

Tourism Economy and Inequality in China

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Abstract---Taking China as an example, this study investigates the impact of tourism economy on inequality using the idea of region King design. The results show that international tourism is more likely to exercise inequality while domestic tourism is more likely to play a role in regulating inequality.

Keywords---tourism economy, inequality, regression kink design

I. INTRODUCTION

Regression is a key topic in statistics. Regression is divided into linear regression and nonlinear regression. In recent years, nonlinear regression has been actively used in the analysis of policy effects, educational returns, drug treatment effects, etc. This paper attempts to apply the idea to detect the relationship between inequality and tourism, by comparison, this paper select also major is tourism and unequal relationship between countries - China, as the research object.[1]

II. METHODOLOGY

Concept

Regression kink design is the basic idea of regression kink design. The basic idea of regression kink design is that: at a certain threshold point, the slope changes, resulting in discontinuity of the first derivative of the assignment function.

application

- RKD is now used in terms of policy effectiveness, drug efficacy, educational returns, consumer sensitivity to price, etc. For example, Simonsen, M. Etc., used this method in the analysis of patients' sensitivity to prescription drugs. [1] The welfare effect of unemployment insurance is also well analyzed with this method [2]. Education applications such as Hosung Sohn, Suk-Won Lee used this method to study the effect of college diploma on women's reproductive decisions [3].

Figures

As said, to insert images in *Word*, position the cursor at the insertion point and either use Insert | Picture | From File or copy the image to the Windows clipboard and then Edit | Paste Special | Picture (with "Float over text" unchecked).

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submission.

III. MATH

The same symbol system as card(2015) is used to explain RKD, B is the dependent variable of interest to us, treatment variable. V as an assignment variable and U is error term

$$Y \equiv y(B, V, U)$$

We are interested in the causal effect of increasing B on Y , i.e. the partial derivative of y with respect to its first argument, CLWP defines RKD estimate by the following formula:

$$\frac{\lim_{v_0 \rightarrow 0^+} \frac{dE[Y|v=v]}{dv} \Big|_{v=v_0} - \lim_{v_0 \rightarrow 0^-} \frac{dE[Y|v=v]}{dv} \Big|_{v=v_0}}{\lim_{v_0 \rightarrow 0^+} \frac{db(v)}{dv} \Big|_{v=v_0} - \lim_{v_0 \rightarrow 0^-} \frac{db(v)}{dv} \Big|_{v=v_0}} = E[y_1(b_0, 0, U) | V = 0], \text{ where } b_0 = b(0).$$

CLPW interpret the identified TOT/LAR parameter as a weighted average of the treatment effects across the population, where individuals receive higher weights for having a higher likelihood of being at the threshold ($V = 0$) Estimation This can be estimated by using a polynomial regression. Let x be the running variable (e.g. highest quarter previous earnings), Y the outcome variable (e.g. duration of unemployment); k the kink point, and D a dummy variable for being to the right of the kink.

Then estimate: $Y = a_0 + a_1*(xk) + b_1*D*(xk) + a_2*(xk)^2 + a_3*D*(xk)^2 + \dots$

Then b_1 tells the change in the slope of the outcome at the kink point. Then run the same regression to get the change in the slope of the treatment variable at the kink point of the running variable, and take the ratio of the two coefficients.

The standard error can then be bootstrapped or recovered using the Delta method. Estimation can also be done non-parametrically using local polynomials.[2]

IV. EMPIRICAL ANALYSIS

Software and code

For simplicity and precision, this study combines the R code of another scholar. He included several models (same idea, change point) in the R code "chnpgt". which improves the accuracy of RKD. The models he developed as follows("<Tutorial for the R package chngpt.pdf>,")

Index construction and data

The data comes from the China Statistical Yearbook, China Tourism Yearbook, and official provincial yearbooks. For the analysis of international tourism, data covers 31 provinces from 2013 to 2019; for domestic tourism analysis, due to limitation of the collection, the data includes 15 provinces. International tourism indicated by the growth rate of international tourism income. (later GII); Domestic tourism indicated by the growth rate of domestic tourism income. (later GDI), Inequality indicated by the ratio of disposable income of urban to rural residents.

$$GAP = \frac{PCDI_{i,t}^{urban}}{PCDI_{i,t}^{rural}}$$

$$GII = \frac{ITI_{t,i} - ITI_{t,i-1}}{ITI_{t,i-1}}$$

$$GDI = \frac{DTI_{t,i} - DTI_{t,i-1}}{DTI_{t,i-1}}$$

Where $PCDI_{i,t}^{urban}$ is per capita disposable income of urban residents while $PCDI_{i,t}^{rural}$ represent that in rural; ITI , is the international tourism income, DTI is domestic tourism income, the subscript t represents the year t , i represents province i .

Model Specification

GAP , as the dependent variable $Y_{i,t}$, is the indicator to depict inequality. $X_{i,t}$ is the the explanatory variable(GDI/GII). k is the kink point of each model. $Z_{i,t}$ is covariate. The form of the model is as follows, and for brevity, we put all the formulas in the package in the appendix. (这里插入交叉引用)

$$Y_{i,t} = \alpha_1 + \alpha_2^T Z_{i,t} + \beta_1 (X_{i,t} - k)_+$$

Using the R code invented by YONYI FONG and RKD idea, the data will be tested. Then the best model and kink point will be found. In this way, the impact of tourism on inequality should be estimate, next step will be model selection, also, use R with RMSE concept to make all the progress.[3]

Result Interpretation

Eviews was used to process unit root test before regression. The results showed that all panel data were stable.

This study concludes that international and domestic tourism have different impacts on inequality from the theories and literature analysis. The results are shown in the table below:

$$GAP = 2.49426 + 0.38423(GII + 0.03894)\#(3.)$$

$$GAP = 2.25405 + 2.44951(GDI - 0.090199)\#(4.)$$

V. CONCLUSION

International tourism is more likely to exacerbate inequality, because the point of change is reached earlier. The change-point in international tourism is negative, and the change-point in domestic tourism occurs when it expands to 9%. In this regard, this study verifies the effect of resource worries mantra in tourism development in a certain sense. The more tourism develops, the more serious the impact of aggravating inequality.

Domestic tourism is more likely to play a role in regulating inequality. After the change-point, domestic tourism can fit a quadratic regression. Domestic tourism verifies the inverted u-shaped theory: in the process of economic development, inequality will increase at the beginning, and then inequality will gradually decrease.

According to the Chinese Statistical Yearbook of recent years, about one third of the foreign exchange in the international tourism market has entered civil airlines. Catering accounts for about 10 percent. Airlines, stellar hotels, stellar restaurants, etc., can absorb a large amount of foreign exchange for travel, foreign exchange flows to capital companies, may be a place for improvement. On the other hand, entertainment accounts for about 4 per cent of tourism revenue, a very small share. At the national level, macro-regulation of Internet information and regulation of civil aviation prices, the introduction of talent is a good policy. Local governments can participate in many forms of cooperative and high-quality entertainment projects: including and not limited to: artistic performances that convey traditional Chinese culture such as Beijing Opera, Tea Art, Martial Arts; workshops: Martial Arts, Taijiquan, Chinese Learning Experience Class, Chinese Food Body From the merchant level, the merchant should provide good service.[4]

The domestic tourism market has the potential to improve inequality. Combined with the rising working hours and pressures of the Chinese in recent years, the fertility of the Chinese has continued to decline and the inequality gap has grown. The government can macro-regulate statutory holidays and have a positive impact on both tourism destinations and labour force productivity. Second,

information control is still an important tool. Mainstream social media is a mess like users inculcating garbage information, but the media have the ability and social responsibility to promote local tourism and social media should no longer sing hymns for capital. Third, to encourage college students to start their own businesses and build their homes.[5]

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