104*
	(0.00155)	(0.0785)	(0.0934)	(0.0585)
(constant)	3.859***	6.752***	1.144	10.28***
	(0.0333)	(1.553)	(1.492)	(0.843)
Time FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Obs.	1583	1591	2043	1608
R-sq	0.997	0.598	0.537	0.948

Standard errors in parentheses
* p<0.10 ** p<0.05 *** p<0.01"

2. *Subsample with high/low nontravel_over_travel ratio*

In order to further analyze different effects for different consumption types, we divide the sample into two subgroups using a dummy variable indicating whether the nontravel_over_travel ratio for the observation is above or below average during the same time period. The results for both high ratio group and low ratio group are presented in Table II.a and Table II.b correspondingly.

Table II.a Regress in subsample with high nontra_over_tra ratio

Dep. Var	(1) Household_consumption	(2) Consumption_growth	(3) Economic_growth	(4) Unemployment_rate
nontra_val	-0.00187	0.0424	0.0728	-0.0873***
	(0.00270)	(0.0772)	(0.0854)	(0.0290)
tra_val	-0.00225	0.183***	0.222*	-0.0888
	(0.00153)	(0.0688)	(0.111)	(0.0682)
(constant)	4.119***	3.445**	-0.832	10.26***
	(0.0393)	(1.593)	(2.066)	(1.010)
Time FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Obs.	1178	1169	1247	1238
R-sq	0.998	0.667	0.538	0.954

Standard errors in parentheses
* p<0.10 ** p<0.05 *** p<0.01"

Table II.b Regress in subsample with low nontra_over_tra ratio

Dep. Var	(1) Household_consumption	(2) Consumption_growth	(3) Economic_growth	(4) Unemployment_rate
nontra_val	-0.00321	-0.168	-0.0292	-0.0218
	(0.00299)	(0.137)	(0.0438)	(0.0314)
tra_val	-0.00258	-0.583	0.0458	-0.109*
	(0.00562)	(0.592)	(0.0873)	(0.0589)
(constant)	3.051***	22.51**	5.899***	9.945***
	(0.0940)	(8.678)	(1.655)	(0.986)
Time FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Obs.	405	422	796	370
R-sq	0.996	0.551	0.557	0.968

Standard errors in parentheses
* p<0.10 ** p<0.05 *** p<0.01"

We find that results for the low ratio group are less significant in general than the results in the high ratio group. The relationship between international tourism consumption and local household consumption are inconclusive for both groups. From Column (2) and (3) we can see that both consumption growth and economy growth are now only positive correlated with the travel related consumption for the high group, suggesting that international tourism are more beneficial to the local economy when tourists consume more non-travel related goods or

services. This effect is further proved by the results for unemployment rate in Column (4). For the high ratio group, 1 % increase in non-travel related consumption leads to 0.00087% drop in unemployment rate. For the low ratio group, 1 % increase in travel related consumption leads to 0.001% drop in unemployment rate.

3. *Subsample with developed/developing countries*[26]

In the previous section we showed through graphs that countries who have high nontravel_over_travel ratio are mostly developed countries given their comparative advantage in manufacturing and industrial production. In order to see whether these analysis is in line with our previous results, we run the regression on the subsample with developed countries and the rest countries. The results are presented in Table III.a and III.b.

[26] According to World Population Review, "a developed country is defined as a country that have a developed economy and advanced tech infrastructure when compared to other nations. Typically, a developed country is designated by look at several factors, including the gross national product, gross domestic product, per capita income, industrialization level, standard of living, and infrastructure." The 31 developed countries are: Australia, Austria, Belgium, Canada, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Slovenia, South Korea, Spain, Sweden, Singapore, Switzerland, Turkey, United Kingdom, United States. Source: http://worldpopulationreview.com/countries/developed-countries/

Table III.a Consumption value regress on global economy measures for developed countries

Dep. Var	(1) Household_consumption	(2) Consumption_growth	(3) Economic_growth	(4) Unemployment_rate
nontra_val	-0.00110	0.158***	0.196**	-0.0926**
	(0.00411)	(0.0570)	(0.0770)	(0.0328)
tra_val	-0.00212	0.0928	0.231*	-0.0834
	(0.00188)	(0.0555)	(0.119)	(0.0585)
(constant)	4.440***	0.179	-4.448**	10.89***
	(0.0605)	(1.093)	(1.853)	(1.231)
Time FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Obs.	798	797	799	810
R-sq	0.998	0.732	0.557	0.948

Standard errors in parentheses
* p<0.10 ** p<0.05 *** p<0.01"

Table III.b Consumption value regress on global economy measures for developing countries

Dep. Var	(1) Household_consumption	(2) Consumption_growth	(3) Economic_growth	(4) Unemployment_rate
nontra_val	-0.00287	-0.00114	-0.000909	-0.0906**
	(0.00260)	(0.107)	(0.0423)	(0.0394)
tra_val	-0.000369	-0.212	0.00592	-0.110*
	(0.00276)	(0.258)	(0.0553)	(0.0436)
(constant)	3.208***	16.63***	6.743**	9.957***
	(0.0569)	(4.227)	(1.204)	(0.668)
Time FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Obs.	785	794	1244	798
R-sq	0.996	0.527	0.5532	0.954

Standard errors in parentheses
* p<0.10 ** p<0.05 *** p<0.01"

In general, the effects for non-travel related consumption become stronger as they now become significant to interpret. Column (2) and Column (3) shows that 1 % increase in non-travel related consumption leads to roughly 0.002% increase in both consumption growth and economic growth and it leads to 0.00092% drop in unemployment rate. Compared with results for developing countries presented in Table III.a, we find that the results for unemployment rate still hold while the positive effect for general economy growth and

consumption growth disappear. Those results suggest that developed countries, compared with developing countries, have more economic gains from the international tourism because of their attractiveness in non-travel related consumptions.

4. OECD countries with unemployment rate on youth

Given the fact that the global economy measures are too general and broad, we use the OECD datasets for detailed interpretation, with a special focus on youth employment (the age group from 15-24). We perform a similar subgroup strategy in Section III.2, which is to divide the group by a nontravel_over_travel ratio. The results are presented in Table IV.a and IV.b.

Table IV.a subsample with high nontra_over_tra ratio

Dep. Var	(1) EmploymentRate_age1	(2) Unemploymentrate_youth
nontra_val	-1.68e-10	3.81e-10
	(1.39e-10)	(2.35e-10)
tra_val	4.87e-10**	-7.05e-10*
	(2.03e-10)	(3.66e-10)
(constant)	38.14***	21.54***
	(0.696)	(0.879)
Time FE	Yes	Yes
Country FE	Yes	Yes
Obs.	462	442
R-sq	0.991	0.973

Standard errors in parentheses
* p<0.10 ** p<0.05 *** p<0.01"

Table IV.b subsample with low nontra_over_tra ratio

Dep. Var	(1) EmploymentRate_age1	(2) Unemploymentrate_youth
nontra_val	2.72e-10	-4.08e-10
	(2.34e-10)	(2.61e-10)
tra_val	-5.08e-10	1.14e-09*
	(5.21e-10)	(5.79e-10)
(constant)	0.28***	16.52***
	(1.074)	(0753)
Time FE	Yes	Yes
Country FE	Yes	Yes
Obs.	324	299
R-sq	0.882	0.827

Standard errors in parentheses
* p<0.10 ** p<0.05 *** p<0.01"

Column (2) shows that travel related consumption would decrease the youth unemployment rate for the high ratio group but increase the rate for low ratio group. The opposite direction suggests that if a country in general could not attract a lot of non-travel related consumption, the international tourism would actually hurt employment for young people. A possible explanation is that, when international tourism brings substantial consumption on non travel sectors, the employers originally in those related sectors would be stable as they get

balanced benefits compared to travel related sectors. However, when there are more travel related consumptions, it is possible that labor force originally in non-travel related sectors would be attracted by the high benefits or high growth of travel sectors. Considering the fact that young people from 15-24 who are already in the labor force tend to be less skilled and less educated workers, they might not be very competitive in those job markets. And the travel sector won't help absorb these kinds of labor if they already absorb more professional and skilled labor from other sectors.

5. *Robustness Test*

One limitation of our study on Chinese tourism is that this group is only part of international tourism and could be too small to be influential for large economy. In order to test the sensitivity of our results, we perform the baseline model on a sample without top countries of large GDP size[27]. The results, which presented in Table V, are in line with our baseline results.

Table V Consumption value regress on global economy measures without top GDP countries

Dep. Var	(1) Household_consumption	(2) Consumption_growth	(3) Economic_growth	(4) Unemployment_rate
nontra_val	-0.00106	-0.0529	0.00320	-0.0804**
	(0.00211)	(0.0810)	(0.0405)	(0.0328)
tra_val	-0.00289*	0.149*	0.233**	-0.0977*
	(0.00139)	(0.0830)	(0.0950)	(0.0582)
(constant)	3.439***	7.096***	1.354	10.17***
	(0.0351)	(1.522)	(1.489)	(0.808)
Time FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Obs.	1359	1367	1820	1416
R-sq	0.996	0.585	0.517	0.954

Standard errors in parentheses
* p<0.10 ** p<0.05 *** p<0.01"

[27] Countries are ranked by their average GDP value from January of 2011 to April of 2018 using the global economy data. Then we get rid of the top 1% countries, which are USA, UK, Japan, France, Germany, Italy, India and Brazil

IV. Conclusion

This paper examines whether international tourism consumption have positive effects on local economy. We run a panel fixed effect model on Chinese outbound tourism consumption using the unique dataset provided by UnionPay card transactions. In general we find the correlation to be positive. However, the patterns are different for different types of countries. As developed countries have more linkages to other non tourism related sectors, their economy benefit more as tourism consumption have large spillover effects. We also find that the labor market act differently for different countries. Despite the fact that tourism consumption in general help the unemployment rate to drop, the youth labors in developing countries are actually harmed by the expansion of travel sector.

The results suggest a possible explanation for money outflow in developing countries. Research finds that "in Thailand [an] estimated 70% of all money spent by tourists ended up leaving Thailand (via foreign-owned tour operators, airlines, hotels, imported drinks and food, etc.). Estimates for other Third World countries range from 80% in the Caribbean to 40% in India."[28] Reasons might lie in their insufficient supplies corresponding to demands increase driven by international tourism, which sheds lights on policy insights.

In order to make sure local people are truly benefited from international tourism, especially for developing countries, we suggest governments to build close links between tourism sectors and other sectors. This is also supported by Sinclair's paper, where he finds that "many developing countries are characterised by relatively weak linkages between tourism and other sectors of the economy, including primary products in which many developing countries

[28] World Travel & Tourism Council and World Travel & Tourism Council, "5 Ways Tourism Can Support Local Economies," Medium, July 21, 2017, , accessed May 10, 2019

are supposed to have a comparative advantage."[29] One of the possible implementation is to develop goods and services related to their own cultural heritage and involve local communities. This would also help them to differentiate themselves when competing for tourism. According to the United States Tour Operator Association, "an increasing number of travelers today are looking for more immersive experiences, [and] the rise in demand is spread across both emerging and traditionally popular destinations."

We also think that "tourism leakage" could be an important factor to focus on for international organizations. Just like Hawkins and Mann suggest, "it is posited that the [World] bank is better placed than other development agencies to play the role of 'honest broker' in galvanizing governments and development partners toward a more systematic and inclusive approach in the design, implementation, and evaluation of the economic, social, and environmental impacts of tourism development interventions geared toward sustainable development."[30]

This study also opens interesting questions for future research. For example, different consumption patterns of tourism could be an result of different types of tourism, which might make the travellers have different preference on global brand and local products. In addition, further detailed macroeconomic effects could be analyzed. For example, tourism effects on different age group or different industries.

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[29] Sinclair, M. "Tourism and Economic Development: A Survey." *Journal of Development Studies*34 (1998): 1-51.
[30] Hawkins, D. E., and S. Mann. "The World Bank's Role in Tourism Development." *Annals of Tourism Research* 34, no. 2 (2007): 348-63.

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Appendix

Fig.1 Top countries for monthly average value

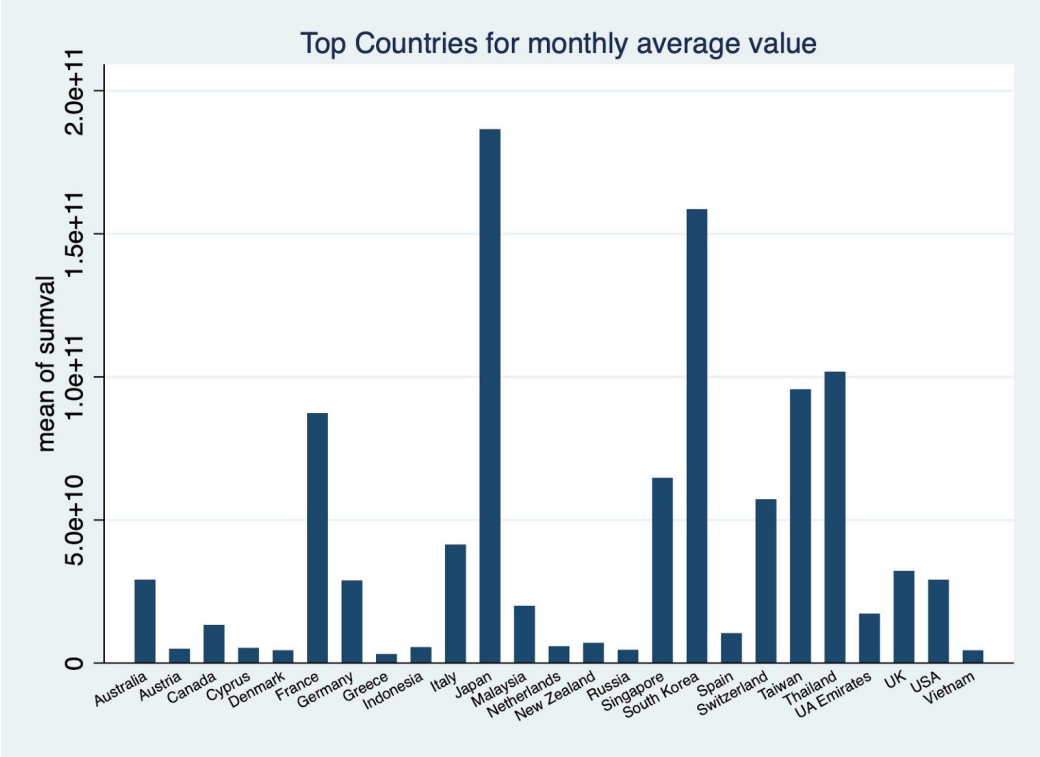

Fig. 2 Top countries for non-travel related consumption

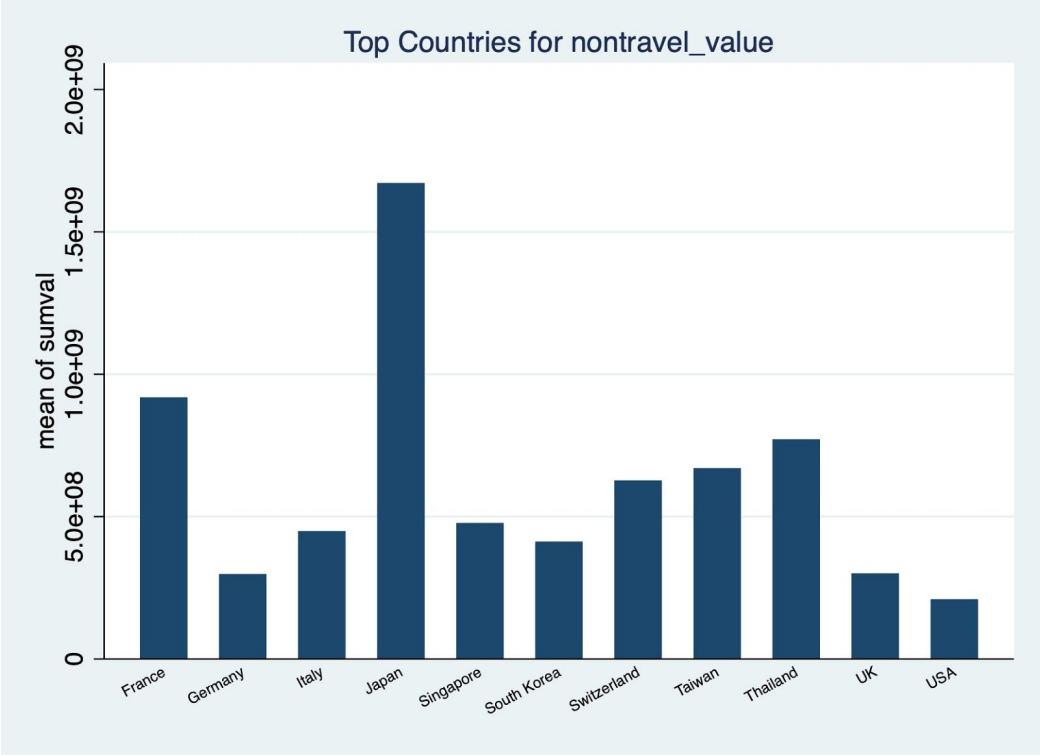

Fig.3 Top countries for travel related consumption

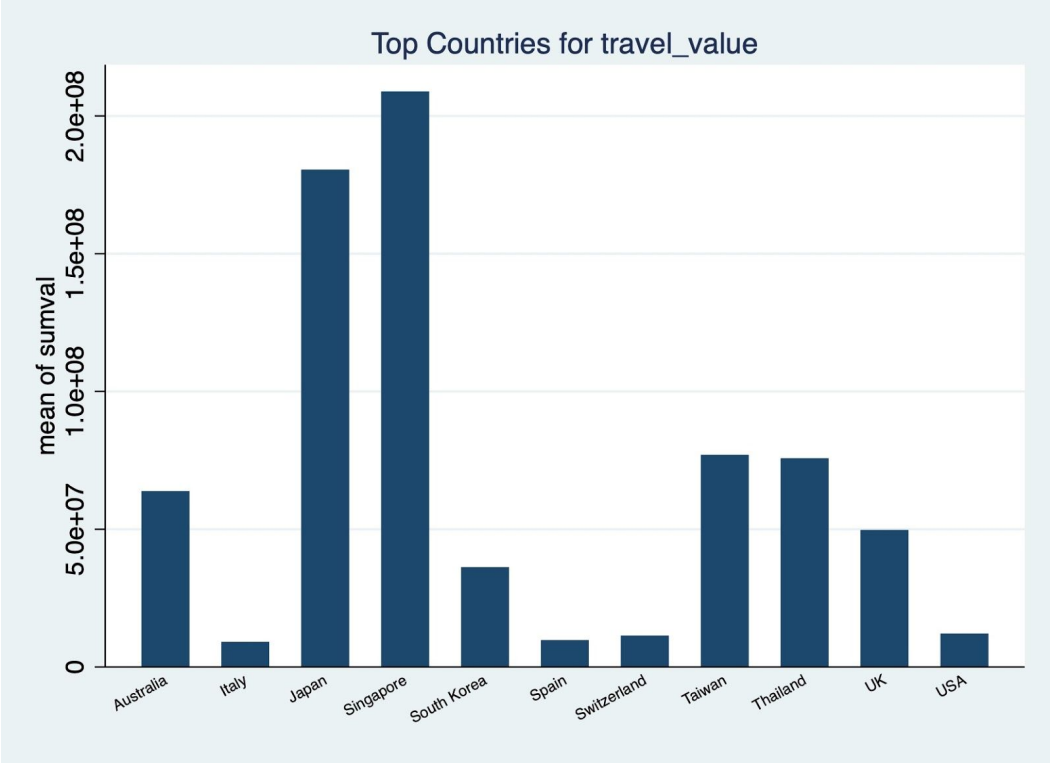

Fig.4.1 Top countries for travel_over_nontravel ratio

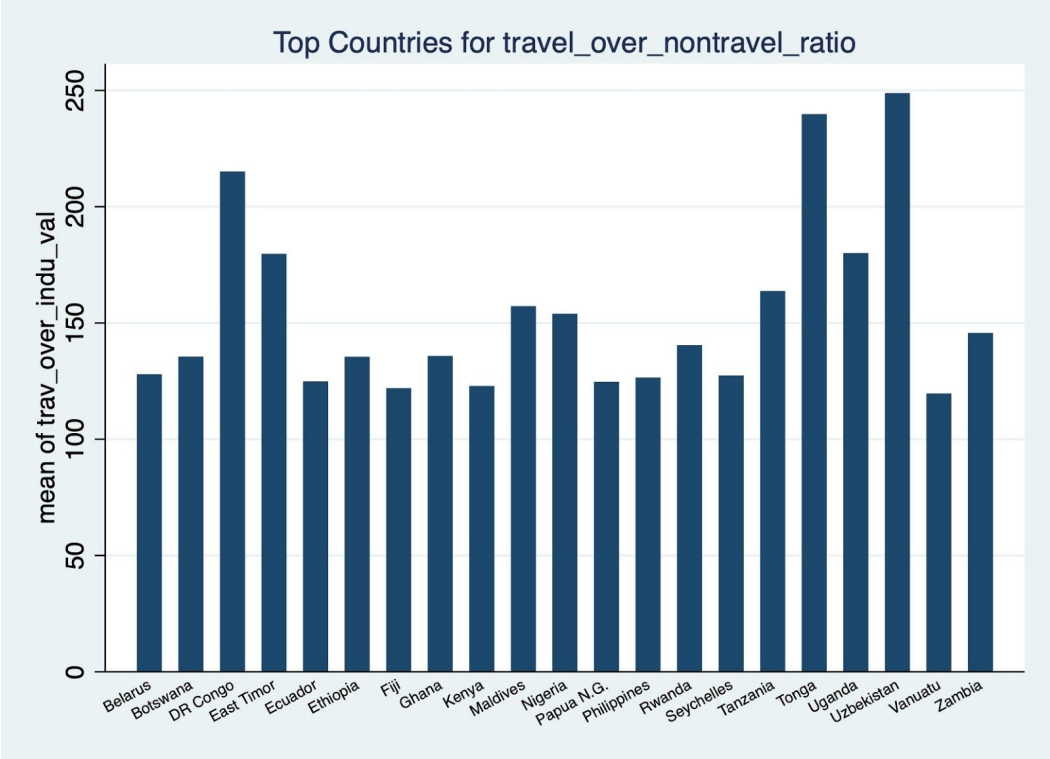

Fig.4.2 Bottom countries for travel_over_nontravel ratio

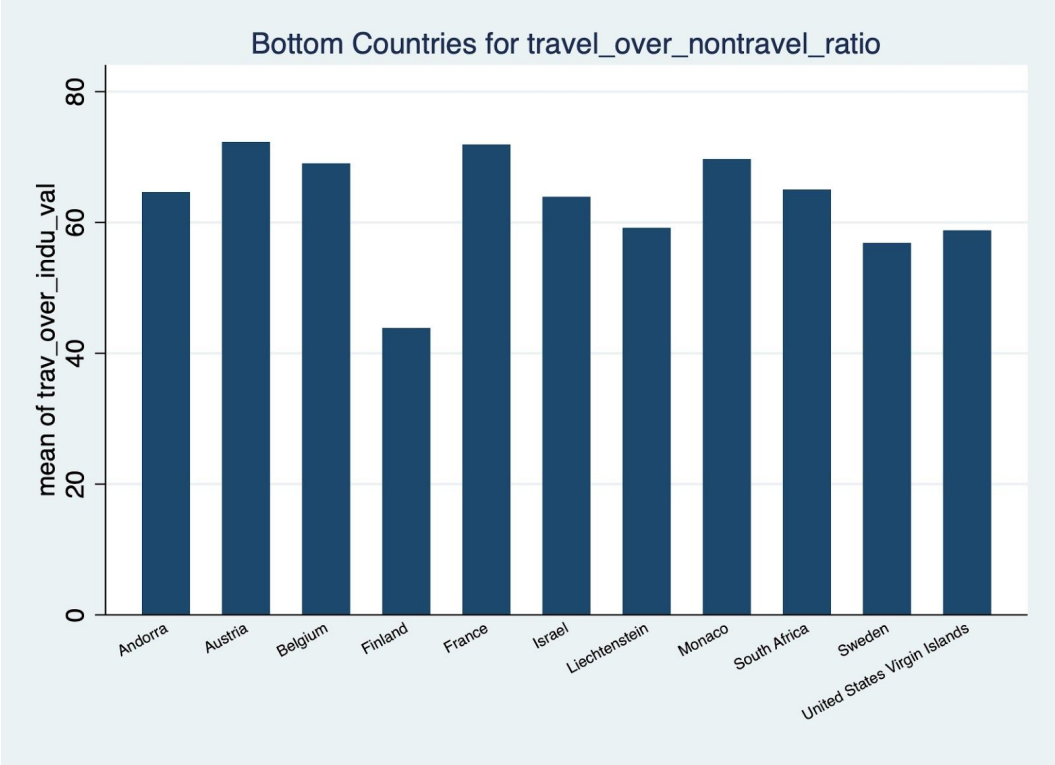

Fig. 5 Top consumption categories in South Africa

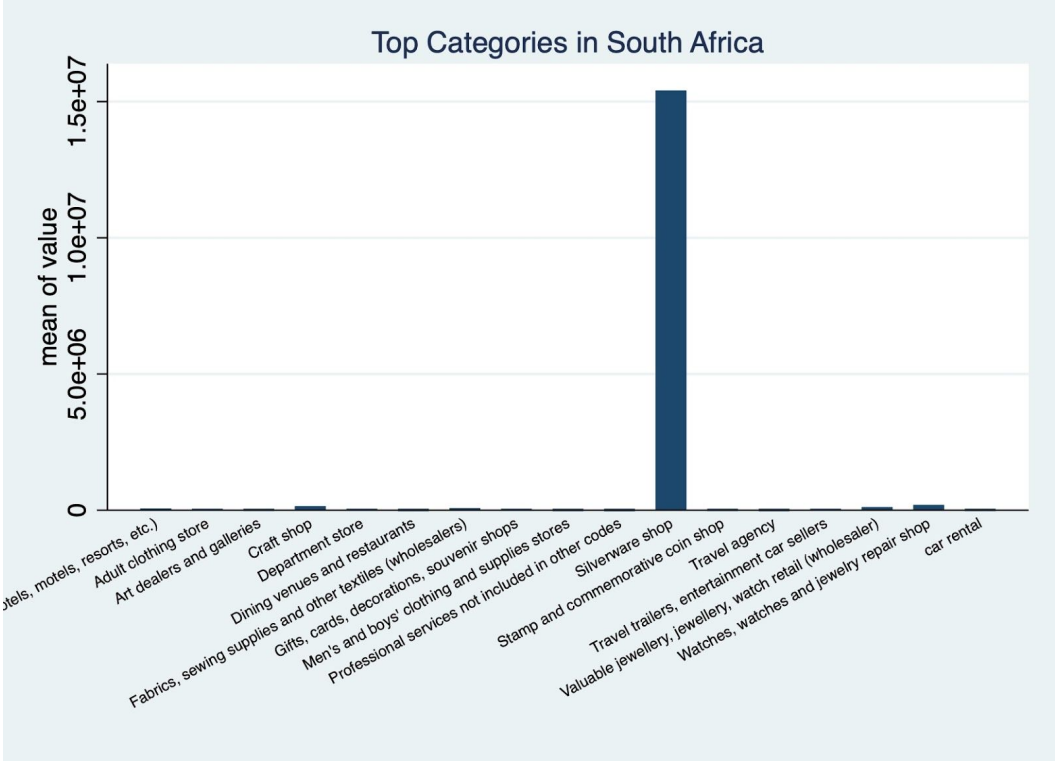

Table I. Summay Statistics for consumption variables and macroeconomic measures

	Obs.	mean	sd	median	min	p25	p75	max
value	3328	1.26E+09	4.59E+09	1.17E+07	1.09	714173.9	2.05E+08	5.28E+10
travel_value	3328	3.99E+08	1.66E+09	5244936	0	297517	5.43E+07	2.31E+10
nontravel_value	3328	6.20E+08	2.30E+09	347082.8	0	0	7.72E+07	3.05E+10
nontravel_over_travel	3328	-4.266335	6.951935	-2.452605	-20.66861	-10.62023	0.4073679	19.54979
Household_consumption	1646	155.1244	408.0822	48.52215	0.1626196	17.80952	140.8826	3442.28
Consumption_growth	1656	6.430441	7.942915	4.38	-14.92	2.42	8.27	86.74
Economic_growth	2123	3.342881	3.413122	3.1	-14.15	1.5	5.18	29.26
Unemployment_rate	1671	7.530991	5.223586	6.333333	0.1	4.23	9.376667	27.86667
EmploymentRate_age1	844	39.24134	15.39294	40.96659	11.595	25.2712	51.26619	79.1232
Unemploymentrate_youth	800	19.83365	12.59885	15.7202	4.4	10.68058	23.94151	59.27732

Table II.a Regress in subsample with high nontra_over_tra ratio

	(1)	(2)	(3)	(4)
Dep. Var	Household_consumption	Consumption_growth	Economic_growth	Unemployment_rate
nontra_val	-0.00187	0.0424	0.0728	-0.0873***
	(0.00270)	(0.0772)	(0.0854)	(0.0290)
tra_val	-0.00225	0.183***	0.222*	-0.0888
	(0.00153)	(0.0688)	(0.111)	(0.0682)
(constant)	4.119***	3.445**	-0.832	10.26***
	(0.0393)	(1.593)	(2.066)	(1.010)
Time FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Obs.	1178	1169	1247	1238
R-sq	0.998	0.667	0.538	0.954

Standard errors in parentheses
* p<0.10 ** p<0.05 *** p<0.01"

Table II.b Regress in subsample with low nontra_over_tra ratio

	(1)	(2)	(3)	(4)
Dep. Var	Household_consumption	Consumption_growth	Economic_growth	Unemployment_rate
nontra_val	-0.00321	-0.168	-0.0292	-0.0218
	(0.00299)	(0.137)	(0.0438)	(0.0314)
tra_val	-0.00258	-0.583	0.0458	-0.109*
	(0.00562)	(0.592)	(0.0873)	(0.0589)
(constant)	3.051***	22.51**	5.899***	9.945***
	(0.0940)	(8.678)	(1.655)	(0.986)
Time FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Obs.	405	422	796	370
R-sq	0.996	0.551	0.557	0.968

Standard errors in parentheses
* p<0.10 ** p<0.05 *** p<0.01"

Table III.a Consumption value regress on global economy measures for developed countries

Dep. Var	(1) Household_consumption	(2) Consumption_growth	(3) Economic_growth	(4) Unemployment_rate
nontra_val	-0.00110	0.158***	0.196**	-0.0926**
	(0.00411)	(0.0570)	(0.0770)	(0.0328)
tra_val	-0.00212	0.0928	0.231*	-0.0834
	(0.00188)	(0.0555)	(0.119)	(0.0585)
(constant)	4.440***	0.179	-4.448**	10.89***
	(0.0605)	(1.093)	(1.853)	(1.231)
Time FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Obs.	798	797	799	810
R-sq	0.998	0.732	0.557	0.948

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Table III.b Consumption value regress on global economy measures for developing countries

Dep. Var	(1) Household_consumption	(2) Consumption_growth	(3) Economic_growth	(4) Unemployment_rate
nontra_val	-0.00287	-0.00114	-0.000909	-0.0906**
	(0.00260)	(0.107)	(0.0423)	(0.0394)
tra_val	-0.000369	-0.212	0.00592	-0.110*
	(0.00276)	(0.258)	(0.0553)	(0.0436)
(constant)	3.208***	16.63***	6.743**	9.957***
	(0.0569)	(4.227)	(1.204)	(0.668)
Time FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Obs.	785	794	1244	798
R-sq	0.996	0.527	0.5532	0.954

Standard errors in parentheses
* p<0.10 ** p<0.05 *** p<0.01"

Table IV.a subsample with high nontra_over_tra ratio

	(1)	(2)
Dep. Var	EmploymentRate_age1	Unemploymentrate_youth
nontra_val	-1.68e-10	3.81e-10
	(1.39e-10)	(2.35e-10)
tra_val	4.87e-10**	-7.05e-10*
	(2.03e-10)	(3.66e-10)
(constant)	38.14***	21.54***
	(0.696)	(0.879)
Time FE	Yes	Yes
Country FE	Yes	Yes
Obs.	462	442
R-sq	0.991	0.973

Standard errors in parentheses
* p<0.10 ** p<0.05 *** p<0.01"

Table IV.b subsample with low nontra_over_tra ratio

	(1)	(2)
Dep. Var	EmploymentRate_age1	Unemploymentrate_youth
nontra_val	2.72e-10	-4.08e-10
	(2.34e-10)	(2.61e-10)
tra_val	-5.08e-10	1.14e-09*
	(5.21e-10)	(5.79e-10)
(constant)	0.28***	16.52***
	(1.074)	(0753)
Time FE	Yes	Yes
Country FE	Yes	Yes
Obs.	324	299
R-sq	0.882	0.827

Standard errors in parentheses
* p<0.10 ** p<0.05 *** p<0.01"

Table V Consumption value regress on global economy measures without top GDP countries

Dep. Var	(1) Household_consumption	(2) Consumption_growth	(3) Economic_growth	(4) Unemployment_rate
nontra_val	-0.00106	-0.0529	0.00320	-0.0804**
	(0.00211)	(0.0810)	(0.0405)	(0.0328)
tra_val	-0.00289*	0.149*	0.233**	-0.0977*
	(0.00139)	(0.0830)	(0.0950)	(0.0582)
(constant)	3.439***	7.096***	1.354	10.17***
	(0.0351)	(1.522)	(1.489)	(0.808)
Time FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Obs.	1359	1367	1820	1416
R-sq	0.996	0.585	0.517	0.954

Standard errors in parentheses
* p<0.10 ** p<0.05 *** p<0.01"