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CAN TOURISM SPECIALISATION DETERIORATE HUMAN CAPITAL?

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1. Abstract

It is well-known that tourism can provide important benefits other than household income through its direct, indirect, and induced effects on the destination. Tourism negative impacts on the economy and the environment are widely studied, and to a lesser extent, the effects of tourism on human capital are analysed too. This paper studies the relationship between a country's tourism specialisation and its human capital. Based on panel data that brings data on 30 European countries between 1995 and 2019 and a self-made Tourism Specialisation Index (TSI), the study analyses the impacts that different levels of tourism specialisation have on human capital. The findings show that specialising in tourism is a valid option to promote human development as it enhances well-being through household income, increased education opportunities and years of healthy life. However, it is here proved that high degrees of tourism specialisation do not proffer significant benefits on GDP per capita, and it deteriorates human capital by having a negative and significant effect on education and health. Hence, governments should promote tourism as long as it enhances all aspects of welfare (economy, health and education), otherwise they should focus on the social services that are not provided through tourism's indirect or induced effects.

2. Introduction: what needs does tourism meet?

Humans have been practising tourism since way before we had a name for it. Medieval people would never travel for leisure purposes, seeking nothing but fun or entertainment. The modern need for travelling differs sizeably from our ancestors' one. Ancient trips were motivated either by economic, spiritual, or medical purposes. The exchange of products from end to end of the world, the eagerness for geographic and cartography knowledge, or the search for the eternal youth and rejuvenation in hot-water springs pushed people to move across borders, seas, and mountains.

From the day humans organised ourselves in towns and engaged in agricultural and stockbreeding activities, we have always demanded products, food and fabric we could not obtain in situ due to regional natural and technical constraints. This sudden unmet demand gave birth to the first traders who would travel across regions distributing all kinds of products around the world. Not much later, a spiritual need for travelling arose. On the one side, pilgrims would travel to sacred places asking for divine favours and personal fulfilment. On the other side, opulent youngsters mainly from England would set off on what is called the *Grand Tour*, searching for cultural enrichment. Well-to-do families would send their boys on a trip through France and Italy being Rome usually the end of the trip. This is why we say: "*all roads lead to Rome*". The ultimate motivations were learning the prestigious foreign languages: French, Italian and also Latin; and mastering their crafts while being immersed in artistic movements.

The state of the art in the biochemistry field agrees that life could have begun in thermal waters. Madeline C. Weiss, Filipa L. Sousa, Natalia Mrnjava et al. proved that the Last Universal Common Ancestor (LUCA) "*inhabited a geochemically active environment rich in H₂, CO₂ and iron*". Their results "*support the theory of an autotrophic origin of life involving the Wood-Ljungdahl pathway in a hydrothermal setting*"(Weiss et al., 2016). There is also evidence that already in the Bronze Age people would journey to iron-rich mineral springs for therapeutic purposes. These two facts are not a coincidence. People back then were convinced that drinking and bathing in iron-rich waters could provide them countless benefits. One of the most famous springs in Europe is located in St. Moritz, Switzerland(Lobley, 2018). The same bronze drinking cups used to drink from St. Moritz thermal waters were found also in France and Germany. This illustrates that, as far back as the Bronze Age, people were aware of these benefits, and the most adventuresome ones would go on a pilgrimage to these iron-rich mineral springs(Health-Tourism, n.d.). The expansion of the Greek and Roman empires is also worth mentioning to understand the spread and development of hot-water springs, called *Thermae*. These centres were meeting points for the military and wealthy classes where they used to trade and build social relationships(Health-Tourism, n.d.).

Curiously, the Human Development Index (HDI) is constructed by taking three variables of three different kinds: an economic variable (Gross Domestic Product per capita), an education variable (years of schooling) and a medical variable (expectancy of life). The variables used by Mahbub ul Haq in 1990 to build the index represent the main reasons for people to travel since civilisation arose on Earth. Nonetheless, tourism, both as an industry and a research field, has been widely ignored by

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academics until the second half of the 20th century. Elizabeth Becker in his book “*Overbooked: the exploding business of travel and tourism*” describes with towering accuracy tourism’s low reputation:

The oil industry is serious. Finance is serious. Trade is serious. Manufacturing is serious. Foreign policy and economic policy are serious. Tourism is a frivolous pursuit: fun, sometimes educational in the lightest sense, often romantic, even exotic.

The United Nations World Tourism Organisation (UNWTO) is one of the main institutions that nowadays conduct studies and research in tourism policy, development and impacts. Tourism’s notoriety was one of the reasons why the first UNWTO office was established in Madrid, Spain in 1974, still under Franco’s dictatorship. After the Second World War (WWII), the empire where the sun never sets went through one of the worst periods of its history. Spain was the main outcast for having Europe’s last dictator. However, even though the neighbouring countries would deny any kind of trade or relationship as much as possible, Madrid hosted UNWTO’s headquarters over two other finalists: Zagreb and Mexico City. Neither London, Paris, Berlin nor Rome were rivals to build UNWTO’s first office (Becker, 2013).

Tourism has both positive and negative impacts on a region’s economy, natural environment, and society, just as any other industry has. The singularity of the tourism case is that the negative externalities are easily perceived on-site (crowds, deterioration of natural resources, overuse of public services...); and the positive impacts are not witnessed straightforwardly (higher hospital capacity, higher connectivity...). The manufacturing industry has got negative impacts, but these are more concentrated on production. Tourism, in contrast, is octopus-like (Becker, 2013). It can bring about the best and the worst: it can drive a country’s economic development while deteriorating its natural resources. It tenders employment opportunities to the most vulnerable ones in society, especially during a crisis, yet it may turn into a Beach Disease to some extent.

The aforementioned events sparked the author’s interest in studying tourism and carrying out the present research. This paper seeks to analyse the effects of tourism on human capital in European countries. The main goal is to determine whether specialising in tourism may deteriorate human capital by decreasing the share of employed people with tertiary education. This situation may happen for two reasons. On the one hand, while tourism offers job opportunities to the most vulnerable ones, it may also encourage youngsters to interrupt their studies and work in low- and medium-skilled tourism job positions. On the other hand, a tourism specialised region may cause a call effect for the less skilled unemployed public who would move to the tourist region on the search for a job. The result of these phenomena is a society with little labour transversality and capacity to switch or create higher-sophisticated sectors ending up in a new type of Beach Disease.

We focus on European countries as the HDI concept would be accepted in all the countries. We would like to study this effect taking all developed and developing countries in the world. However, the first limitation we had is the availability of data; and second, but not less important, the relativity that lies

upon human development assessment. If we analyse the human development in well-developed countries, we will accept variables such as the number of enrolled students in tertiary education, or a country's employment share with at least bachelor studies. In contrast, we would need other variables to evaluate the relative education level for the poorest countries such as the illiteracy rate. Because basically, one size does not fit all, cross country comparison, in this case, would be difficult. In the conclusion section, we argue that this study aims at providing a general look at Europe's situation and that this or similar studies should be undertaken for individual countries making the pertinent adaptations.

The ultimate goal of this paper is to analyse the impact of tourism specialisation on different human capital indicators. We are going to create a Tourism Specialisation Index (TSI) to study this effect. Also, we will study the effects of this index in each human capital variable, and not only on the HDI as a whole. By doing this we aim at finding whether tourism fails to provide any of the social benefits that sustain well-being: economic (GDP per capita), education (tertiary school enrolment and high-skilled employment share), and health (number of years of healthy life).

We assume that tourism development may have a positive impact on human capital at the early stages of specialisation. Tourism is a labour-intensive industry and hence, as soon as the industry flourishes, it grants household income and resources. Suddenly, families can afford a greater education for the next generation and have access to both public and private services such as health insurance, transport, etc. Nonetheless, if it is not managed properly, tourism could die from its success. These young students from the next generation could be tempted to stop their education or training and join the tourism sector working in low- and medium-skilled positions. Also, a successful tourism destination could become a convergence point where a low-skilled workforce from other parts of the country and the world would head to. If this occurs, we expect to find a positive non-linear relationship between TSI and human capital variables. The curve would show diminishing marginal returns until it reaches a turning point and goes into provides negative returns.

3. Literature Review

The tourism effect on human development or human capital has been widely tested in a vast variety of methods, data, and destinations. Croatia experienced a significant tourism expansion in the second decade of the 21st century and Ivan Kozic studied its effects in 2019. He tested whether there is a significant difference in the number of students enrolled in professional or university studies between two groups of Croatian cities. The treatment group consists of those cities in which tourism overnight stays reached more than 100,000; whereas the control group are the cities the tourism activity of which remained moderate. Results show that the number of students enrolled in university or professional studies after the tourism development years is 8% less in the treatment group. The study concludes that tourism did affect negatively Croatian youngsters' willingness to undertake tertiary education and negatively impacts regional human capital(Kožić, 2019). Kozic's study finds robust conclusions, but student mobility is here not taken into consideration and the academic offer for each group of cities is unknown. It would be good to improve this study by

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controlling the number of universities and professional courses offered in each group of cities, as well as the level of the education since students from the treated cities could move to other cities to study.

Other studies focus on the nature of the relationships between tourism and economic growth and tourism and human development. Manuel A. Rivera (2016) analyses these relationships for a developing country (Ecuador) using tourist arrivals, Gross Domestic Product (GDP) and HDI variables. He concludes that tourism does not promote human development, there is a virtuous cycle between economic growth and human development and unidirectionality between economic growth and tourism growth, which is the product of the first one (Rivera, 2017). We acknowledge the difficult task of collecting the necessary data when it is not available. However, using tourist arrivals and GDP as a proxy for tourism expansion and economic growth respectively can generate biased results. Moreover, the analysis falls into duplicity of variables as HDI already includes a similar economic indicator: GDP per capita.

The paper from Robertico Croes, Jorge Ridderstaat, Monika Bak and Piotr Zentara (2021) probably shares the same vision as this paper. They study the relationship between tourism specialisation (tourism receipts to GDP ratio, travel and tourism (T&T) to GDP ratio, tourism receipts as a percentage of total exports and tourist arrivals as a percentage of the total population), economic growth (real GDP, physical capital) and human development (HDI) in Poland. The duplicity of variables is here rejected as they tackle HDI from Sen's capability approach, which consists of a range of choices and people's freedom to choose what to do and to be in life. They conclude that tourism specialisation has not a non-linear effect on economic development both in the short- and long term. A non-linear effect of tourism on human development is rejected in the short term but accepted in the long term. This is because the human development variable is stickier and react slowly compared to tourism's volatility. The fact that economic growth has a positive effect on human development in Poland is validated both in the short- and the long-term and the idea that human development impacts tourism specialisation is rejected also in the short- and long-term. Furthermore, the authors provide policy implications out of these results. They argue that if tourism expansion can increase freedom of choice and people capabilities, then, promoting tourism specialisation is desired. However, when tourism specialisation does not affect human development, following Sen's capability approach, the government should move from promoting tourism towards investing in the unmet needs (Croes, Ridderstaat, Bak, & Zientara, 2021). It is well-known that HDI consists of a variable from the three pillars of a decent life: health, education, and economy. If tourism improves the three aspects of human development, then, promoting tourism is key. However, if the benefits from tourism specialisation turn into household income only, the government should guarantee the other aspects of life. Robertico Croes (2012) give a general view of the aforementioned ideas. He tries to answer whether human development is an input or an output of tourism development. Croes detected that some countries grow while improving the standards of living while others also grow but without better standards of living. He follows the same vision as in the other paper: if tourism enhances people's capabilities, then government intervention should primarily focus on the tourism industry. If tourism does not expand people's capabilities and opportunities, then the government must focus on providing the missing social services (Croes, 2012).

Joao Romao and Bart Neuts (2017) tackle the human development issue from a smart tourism specialisation perspective. They conclude that the spatial unbalance in terms of social and economic development in Europe is due to innovation dynamics or labour qualifications. Since tourism specialised regions show low utilization of knowledge, innovation and qualified labour force, the tourism industry turns out to be of low value-added and it does not help to reduce the gap (Romão & Neuts, 2017).

Last, but not least, Bianca Biagi, Maria Gabriela Ladu and Vicente Royuela (2015) also study the impacts of tourism on human development and labour force qualification. They conclude that, while it is true that tourism labour demand may attract youngsters who would leave school to join the low-skilled ranges of the tourism sector, the interactions between tourists and residents affect the aspirations of the latter and their perspective of life (Biagi, Ladu, & Royuela, 2017).

4. Methodology and Results

To carry out this study we collected several data just to avoid falling into duplicity of variables. We have panel data for 30 European countries from 1995 till 2019. The human capital indicators are the HDI, number of years of a healthy life, population, high-skilled employment share (tertiary education or above), medium-skilled employment share (upper secondary school and professional studies), low-skilled employment share (lower than secondary school) and adolescents out of school. GDP per capita is going to be the preferred economic variable. And finally, among the tourism indicators, we have tourism receipts, tourist arrivals, tourism contribution to GDP and tourism employment share.

Because we believe the relative variables are more suitable for later comparison and assessment, we first create a new variable which is going to be the ratio between the number of tourist arrivals to the whole population. After that, we transform all the variables into their natural logarithm to stabilise the variances. Later we construct the TSI which is the average of the transformed tourism indicators:

$$TSI = \frac{\ln(\text{relative tourist arrivals}) + \ln(\text{tourism GDP}) + \ln(\text{tourism employment share})}{3}$$

The relative tourist arrival value is obtained by dividing the number of tourist arrivals in a country by its population. The tourism GDP refers to tourism contribution in percentage terms over the country's total GDP. And last, the tourism employment share is the percentage of a country's labour force working in the tourism industry.

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We are going to compare the results from the Fixed-Effect regression model (FE) and the results from the Fixed-Effects with the Individual Slope regression model (FEIS). Therefore, we create a trend variable that gives each year a value between 1 and 25. We find the FE model appropriate to avoid the unobservable fixed effects for each country. This regression model de-means both the dependent and explanatory variables. This means subtracting the variable mean to each of the values. This removes unobservable fixed-effects or in other words, country-specific characteristics that do not change over time. For example, if we would like to measure a country's coastal area in km, we would obtain the same number for each year. The mean of km of the coastal area will certainly be the same value. So, deducting the mean of a fixed value makes it 0, and it disappears from the regression.

$$y_{i,t} - \bar{y}_i = \beta * (x_{i,t} - \bar{x}_i) + (\alpha_i - \alpha_i) + e_{i,t} - \bar{e}_i$$

Here y is the dependent variable which is going to be one of the human capital indicators. We are going to run the model for different ones. x is the (or all the) explanatory variables for country i and period t . α is the unobserved fixed variable and e is the error term.

One of the drawbacks of the FE model is that it does not capture trend effects. Two variables may show the same growth pattern or an upward trend during a particular period. If a variable has got an upward endogenous trend, estimating the effect of an explanatory variable may be trickier. For example, let's say we observe a sharp increase in both cinema tickets sales in Palma and tourist arrivals to Mallorca during the last 5 years. We do not expect a lot of tourists to go to the cinema in Mallorca and, although there might be indirect and induced effects coming through tourism employment, only a change in residents' habits could explain the upward trend. Because the FE model does not capture the possible individual slopes, we include the Fixed-Effect with Individual Slope regression model (FEIS). Just like the FE model de-means the observations, FEIS removes the trend effect on them.

Table 1. Model Significance and Hausman p-values

	TSI	FE	FEIS	ART Hausman	FE	RE	Hausman
<i>HDI</i>		Significant	Not significant	$p = 0.006$		-	-
<i>GDPpc</i>		Significant	Not Significant	$p = 0.044$		-	-
<i>Healthy Years</i>		Significant	Not Significant	$p = 0.3523$	Significant	Significant	0.9162
<i>Tertiary Enrol.</i>		Significant	Not Significant	$p = 0.4669$	Significant	Significant	0.7324

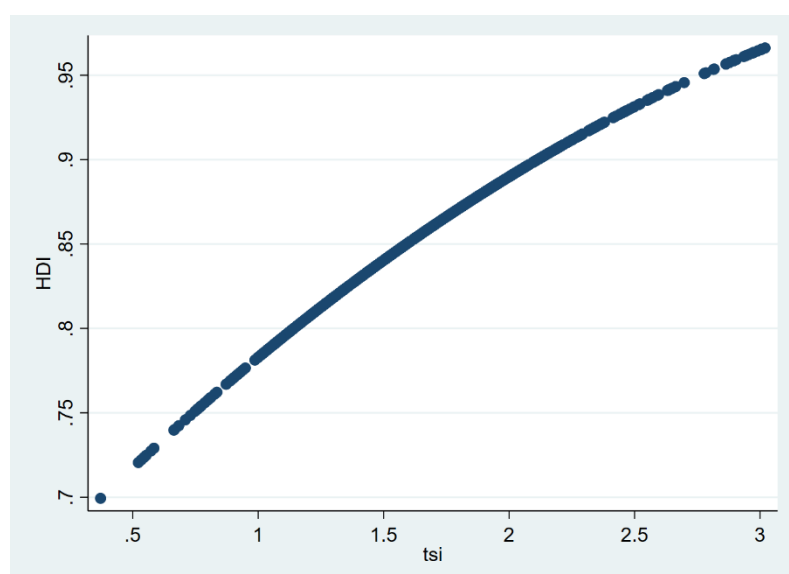
We first compare the FE and FEIS models together with the artificial version of the Hausman test. Table 1 shows the significance of the coefficients obtained from each model. We first run the FE and FEIS model (Ludwig, 2019). If the FE shows statistically significant coefficients and FEIS does not, it means FE is returning spurious results. The latter would mean that once we control for the possible existing trends in each variable, the explanatory variables (here TSI and its quadratic term) have no

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significant effect on the outcome. The artificial version of the Hausman test will determine which of the two models we need to go for. If $p\text{-value} < 0.05$, we reject the FE model and we stick to the FEIS one. However, if the $p\text{-value} < 0.05$, we fail to reject the FE model, although it does not mean we reluctantly accept it. Later we compare the FE model with the random effects regression model (RE). Also, we evaluate whether the coefficients are significant and then we run the original Hausman test. A $p\text{-value}$ lower than our significance level (5%) means that we reject the RE model and we trust the FE one, and vice versa.

As we can see in *Table 1*, we went through the whole process only for the following dependent variables: number of years of healthy life and tertiary school enrolment. On the one side, we reject the FE model when the outcome variables are HDI and GDP per capita. So, we trust the FEIS model, which gives us non-statistically significant coefficients, being our first conclusion. Tourism specialisation has no significant impacts on the HDI or the GDP per capita. Luxembourg, Ireland, Switzerland, and Norway present the highest GDP per capita levels in Europe and are not tourism specialised countries precisely. Because GDP per capita is included in the HDI, we believe that applying Sen's capability approach is necessary. A country's HDI could increase because the general well-being increases or just because only one of its components increases (i.e. GDP per capita). If tourism specialisation offers increased general well-being, then government efforts should be solely destined to promote tourism. If tourism specialisation benefits are only perceived through, for example, household income, then government investments should be directed to guarantee the other social services left (Croes et al., 2021).

We have seen that things get different when we select an indicator of health and education level. Tourism specialisation seems to have a significant impact on the number of years of healthy life and tertiary school enrolment. The nature of this impact is analysed below using TSI and its quadratic term as explanatory variables. As we expected, TSI effects on both variables are positive at the early stages of tourism specialisation, yet we can see a turning point. This means that at certain levels of tourism specialisation the contribution of tourism to education and health indexes is unfavourable.



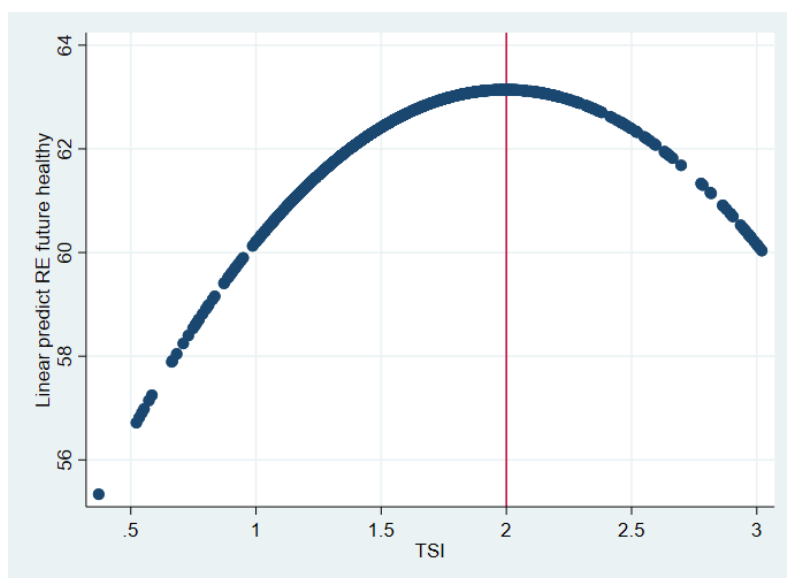
Graph 1. FE Human Development Index prediction

Graph 1 shows the prediction of HDI depending on TSI. Although we cannot see a turning point in our data, the curve is flattening to higher levels of TSI. Nonetheless, the Artificial Hausman Test (AHT) $p\text{-value}$ is 0.0060 which means we reject to use of the FE model (with significant coefficients) in exchange for the FEIS model with no significant coefficients. This means that the FE model is giving us spurious results and that the effect of tourism specialisation has little effect on HDI in Europe.

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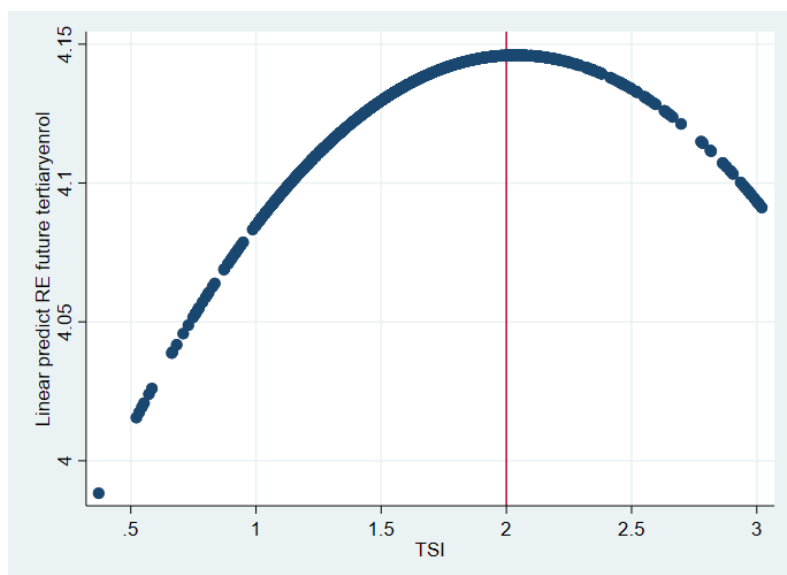
HDI standard deviation goes from 0.06 to 0.04 from 1995 to 2019, which means there is little variation to explain. We will have to delve deeper into specific variables on which human capital and well-being rely.

The same happens if we replace the dependent variable for the natural logarithm of GDP per capita. This time, though, we can see a turning point in our data using the FEIS regression model.



Graph 2. RE regression line: years of healthy life & TSI

We obtain different results when we conduct the regression using the number of years of healthy life as a dependent variable. The AHT's p-value is way above 0.05, thus failing to reject FE. After that, we run the RE as well and compare the coefficients in a standard Hausman test. The results suggest that we should trust the RE model with which we get statistically significant coefficients.



Graph 3. RE regression line: Tertiary School Enrolment & TSI

As we can observe in *Graph 2*, tourism specialisation may increase the number of years people live with perceived health. This could be related to the increased resources households may enjoy, providing access to private insurance, medical care, and healthier habits. Also, it could be linked to a rise in public funds to invest in medicine and health care. However, the graph shows a clear turning point at which the well-being gained in the early stages of tourism specialisation depreciates.

Among the education indicators, the first here analysed is the enrolment in tertiary courses (university studies). Likewise the health indicator, in *Graph 3* we can see a similar pattern. Tertiary school enrolment booms at the early stages of tourism specialisation, however, we can see how the

curve flatters and starts decreasing at high levels of tourism specialisation. As in the previous case, the coefficients of the RE regression model are again statistically significant at a 95% confidence level.

We also conducted the same procedure, this time using adolescents out of school (proportion of the population belonging to the pertinent age and expected school year) as a dependent variable. Although we eventually accept the FE model, the outcome turns to be a non-linear but decreasing curve representing no statistically significant coefficients. This suggests that TSI has no effect on school drop-out in European countries. Dramatic numbers of school abandonment are common when the economic or social situation of the country in question is drastically and negatively hit.

Last but not least, we wanted to assess the tourism specialisation impact on the skill level of the labour market. For this reason, we place the high-skilled employment share as a dependent variable this time. This indicator is the proportion of workers with at least a bachelor degree over a country's total employment. On the one hand, although it shows statistically significant coefficients, we reject the FE model after the AHT. On the other hand, the FEIS model does not present statistically significant results meaning that the FE model gave us spurious results. This is something we expected as high-skilled employment share is stickier over time. The impact of a sudden tourism boom or fall is not going to affect substantially these type of workers as they are meant to hold higher job position both in public or private institutions. Moreover, if we do the same for the low- and medium-skilled employment share, we also reach the same conclusion. Tourism specialisation does not necessarily change the structure of the labour market according to our data.

5. Conclusions

This paper analyses whether high tourism specialisation is beneficial or disadvantageous. We collected a series of tourism, health, education, and economic indicators as well as the HDI of 30 European countries from 1995 and 2019. We conclude that specialising in tourism is an option as valid as specialising in any other industry. Therefore, as long as tourism is well-being enhancing, governments should promote tourism activity because its benefits go beyond merely household income. Nonetheless, we detect a turning point in this phenomenon. High levels of tourism specialisation may worsen other welfare aspects like education levels and health indexes. In this case, governments must mind the unattended social services and guarantee a decent scope of those.

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As we could see in *Graph 2* and *Graph 3*, the turning point seems to be around the value 2 of the tourism specialisation index and the countries going beyond this point are Austria, Croatia, Cyprus, Estonia, Greece, Iceland, Malta and Spain.

This paper provides a general look at the relationship between tourism specialisation and human capital in European countries. This conclusion, however, is far from being dogmatic. To determine important policy implications, the phenomenon here analysed should be studied with country-specific data, comparing for example coastal and non-coastal areas, different tourism supply densities, etc.

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