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Research Note

# Can tourism development induce deterioration of human capital?

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ABSTRACT

Modern economic theory considers high-quality human capital the most valuable resource for robust economic growth. Since tourism in general does not require graduate employees, it could be argued that the development of tourism leads to the re-direction and even the deterioration of human capital. This hypothesis is tested in the case of Croatia, a small tourism-oriented Mediterranean country which has recently experienced exceptional growth in the tourism sector. The methodology of quasi-experimental research is applied in order to answer the question whether there is a significant difference in the number of students enrolled in professional or university studies between two groups of Croatian towns and municipalities, whereby one group having recently experienced a five-year period of intense tourism development.

## Introduction

This paper aims to contribute to the discussion on the opportunity cost of tourism development. In spite of the many examples of its positive impact reported by an extensive portion of the empirical literature, tourism development can also have significantly negative effects on local communities. Although the most discussed issue in recent literature is the negative environmental impact of tourism, there is also a significant portion of authors arguing its negative economic impact. For instance, Li, Jin, and Shi (2018) have compiled a collection of the most relevant papers addressing the negative impact of tourism development, many of them dealing with the adverse economic effects of tourism on growth.

The motivation for the research reported in this paper is, in fact, the concept of beach disease. Defined by Holzner (2011), beach disease is a special case of the Dutch disease that affects tourism-dependent countries. Inchausti-Sintes (2015) depicts this special case of the Dutch disease as the long-term decay of industrial growth prospects due to shift in resources towards tourism-related industries that jeopardizes productivity gains. However, the existing empirical evidence of beach disease is not sufficiently robust. For instance, although the phenomenon is to some extent confirmed at individual levels (Romao, Guerreiro, & Rodrigues, 2016), Holzner (2011) did not actually find any clear evidence of beach disease in a panel of countries.

The long-run mechanism of the beach disease appears to be very complex and far-reaching. Specifically, the shift in resources towards tourism-related industries could cause a deficiency of quality resources for the development of other industries, especially high-tech industries with higher value added thereby diminishing the prospects for robust economic growth. Such industries are usually in need of educated workers holding university diplomas. In the meanwhile, driven by the earning opportunities in the tourism sector, young people could be less willing to enroll in university programs. This could finally lead to deterioration of the human capital necessary for the development of other industries capable of producing the highest value added. Such a scenario could unfold in any middle-income country with good prospects for tourism development.

However, it must be born in mind that there are substantial differences in the definition of human capital between countries depending on the reached level of economic development. Whereas in high- or middle-income countries human capital is referred to

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as the stock of advanced knowledge, in low income countries it is referred to as the level of health and literacy standards. Thus it might be argued that the development of human capital in tourism-oriented low-income countries is closely related to tourism development and, moreover, that it could even be induced by tourism growth (see, for example, Fahimi, Akadiri, Seraj, & Akadiri, 2018).

It should also be considered that the relationship between the number of university diplomas and the incorporation of high-tech technologies into the economic system is far from simple and linear. On the other hand, tourism has a huge potential for the utilization of new technologies and the recruitment of workers with higher level of education. Therefore, the main policy implication of this paper is not to qualify tourism as a threat to economic development. On the contrary, it is to open a new path for further research regarding the complementarity of tourism with other sectors of national economy. Another path for further research could also be open in the area of destination life-cycle. It remains unclear what exactly happens with the tourism development-human capital nexus within the different stages of the destination life-cycle. All of these questions should be addressed in the future. This paper just aims to open discussion about it.

## Why Croatia is an excellent case study?

Croatia has recently experienced tremendous growth in the tourism sector, marking the transition from an emerging receptive market into a well-established European tourist destination. Croatia is a small Mediterranean country in which tourism plays a major role in the national economy. A part of the former Yugoslavia, Croatia has a long tradition of tourism development. However, suffering the consequences of the War of Independence in 1990s, tourism in Croatia practically had to go back to its beginnings. The period between 1990 and 2000 was an era of extremely low tourism activity. Most of the tourism suprastructure was devastated and demand was redirected towards other competitive Mediterranean destinations.

In 2002, Croatia began to reemerge as a tourist destination. However, the Great Recession of 2008 affected tourism activity in Croatia as well as in other Mediterranean countries. Therefore, the period between 2011 and 2016 can be regarded the era of full recovery of tourism development in Croatia. This particular period was exceptionally successful for the Croatian tourism sector, which has recorded a cumulative rate of growth of nearly 30% (measured in overnight stays). Besides, tourism supply in Croatia has a distinct and specific form. Since the Adriatic Sea is the main tourist attraction, the Croatian tourism sector is heavily affected by seasonal flux. Moreover, accommodation capacity is dominated by rooms and apartments owned by households who rent them via popular booking websites during the summer months. The number of privately owned rooms and apartments has significantly increased in recent years.

To sum up, the Croatian tourism sector is mainly tuned to bringing economic benefits to local residents who can solidly live on the revenues earned during the few summer months. In the meanwhile, the structural differences between continental and coastal towns/municipalities are growing rapidly thereby transforming Croatia in an excellent case for studying the opportunity cost of intensified tourism development.

## Data and methodology

In order to investigate the impact of tourism development on human capital, repeated cross-sectional annual data (2011 and 2016) are collected to represent the five-year period of intensified development of tourism in Croatia. Data on students enrolled in professional or university study from 259 Croatian towns and municipalities have been collected. Ninety-eight of them are considered to be established tourist destinations in which tourist overnight stays reached more than 100,000 in 2016. They constitute the treatment group, i.e. the group of towns and municipalities that are supposed to be significantly impacted by tourism development. The rest of towns and municipalities constitute the control group, i.e. the group without signs of extensive tourism development. The data on the general population and the share of the population with tertiary education is added for reasons of control. All the data are available free of charge on the web site of the Croatian Bureau of Statistics.

The applied methodology is the methodology of natural or quasi-experimental research as described by Meyer (1995). This is an econometric technique involving the assessment of the magnitude of the difference between two groups of entities whereby one group (treatment group T) is impacted by an exogenous event and the other group (control group C) is not. As explained by Wooldridge (2009), the cross-sections are repeated in two time periods and the parameters of the following equation need to be estimated:

$$y = \beta_0 + \beta_1 d2 + \beta_2 dT + \beta_3 d2xdT + X + u \quad (1)$$

where $y$ is the outcome of interest, $\beta_0$ is a constant, $d2$ and $dT$ are dummy variables, and $X$ is the vector of control variables. The coefficient $\beta_1$ captures aggregate factors that would cause changes in the outcome of interest even in the absence of the exogenous event. The coefficient $\beta_2$ captures possible differences between the treatment and the control group before the occurrence of the exogenous event. The coefficient $\beta_3$ is the coefficient of interest multiplying the interaction term d2xdT which is, in fact, a dummy variable equal to one for the observations belonging to the treatment group in the second period. The coefficient $\beta_3$ is the so-called difference-in-differences estimator:

$$\beta_3 = [average(y_{T2}) - average(y_{T1})] - [average(y_{C2}) - average(y_{C1})] \quad (2)$$

In this particular case, the difference-in-differences estimator represents the difference over time in the average difference of number of students enrolled in professional or university studies in two groups of towns and municipalities.

**Table 1**
Values of estimated coefficients of equation (1).

| | |
|---|---|
| $\beta_1$ (the impact of aggregate factors acting independently of tourism development) | $0.035^{***}$ (0.001) |
| $\beta_2$ (the difference between the treatment and the control group prior the intensification of tourism development) | 0.007 (0.032) |
| $\beta_3$ (the impact of tourism development) | $-0.079^{***}$ (0.001) |
| **General population** (control variable) | $1.076^{***}$ (0.010) |
| **Share of the population with tertiary education** (control variable) | $0.329^{**}$ (0.096) |

**Notes**: Since the model is in the log-log form, the coefficients besides dummy variables could be multiplied by 100 and reported as approximate percentage change.
Cluster-robust standard errors in parentheses.
$^{*}$Significant at 10%; $^{**}$significant at 5%; $^{***}$significant at 1%.

For the reasons of convenience, the log transformation is applied in order to stabilize the variance and to enable the interpretation of results in the form of approximate percentage change. Moreover, the cluster-robust standard errors are applied in order to control for the possible presence of heteroscedasticity.

## Results

Table 1 reports coefficients from OLS regression.

The results suggest that there was no significant differences in the number of enrolled students between the treatment and the control group prior to the upswing in the development of tourism. The results also suggest that, compared to 2011, there is an average increase of enrolled students in 2016 of approximately 3.5%. However, the value of the coefficient of interest $\beta_3$ shows a significant difference in enrolled students between the treatment and the control group. Compared to 2011, the number of enrolled students from towns and municipalities belonging to the treatment group is approximately 8% lower than the number of enrolled students from towns and municipalities belonging to the control group. Therefore, it could be concluded that the five-year period of intense tourism development has significantly impacted the willingness to study of young people in Croatian towns and municipalities in which tourism took place.

## Concluding remarks

This paper reports research into the impact of tourism development on the quality of human capital in Croatian towns and municipalities. Since it has recently experienced a tremendous growth in the tourism sector, Croatia supposed to be an excellent case study for the investigation of how tourism development could affect human capital. The results suggest that tourism development could induce a deterioration of human capital. It is likely that the five-year period of intense tourism development has significantly impacted the willingness to study of young people in those Croatian towns and municipalities that have been transformed into established tourist destinations. These results could be considered in the context of beach disease. Beach disease involves the transformation of the economic structure of an affected area. The main reason is the shift of resources. These results suggest that the quality of resources could also be affected. It is especially important for countries facing a trade-off between the potential of fast but uncontrolled tourism development and the opportunity of slower but controlled development of several sectors of the national economy. The second option could most likely lead to a period of robust and sustained economic growth. On the other hand, the opportunity cost of uncontrolled tourism development could be inconceivably high.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.annals.2018.12.018.

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