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Barriers to exports of travel services: the role of visa regimes

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Abstract

Aim: This paper aims to explore the role of visa liberalisation in promoting tourism flows by quantifying the effects of changes in visa regimes.

Methodology: The author focused on Serbia studied in the period between 2006 and 2019, which represents an interesting case as Serbia increased then its integration efforts, opening its economy and changing the visa regime toward numerous countries, providing an opportunity of identifying the effects of visa liberalisation. An extended gravity model was estimated using a sample of travel services exports from Serbia to its 188 partner economies in the aforesaid period employing the Poisson pseudo-maximum likelihood estimators.

Results: It was found that visa liberalisation had a statistically significant positive effect on travel services exports. Moreover, the effect was more pronounced for exports to geographically more distant and higher-income economies.

Implications and recommendations: The study revealed interesting patterns of travel services exports and their determinants which could have useful implications for policymakers. For instance, the results implied that travel services exports could be significantly increased by liberalising the visa regime towards high potential market economies. The study also pointed to the price sensitivity of tourists visiting Serbia and shed light on the effects of cultural factors on tourism flows.

Originality/value: This research innovatively applied the gravity model to analyse travel services exports, filling a notable gap in tourism studies. By focusing on a previously unexplored research sample, in particular on the economy undergoing significant visa liberalisation changes, the study provided a nuanced understanding of the relationship between policy shifts and tourism dynamics. This approach contributes to the adaptability of the gravity framework of international trade in the context of tourism economics and offers valuable insights for policymakers.

Keywords: travel services export, tourism, visa liberalisation, gravity model

1. Introduction

Travel and tourism have become a very important service sector in the world economy. Prior to the pandemic, in 2019 this sector accounted for 10.3% of global GDP while international visitor spending (known as visitor export) amounted to US$1.8 trillion in the same year, representing 6.8% of total world exports in that year (World Travel & Tourism Council, 2022). As one of the world's most dynamic economic sectors, travel and tourism offers enormous opportunities for growth, development and job creation. However, there are barriers that today limit tourism's full potential to offer viable options for economic growth and development (World Tourism Organization, 2012). Apart from the global pandemic which affected this sector in 2020 by halving its economic impact to 5.3% of the global GDP that year, there are many other barriers that curtail the ability of the travel and tourism sector to reach its full potential in the long run, the most prominent being visa policies that countries apply on movement of people across national borders.

Visa requirements are one of the main instruments used for the control of migration. In addition to limiting immigration, they potentially hinder tourism flows by imposing additional costs on prospective tourists. Visas represent a specific regime imposed by countries that affects the export of services, akin to trade regime restrictions in export of goods. The United Nations World Tourism Organization (UNWTO) has initiated a process referred to as travel facilitation that in practice requires visa liberalisation in order to stimulate travel flows around the globe. In some aspects this does not always require the abolishment of visas but rather the introduction of visas on arrival, or e-visas, which represent wider use of information and communication technologies in the visa process.

The aim of this study was to examine how the travel service exports are affected by visa regime liberalisation, as well as other determinants of tourism flows. In addition, the author considered the heterogeneity of the visa liberalisation effects, contingent upon the characteristics of the economies of origin. For this purpose, the case of Serbia was used, which has undergone a considerable change in this regard over the previous two decades. This allowed to quantify the effects of visa liberalisation and observe key patterns determining the tourism inflows of this country. The research focused on visas as a trade regime and a barrier to the export of travel services, whilst the macroeconomic analysis tried to show how a significant variation in visa policy can affect export earnings from travel services.

Considering that a visa requirement imposes burden on prospective visitors, the main research question was how visa policy variation influenced export earnings of travel services of the analysed country. The author tested this by estimating a gravity model of travel services exports using a sample of bilateral flows of Serbia and its 188 economic partners in the period between 2006 and 2019. The model was estimated by employing the Poisson pseudo-maximum likelihood method. The results indicated that there was a positive effect of visa liberalisation in Serbia on the bilateral exports of travel

services. These effects were more pronounced in the bilateral exports to partner economies in the lower-income category and to those economies which are geographically more distant.

The remainder of this paper is organised as follows. Section 2 provides an overview of the related literature. Section 3 presents the sample and data sources used in the analysis, as well as the applied methodology. Section 4 presents the main empirical results of the study, and the final section concludes.

2. Literature review

The fact that approximately two-thirds of the world's population were required to obtain a visa in order to travel to certain destinations, draws attention to the visa regime's negative impact on the tourist services flows, as well as on the overall economic development. In 2013, only 18% of the population had free entrance, or the possibility to enter a country without obtaining a visa, whilst only 15% of the population had the possibility of being granted a visa on their arrival at the destination. Visa processes and policies were seen as major barriers for travelling and tourism by the UNWTO and the world travel market ministers at the summit in London in 2012. The basic activity of the UNWTO would be implementing the visa facilitation process in order to support economic growth and development based on tourism activities (World Tourism Organization, 2013).

The connection and mutual influence between tourism and economic development have been unequivocally confirmed in many studies during the recent decades, with research mostly focused on a single country case, pointing out the support of the tourism sector to economic growth and development. Only a few studies examined the case of Turkey (Ulucak et al., 2020; Karaman, 2016). The role of the tourism-led growth in Spain's economic development was evident during a long period of three decades (Balaguer, & Cantavella-Jorda, 2002). The analyses for Greece pointed out the strong causal relationship between earnings based on the tourism inflows and long-term economic growth (Dritsakis, 2004). Tourists are seen as external consumers, stimulating local and regional producers, while at the same time enhancing regional efficiency. Tourism flows can be seen as determinants of the regional total factor productivity (Marrocu, & Paci, 2011).

Apart from papers that examined the relation of tourism and economic development, several other studies focused on specificities of the visa restriction system and its negative impact on tourists inflows. Karaman (2016) highlighted impact of visa restrictions on inbound tourism in Turkey, using a gravity model to analyse Turkey's tourism demand relating inbound travel to visa requirements, macroeconomic variables, distance and regional contiguity. The countries in the sample were segmented into clusters according to travel freedom their citizens enjoy applying the Henley & Partners visa restrictions index, since Turkey has been using visa policies liberally to promote tourism – an important factor since the imposed visa restrictions had a detrimental impact of 29% on average on the inward mobility of tourists compared to visa-free travel. Based on the Israeli experience during the 1994-2012 period, even the easing of visa restrictions had a significant positive impact on the international tourism increase (Beenstock et al., 2015). In the case of Serbia, the focus was on tourism as an export of the travel services as component of international trade (Bjelić et al., 2012). An increase in tourism would be quite certain if the visa system changed, becoming liberalised, or at least partially liberalised. This was proved for the Israel case study in the research from 2015 based on the panel data on tourism in Israel with tourist inflow from 60 countries during the period 1994-2012 (Beenstock et al., 2015). The authors examined the visa liberalisation's impact on the increase of tourism, and concluded that even partial waivers of visa restrictions could increase the tourism by 48%, Whereas total liberalisation of visa regime would increase it by even 118%. However, the authors also indicated the limiting effect of the Israel security situation on the expected increase in tourism. In the last decade the visa regime of Serbia has significantly changed, becoming more liberal, which provided main impetus to this stud.

One of main directions in literature over recent decades was to examine whether the liberalisation of visas regimes has had a positive impact on the increase of travel flows, and to determine whether there is a negative relationship between the introduction of visas and international flows (World Tourism Organization, 2013; Lawson, & Roychoudhury, 2016; Artal-Tur et al., 2016; Li, & Song, 2013). It was pointed out that the system of imposing visa restrictions contributes to reinforcing existing inequalities (Neumayer, 2006). The negative aspect of a restrictive visa system application was obvious regarding tourism industry, as well as other sectors, trade as well as scientific and cultural exchange (Neumayer, 2010; Neumayer, 2011). The presented research was partially initiated by numerous previous studies of barriers oriented towards travel flows in many countries at the beginning of this century.

Some authors pointed out the importance of orientation towards more developed countries with high financial potential by liberalizing visa regimes, with the aim to increase travel services exports (Bangwayo-Skeete, & Skeete, 2017). Some researchers also included the immigration policies of other destination countries as an important determinant of bilateral migration flows (Bertoli, & Moraga, 2012, 2013). The analysis would not be complete without focusing on the specific role of Regional Trade Agreements concerning tourist inflows and visa-free regimes, since the case of Serbia is firmly connected with RTAs in Europe (Czaika et al., 2018; Khalid et al., 2021).

Lawson and Lemke (2012) examined travel visa restrictions in 188 countries in both dimensions: (1) those facing foreign visitors to a given country, and (2) those facing citizens of a given country travelling abroad. Their analysis showed that countries were more likely to impose visas on foreign visitors originating from large countries, but less likely when dealing with those rich and economically free. Hence, citizens of wealthier and more populous countries face fewer travel visa requirements when travelling abroad, and countries are less likely to impose visa requirements on similar nations. Many researchers used this database in their research, including Lawson and Roychoudhury (2016), who investigated the deterrent effect of travel visa requirements on travel flows. At aggregate level, a one standard deviation more severe travel visa regime, as measured, was associated with a 30% decrease in inbound travel. At bilateral level, having a travel visa requirement on a particular country was linked with a 70% reduction in inbound travel from that country. The advantages related to eliminating travel visas appear to be very large.

A study from 2016, analysed the role of barriers for tourist flows, focusing on the role of the visa restrictions, using the panel data in a theory-grounded gravity model (Artal-Tur et al., 2016). The result of the research additionally confirmed the expected conclusion that there exists a robust, causal negative impact of visa restrictions on international flows. Analysing different, individual events, the negative impact of visa restrictions on tourism could be noted according to (Li, & Song, 2013). The authors evaluated the economic impacts of large-scale events on tourism demand, visa restrictions on tourism as a result of the 1989 Tiananmen Square incident and the 2008 Beijing Olympic Games, by using an innovative combination of econometric and computable general equilibrium (CGE) models. The results showed that both events generated economic losses, and the unexpected negative economic impact of the Beijing Olympics seemed attributable to visa restrictions.

In one of his numerous research papers, Neumayer (2006) found that states use the system of visa restrictions for economic, political, security and immigration control reasons, and suggested that this system reinforced existing inequalities because of the unequal access for passports originating from different states, which is especially true when comparing the status of passports holders from rich, Western countries and all the others. The consequences of the visa restriction system for different groups of people travelling, trade, science, culture and investments were the focus of some contemporary studies, such as the reduced inflows of tourists triggered by visa restrictiveness (Neumayer, 2010). The author concluded that a decreased inflow of visitors, initiated by this visa system, would reduce the number of tourists and business people. He also pointed out that this reduction would be negative for the tourism industry, as well as for trade and for scientific and cultural exchange. The author has noted that visa restrictions would discourage potential visitors – both

welcome and unwelcome. Extending this research, one year later, he analysed the impact of the free visa regime on the level of trade flows and foreign direct investments (Neumayer, 2011), and managed to quantify the degree of high negative impact of the visa restrictions, decreasing trade flows and FDI by about 25%.

Visa policy and its impact on the international migration flows was the main issue for some researches (Bertoli, & Moraga, 2012). Beside other impacts, bilateral migration flows were also determined by immigration policies of other destination countries, whilst further analyses led to the conclusion that the rate of migration between two countries was not based only on their relative attractiveness, but also on other countries' policies and attractiveness (Bertoli, & Moraga, 2013), and the comparison between migrations on one side and trade flows, on the other. Trade costs did not determine completely whether the trade would happen between trading partners from two countries (Anderson, & van Wincoop, 2004). Trade would also depend on the relationship between these costs and costs of partners from other countries. In the paper examining the determinants of a country's number of visa-free privileges, the empirical analysis used count regression models while guided by relevant theories taken from migration studies. Countries that are interested in boosting visitor arrivals should inspect their current visa restrictions to ensure that they are not setting up barriers to territories with high income and financial depth, political stability, and they are members of the EU (Bangwayo-Skeete, & Skeete, 2017).

The dualism of factors with the positive impact, or negative, on the tourist inflows, was pointed out by Ulucak et al. (2020). Their analysis was based on the gravity model for the estimation of the numerous factors affecting the inflow of international tourists in Turkey, during two decades – between 1997 and 2017. The fact that Turkey was the 8th place most visited country, triggered the interest to take this country under the analysis. The augmented gravity model was found appropriate for the analysis of the widespread group of factors which impact on the number of arriving tourists, the authors classified them into two groups. In the first group included many demand-side factors affecting positively foreign tourists to Turkey: per capita income of their origin country and also of Turkey, the relative exchange rate and globalisation. The second group included factors which discouraged tourists from coming to Turkey, and having the negative impact on the number of arrivals, namely: the consumer price index, violence, terrorism, household debt level, and the distance between Turkey and the country of origin.

The country's development level was also an important issue, especially if visa restrictions were implemented for the entry into the developing country as the destination (Artal-Tur et al., 2016). In their analysis, the authors distinguished between the tourism inflows and outflows in developing, as well as in developed countries, and concluded that the negative impact of visa restrictions was shown when the destination for tourists was located only in the developing country. The level of development of the tourists' country of origin, whether developed or developing, did not affect their number. The main conclusion was that the impact of visa restrictions for these two groups of countries was of the same strength, whilst regarding the issue of being developed or developing countries, there were also some contradictory conclusions. The introduction of the visa regime, or visa restrictions system, according to some authors, would have a stronger impact on visitors from developing countries comparing to those from the developed world, reducing on average the bilateral flow of travellers between by 52-63% (Neumayer, 2010).

The regional trade agreements (RTAs) increase initiated a slight decrease of the new visa restrictiveness during the last few decades (Czaika et al., 2018). The rise of visa reciprocity, since the mid-1990s, was also observed, although it was concluded that many countries had asymmetrical visa rules. These authors offered many interesting conclusions concerning the visa regime for both developed and developing countries, pointing out the role of the RTAs for a visa-free regime. They analysed the major flows and trends for the international visa regime during the last few decades, using data on global bilateral travel regulations in the period 1973-2013. They were faced with numerous, different hypotheses, one of which was that countries were increasingly closing their borders, but their conclusions greatly differed depending on the region and/or the level of

development. One of the conclusions was that European and North American OECD countries, the symbol of the developed world, have implemented high levels of visa restrictiveness for people from Africa and Asia, whereas for their intra-travelling no visas were required. The main conclusion was that a visa-free regime was applied for countries integrated in regional blocs such as the EU.

Other authors also pointed out the great importance of the RTAs for the tourism inflows. One paper published in 2021 was oriented towards the analysis of numerous RTAs signing impact on the bilateral tourism flows during the period 1995-2015, making distinctions by the depth of their integration (Khalid et al., 2021), using a panel gravity data set in a cross-country study. The results of their analyses pointed out the importance of the all types of RTAs, concerning bilateral trade flows and their positive impact. The conclusion was the same for the overall RTAs indicator, as well as for a separate analysis of the regions. This conclusion could be useful for the policy creators to be more oriented towards signing RTAs, with the aim to make international tourism flows more intensive. Serbia signed many RTAs during the last two decades, a period matching the research concerning increase in travel inflows, most prominently the Central European Free Trade Agreement from 2006 (CEFTA 2006).

Some authors examined visa-free travel testing a variety of variables, from geography to instances of terrorism, attempting to answer why visa-free travel is granted, and concluded that in order to see a gradual lifting of visa restrictions around the world, one would need to see an increase in democracy and wealth and a decrease in terrorist attacks (Luedtke et al., 2010). This leads to another direction of research on when visa liberalisation could be expected, and could be the way for further development of this analysis. Serbia was the first country in Europe to relax its visa regime towards China. In future the potential offered by the China outbound tourism market will create pressure on other destinations to relax their visa requirements in order to capitalise on the opportunities it presents. Prior studies into the impact of visa liberalisation indicated that the volume of arrivals increased substantially, however scant research has been conducted examining changes in the profile of visitors and their resultant behaviour. Liu and McKercher (2016) examined changes in the Chinese leisure visitor market to Hong Kong from 1998 to 2012, and was grounded in the market access theory. In addition to the significant increase of arrivals during that time, behaviour patterns changed almost completely, as independent tourists were freed from the constraints imposed by the participation in organised group tours. The study offered valuable implications for other destinations that are likely to relax visa requirements for markets such as China (Liu, & McKercher, 2016).

3. Methodology

The authors based the analysis on the gravity model of trade, originally proposed by Tinbergen (1962). The model provides the framework for bilateral trade flows analysis, emphasising the sizes of the partner economies and their geographical distance as the main determinants of the flow. The model has been successfully adapted to the analysis of trade in services and tourism (cf. Bjelić et al., 2023; Morley et al., 2014; Tham et al., 2018), as well as its extensions investigating the effects of visa liberalisation (Artal-Tur et al., 2016; Neumayer, 2010). By adopting this model, the study controlled for the major determinants of travel services exports, allowing to estimate the effects of visa liberalisation more precisely. The baseline specification of the model is represented by Equation 1:

$$X_{ijt} = \beta_0 GDP_{ijt}^{\beta_1} D_{ij}^{\beta_2} RP_{ijt}^{\beta_3} exp\left(\delta_1 HISTORY_{ij} + \delta_2 CEFTA_{ijt} + \delta_3 VISA_{ijt} + \lambda_t\right) \varepsilon_{jt}, \quad (1)$$

where X_{ijt} denotes travel services exports of Serbia (to which index *i* refers) to its partner economy *j* in period *t*, GDP_{ijt} is the sum of the gross domestic product of countries *i* and *j*, D_{ij} is the geographic distance between the two economies, RP_{ijt} refers to the relative prices, $HISTORY_{ij}$ denotes the dummy variable encompassing the cultural commonalities between the countries, $CEFTA_{ijt}$ denotes a common membership in the CEFTA 2006 agreement of the two observed countries, $VISA_{ijt}$ is a dummy variable approximating the effects of visa liberalisation, λ_t refers to time effects and the ε_{jt} is the error term.

Export of travel services (X_{ijt}) was the dependent variable in this analysis, expressed in terms of millions of constant USD. The values show how much Serbia exports to each of the considered partner economies in a year and, for the most part, correspond to foreign travellers' expenditure in the country. Focusing on travel services provides the additional benefit of addressing the aggregation bias, as different segments of services sectors likely react differently to the determinants considered in our study, which, if analysed aggregately, could impact the precision of the estimates and the corresponding conclusion. In this study, the variations in travel services exports are explained by gravity-type factors, including market size, geographic distance, and cultural proximity, and tourism-specific factors, such as the relative costs and visa liberalisation.

The effect of visa liberalisation ($VISA_{ijt}$) was the focus of this research, encompassed by the slope parameter δ_3. Variable $VISA_{ijt}$ was defined as a dummy variable, taking the value of 1 if Serbia does not require a visa for the visitors coming from a partner economy, and 0 otherwise. A liberal regime, not requiring visa application is generally associated with higher convenience for foreign visitors, higher flexibility in terms of the length of their stay, and lower associated travel costs. For this reason, it was expected that visa liberalisation should have a positive effect on the export of travel services in Serbia, which should reflect on the value and the statistical significance of the corresponding parameter. A similar approach in quantifying the effects of visa liberalisation can be found in the majority of the related studies (Artal-Tur et al., 2016; Beenstock et al., 2015; Neumayer, 2010).

Market size is one of the key determinants of any bilateral trade flows, as proposed by the gravity model. A larger market size generally allows for the higher consumption of travel services for the observed country pairs, which should result in higher travel services exports in Serbia. Moreover, a larger market size opens up opportunities for realising economies of scale in the tourism sector, which should further enhance export performance. This study approximated the market size using the gross domestic product (GDP_{ijt}), which is a common approach in the related literature (Santana-Gallego et al., 2016; Xu et al., 2019). Alternatively, the market size was approximated by population (POP_{ijt}). Both approaches correspond closely to the basic idea of the gravity model – that the larger countries establish larger trade flows between each other, and the author used the sum of values for the two economies in a given year. The study did not observe market size for the countries separately, as such an approach would lead to collinearity with time effects, making it impossible to simultaneously control time-specific idiosyncrasies and market size effects.

Distance (D_{ij}) was another key gravity model variable. According to this framework, distance increases trade costs leading to lower trade flows between more geographically distant economies. This study approximated the distance as the geographic distance between the capital cities of the observed economies, calculated using the great circle formula applied to the data on the cities' longitude and latitude. In the context of tourism, greater distances increase travel costs and discourage exports of travel services (Neumayer, 2011).

Relative price level (RP_{ijt}) is, to a certain extent, a tourism-specific variable affecting the travel services exports, i.e. relatively low price levels in the destination country could positively affect the inflows of tourists, particularly if the visitors are price-sensitive. However, if the visitors are not price-sensitive, this could be revealed by the insignificant export effects of relative prices. The author approximated the relative price levels as the ratio between the gross domestic product per capita of Serbia and the gross domestic product per capita of its partner economy, where the higher values of the ratio indicate relatively higher costs for the tourists visiting Serbia and originating from the observed partner economy.

In addition to geographic proximity, tourism flows in Serbia are likely affected by cultural proximity. To account for this, the author introduced history variable ($HISTORY_{ij}$) to the empirical model. The variable was defined as a dummy variable taking the value of 1 if the two economies shared a common history in the previous century (i.e. if the two countries were both constituent republics of the former Yugoslavia), and 0 otherwise. The cultural proximity was characterised with language dummy variable

($LANG_{ij}$), which takes the value of 1 if the economies share the same language or 0 otherwise. Finally, as a combined measure of geographic and cultural proximity, the study used common border dummy variable ($BORDER_{ij}$). Considering that all the three variables were highly correlated, they were used in separate specifications to avoid the multicollinearity problem.

Finally, the study included variable $CEFTA_{ijt}$ in order to control for the effects of economic integration on tourism flows. The integrations were previously found to positively affect bilateral tourism flows (Khalid et al., 2021). As the focus of this study was Serbia, the author considered the effects of integration within the CEFTA 2006 agreement. This was achieved by introducing a dummy variable, taking the value of 1 if the two given countries participated in the agreement in a given year, or 0 otherwise. In addition, the study controlled for the effects of factors not explicitly included as a variable in the empirical model, which simultaneously affected all the considered economies in a given year using the time effects term λ_t, reducing the potential misspecification bias.

The study estimated the static gravity model of travel services export by using the Poisson pseudo-maximum likelihood estimator. Although originally developed as an estimator for the samples containing count data, the estimator was shown to have particularly desirable properties in estimating the gravity model and provides several advantages compared to the estimators used in the related literature. The advantages were particularly pronounced in the context of the research goals and sample characteristics, namely the sample contained 597 instances of effectively zero tourism flows, constitution 23% of all the observations. Using simpler and more common methodological approaches based on the ordinary least squares found in the related literature would lead to the loss of observations and possibly biasing the results (Adeola, & Evans, 2020; Xu et al., 2019). In contrast, the approach used in this study allowed to utilise all the available observations in the analysis, increasing the efficiency of the estimates. Moreover, it enabled to estimate the gravity model in its original multiplicative form, making this approach highly consistent with the underlying theoretical framework, which provides additional benefits of yielding consistent estimates robust to heteroskedasticity and is generally considered to be the most fitting for estimating gravity-type empirical models (Burger et al., 2009; Silva, & Tenreyro, 2006). This methodological choice appears to be adequate in the context of this research, considering the results of Ramsay's Regression Equation Specification Error Test, which did not provide any evidence of misspecification of this model (Ramsey, 1969). As the introduction of fixed effects in the model would lead to collinearity issues with variables distance and common history, and considering that the aforesaid variables are required for the proper specification of our model, the author controlled the heterogeneity of individual country pairs using the random intercept Poisson pseudo-maximum likelihood approach (Prehn et al., 2016). In this relatively large sample, this resulted in approximately the same estimates compared to the fixed-effects Poisson pseudo-maximum likelihood, similarly to other instances of the applications of this estimator (Kastratović, & Bjelić, 2023), which allowed to estimate the effects of the time-invariant variables.

The model was estimated using the sample of Serbia and its 188 partner economies observed in the period between 2006 and 2019 (the full list of the considered partner countries is available in Table A1 in the Appendix). This yielded 2590 observations, allowing to efficiently estimate the effects of visa liberalisation and other factors on exports of travel services, while accounting for the entirety of tourism flows concerning Serbia in the observed period. During that time Serbia witnessed a notable and, for the most part, stable increase in its travel services exports surpassing the level of 1500 million USD annually in 2018 and 2019, as evidenced by Figure 1.

Serbia is a small economy and not an important tourist destination in Europe. According to OECD Serbia has received around 1.8 million tourists per year before the COVID-19 pandemic, and had a negative trade in the travel services balance of 200 million USD annually, according to 2019 data. After the pandemic the number of tourists still did not reach the pre-pandemic levels, but the balance of trade in travel services was positive in 2022. Usually, the majority of tourists that visit Serbia are from neighbouring countries, but this flow was interrupted at the end of the 20th century due to regional conflicts, yet in recent years Serbia has introduced significant variations in its visa policy, liberalising it

towards large economies. Apart from EU member countries, Serbia also abolished visas for China, Turkey and the Russian Federation, which significantly increased the number of tourists from these countries. The following graph shows that export of travel services of Serbia has enjoyed an impressive rise compared to the world average.

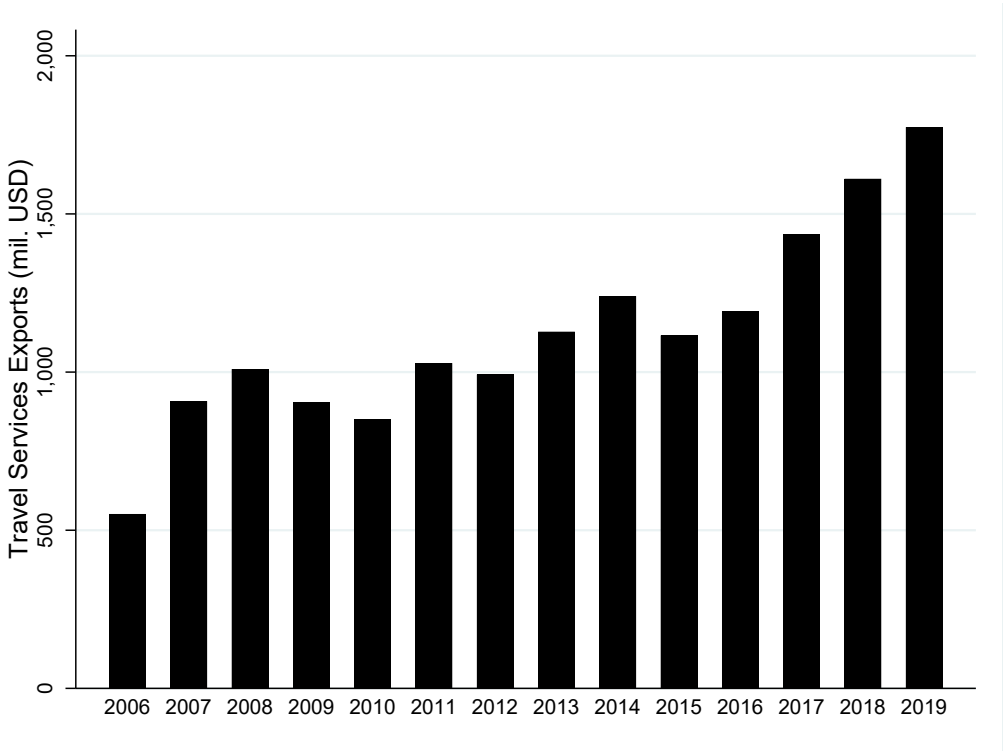

Fig. 1. Travel service exports of Serbia in 2006-2019

Source: authors' calculations based on OECD data.

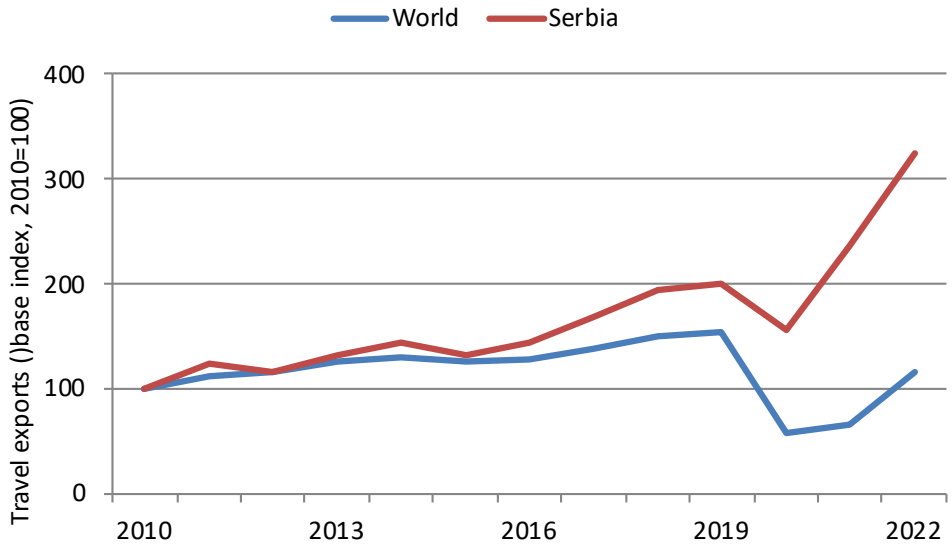

Fig. 2. Comparison of travel services exports growth in Serbia and the world (2010-2022)

Source: authors' calculations based on WTO Stats, https://stats.wto.org/ (accessed on 12.07.2024).

The descriptive statistics for the variables included in the empirical model are provided in Table 1. The statistics reveal that there was a considerable variability in bilateral travel services exports from Serbia. While, on average, Serbia exported a modest 6 million USD to its partner economies, there were

numerous examples of much higher exports, the largest being Bosnia and Herzegovina, Croatia, and, in particular, Germany, where Serbia consistently exported over 150 million USD annually. However, as mentioned previously, there are numerous partner economies where Serbia recorded non-existent or negligible travel services exports. A similar variability existed in nearly all the considered variables, except for the cultural proximity variables, where several countries in South-Eastern Europe represented the entire source of variability.

Table 1. Descriptive statistics of the sample

Variable	Definition	Observations	Mean	Std. dev.	Min	Max
X_{ijt}	The value of travel services exports	2632	5.98	18.482	0	193.69
GDP_{ijt}	Sum of GDP of the destination and origin country	2632	0.402	1.544	0.038	20.123
POP_{ijt}	Sum of population of the destination and origin country	2632	46.852	141.101	8.777	1442.556
$DIST_{ij}$	Distance between the capital cities of the destination and origin countries	2632	5.878	4.051	0.197	18.002
RP_{ijt}	Relative price approximated as the ratio between GDPs per capita of the destination and origin country	2632	2.638	4.706	0.026	58.328
$LANG_{ij}$	Dummy variable for common language	2632	0.027	0.161	0	1
$BORDER_{ij}$	Dummy variable for common border	2632	0.043	0.202	0	1
$HISTORY_{ij}$	Dummy variable for common history	2632	0.027	0.161	0	1
$CEFTA_{ijt}$	Dummy variable for common participation in CEFTA 2006 agreement	2632	0.027	0.163	0	1
$VISA_{ijt}$	Dummy variable denoting visa liberalisation	2590	0.327	0.469	0	1

Note: All the monetary values are expressed in terms of constant prices. Export values are expressed in millions of dollars, GDP – in trillions of dollars, population in millions of people, distance in thousands of kilometres, relative prices are expressed as a ratio, and all the other variables are dummy variables, taking the value of 1 if a particular characteristic is present in the country pair, or 0 otherwise.

Source: authors' calculations.

The results of the correlation analysis are presented in Table 2 and fully support the expected direction and significance of correlations between the dependent and the independent variable. As for the correlation among the independent variables, there was a noticeably high correlation between the market size variables (gross domestic product and population), as well as a significant and high correlation among the cultural proximity variables. For this reason, all the variables were considered in a separate specification characterised by the higher explanatory variable as the baseline model.

Table 2. Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) X_{ijt}	1									
(2) GDP_{ijt}	0.323*	1								
(3) POP_{ijt}	0.085*	0.523*	1							
(4) $DIST_{it}$	-0.335*	0.016	0.014	1						
(5) RP_{ijt}	-0.149*	-0.103*	-0.014	0.004	1					
(6) $LANG_{ij}$	0.367*	-0.036	-0.041*	-0.225*	-0.058*	1				
(7) $BORDER_{ij}$	0.351*	-0.041*	-0.047*	-0.287*	-0.080*	0.784*	1			
(8) $HISTORY_{ij}$	0.475*	-0.036	-0.041*	-0.224*	-0.066*	0.795*	0.620*	1		
(9) $CEFTA_{ijt}$	0.283*	-0.037	-0.042*	-0.226*	-0.052*	0.826*	0.645*	0.638*	1	
(10) $VISA_{ijt}$	0.422*	0.198*	-0.005	-0.320*	-0.315*	0.214*	0.265*	0.239*	0.183*	1

Note: * denotes statistical significance at 5% level.

Source: authors' calculations.

Figure 3 shows a rough comparison between the distribution of travel service exports of Serbia to countries where Serbia requires visas, and to those where there was no such requirement. It is apparent that the largest share of zero and negligible travel services exports observations were concentrated in the subset of partner economies for which Serbia required visas. Moreover, the export values were much more modest for this subset of countries, as in the majority of cases the exports do not surpass 10 million USD, and there were no examples of exports higher than 50 million. In contrast, despite also having some examples of zero and negligible export observations, the majority of observations in the subset of partner economies for which the visas awee not required exhibited significant export values, often surpassing the 50 million USD threshold. On average, Serbia exported 0.61 million USD of travel services to the economies where residents required visas, whereas it exported 17.3 million USD to the other group of partner economies. The difference was statistically significant at all the significance levels, providing the motivation for further and more detailed analysis of the factors determining the values of travel services exports.

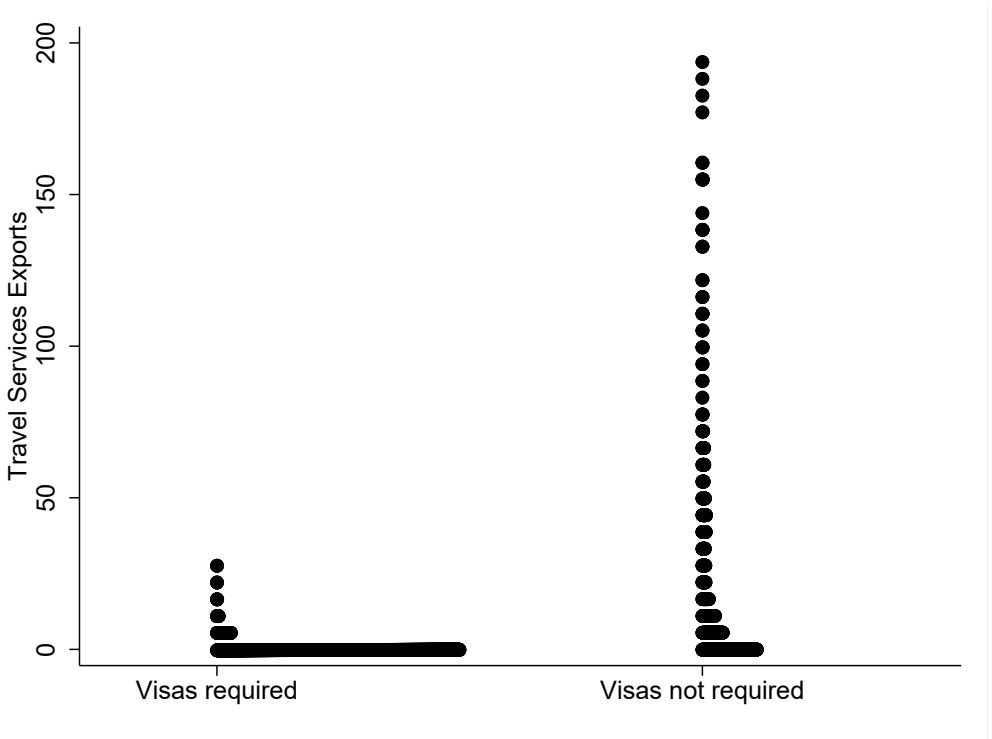

Fig. 3. Distribution of travel services exports of Serbia by visa requirements for the country of origin

Source: authors' calculations based on the OECD and Ministry of Foreign Affairs of Serbia data.

The sample used in the analysis was constructed by combining several data sources. The bilateral data on travel services exports were obtained from the Balanced Trade in Services database published by the Organization for Economic Cooperation and Development, whilst the data on gross domestic product and population were collected from the United Nations Conference on Trade and Development. Data on geographic and cultural distance were provided by *the Centre d'Etudes Prospectives et d'Informations* (CEPII), and the data on CEFTA 2006 agreement membership were obtained from the Central European Free Trade Agreement website. Data on the visa regime were collected by the author, using the documentation of the Serbian Ministry of Foreign Affairs as its basis.

4. Results

The estimation results for the baseline model are presented in Table 3. Column (1) refers to the baseline specification represented by Equation (1). Specifications (2) and (3) differ from the first one in using the alternative approach to approximating the cultural proximity, as previously discussed. Specifications (4) to (6) differ from the first three specifications in using population rather than the gross domestic product as a means of approximating the market size. All the specifications were estimated using the full sample of 2590 observations. Each specification was statistically significant as a whole, as indicated by the chi-squared test results. The RESET test did not indicate misspecification in any of the considered models. Finally, all the specifications fitted the data well, as indicated by the adjusted coefficient of determination. However, as specification (1) had the highest explanatory power, it was considered a preferred specification and the basis for the sensitivity analysis.

Table 3. Baseline model estimation results

Variables	(1)	(2)	(3)	(4)	(5)	(6)
GDP_{ijt}	0.257***	0.259***	0.257***			
	(0.019)	(0.019)	(0.019)			
POP_{ijt}				0.003***	0.003***	0.003***
				(0.000)	(0.000)	(0.000)
$DIST_{ij}$	-0.481***	-0.502***	-0.501***	-0.289***	-0.308***	-0.305***
	(0.044)	(0.044)	(0.047)	(0.027)	(0.028)	(0.029)
RP_{ijt}	-0.414***	-0.463***	-0.485***	-0.752***	-0.812***	-0.846***
	(0.057)	(0.064)	(0.068)	(0.089)	(0.090)	(0.093)
$HISTORY_{ij}$	1.166***			1.167***		
	(0.080)			(0.084)		
$LANG_{ij}$		1.150***			1.230***	
		(0.112)			(0.119)	
$BORDER_{ij}$			0.305**			0.425***
			(0.122)			(0.124)
$CEFTA_{ijt}$	-0.134	-0.297**	0.530***	0.121	-0.089	0.735***
	(0.107)	(0.146)	(0.142)	(0.122)	(0.159)	(0.152)
$VISA_{ijt}$	0.953***	0.977***	1.002***	1.438***	1.438***	1.437***
	(0.118)	(0.119)	(0.119)	(0.113)	(0.113)	(0.112)
Constant	2.552***	2.644***	2.633***	2.057***	2.167***	2.169***
	(0.179)	(0.177)	(0.180)	(0.163)	(0.162)	(0.164)
Observations	2590	2590	2590	2590	2590	2590
Chi-squared	2428.04 (0.000)	1534.10 (0.000)	1216.82 (0.000)	2411.85 (0.000)	1549.02 (0.000)	1272.82 (0.000)
R^2	0.715	0.698	0.688	0.655	0.640	0.631
RESET	0.87 (0.647)	3.45 (0.178)	4.27 (0.118)	1.84 (0.398)	1.60 (0.448)	0.77 (0.681)

Note: Travel services exports are the dependent variable in all specifications. Robust standard errors are provided in the parentheses. Statistical significance levels of 1% and 5% are represented by *** and **, respectively. Chi-squared refers to chi-squared statistic. The value in the parenthesis underneath refers to the respective p-value. R^2 denotes the pseudo-coefficient of determination. RESET refers to Ramsey regression equation specification error test statistic and the corresponding p-value (in parentheses).

Source: authors' calculations.

The results revealed that visa requirements were among the key factors determining the exports of travel services, both statistically and economically. The corresponding coefficients were statistically significant at 1% level, and the statistical significance was robust to changes in specification. The results

showed that liberalisation of the visa regime increased the bilateral travel services exports by between 159.3% and 321.2% depending on the specification. This implies that liberalising the visa requirement towards other economies could be an important instrument in attracting tourists and increasing the tourism revenue in Serbia. In absolute terms, the benefits of liberalisation depend on the characteristics and existing levels of tourism flows, and for this reason it is important to consider other factors determining the travel services exports.

These results are in line with the majority of related empirical studies that explicitly tested the relationship between visa liberalisation and tourism (Beenstock et al., 2015; Li, & Song, 2013). The economic significance of the determined positive effect of visa liberalisation was comparable to the results of Lawson and Roychoudhury (2016), derived on the bilateral inbound travel flows, and estimated the effects of visa requirements at approximately 70%. At the same time, when the relevant multipliers are accounted for, visa liberalisation was shown to bring gains in an even higher proportion, i.e. of similar magnitude to the author's estimations. In turn, this implies that the effects of visa liberalisation in Serbia are on the global-average level.

The results also corroborate the findings of Neumayer (2010), who estimated the effects of visa restrictions on tourist arrivals at between 52% and 63% for tourism flows to developing countries originating from developed countries. The result was slightly lower but still comparable to the previously discussed results of Lawson and Roychoudhury (2016). The detrimental effects of restrictive visa regimes were found to be less economically significant in the case of Turkey, where the effect was estimated at 29% on average (Karaman, 2016).

The latest studies indicate that the effects of visa liberalisation could be dependent on the destination country development level, with developed countries realising the highest benefits of the liberalisation (Rosselló, & Santana-Gallego, 2024), suggesting that the positive effects of visa liberalisation in Serbia could be complemented with its economic growth. This was confirmed by the estimates for the study's GDP control variable, which suggests that the economic growth of Serbia contributes to the highest volume of exports of travel services.

All the gravity model determinants exhibited the expected influence over travel service exports. The market size was found to positively affect the exports in all the specifications, and the effect in all the cases was statistically significant at 1% level. The results show that Serbia realises higher export income from larger countries, all other things being equal. Moreover, this implies that the economic growth in Serbia could, to a much lesser extent, promote the inflows of tourists to the country. This is in line with the results of other analyses indicating the important role of external business cycles for tourism (Sheng et al., 2023). Another interesting implication of this result was that the economic contractions could negatively affect the tourism development in Serbia, which is particularly relevant in the current unstable global economic environment.

As expected, distance was shown to negatively affect the travel services exports. The corresponding coefficients were statistically significant at 1% level in all the considered specifications. Their values demonstrated that an increase in the geographic distance between the capital cities of the considered economies by 1000 kilometres leads to a decrease in travel service exports by between 33.50% and 65.03%. This reflects the difficulty Serbia faces in attracting visitors from more remote countries of origin, and problem could be alleviated by establishing direct flights to high-potential distant countries of origin and developing the airline and railway infrastructure, thereby reducing the negative effects of geographic distance.

Relative price levels were consistently found to negatively affect travel service exports. The related coefficients were statistically significant at 1% level in all the specifications, indicating the robustness of the results. These results showed that the relatively lower the standards of living in Serbia in comparison to the partner economy are, the higher the tourism inflows from the said partner economy, whereas the relatively higher living standards and prices in Serbia discourage tourism inflows from lower-income countries. The results confirmed that the tourists visiting Serbia in the observed period

were largely price-sensitive, hence Serbia could realise the highest benefits of visa regime liberalisation by relinquishing the visa requirements for tourists from the larger and higher-income partner economies.

Another highly important factor determining the travel service exports in Serbia were cultural proximity variables. In particular, common history was found to positively affect the exports, and the results were significant at 1% level, suggesting that Serbia has more than triple the exports of travel services to the countries with which it shares a history than to the other comparable countries. Therefore an important decision factor for tourists visiting Serbia could be the shared culture and language, and alternative specification have led to similar conclusions. Finally, the results suggested that the participation in the CEFTA 2006 agreement could have benefited the exports of travel services in Serbia, although this finding was not robust to the changes in specification.

The robustness of the estimation results for the baseline model was checked by estimating the model using the subsamples, constructed by shortening the timeframe of the analysis by excluding the first, first two, last and the last two years of observation (see Table 4). The results entirely confirmed the previously discussed conclusions. All the coefficients maintained the same high levels of statistical and economic significance, furthermore their values did not alter significantly when the changes in the sample were made.

Table 4. Robustness check

Variables	2007-2019	2008-2019	2006-2018	2006-2017
GDP_{ijt}	0.255***	0.250***	0.264***	0.270***
	(0.019)	(0.019)	(0.021)	(0.023)
$DIST_{ij}$	-0.474***	-0.463***	-0.491***	-0.498***
	(0.045)	(0.045)	(0.050)	(0.055)
RP_{ijt}	-0.402***	-0.407***	-0.428***	-0.426***
	(0.058)	(0.061)	(0.063)	(0.065)
$HISTORY_{ij}$	1.187***	1.196***	1.139***	1.152***
	(0.082)	(0.086)	(0.078)	(0.081)
$CEFTA_{ijt}$	-0.157	-0.158	-0.121	-0.118
	(0.106)	(0.111)	(0.105)	(0.109)
$VISA_{ijt}$	0.997***	1.049***	0.918***	0.873***
	(0.123)	(0.128)	(0.127)	(0.133)
Constant	2.520***	2.471***	2.559***	2.561***
	(0.186)	(0.193)	(0.194)	(0.205)
Observations	2405	2220	2405	2220
Chi-squared	2367.34 (0.000)	2244.77 (0.000)	2587.19 (0.000)	2401.67 (0.000)
R^2	0.715	0.715	0.712	0.709

Note: Travel services exports are the dependent variable in all the specifications. Robust standard errors are provided in the parentheses. Statistical significance level of 1% is represented by ***. Chi-squared refers to chi-squared statistic. The value in the parenthesis underneath refers to the respective p-value. R^2 denotes the pseudo-coefficient of determination.

Source: authors' calculations.

Considering the importance of geographic and income factors in determining the patterns of travel services exports, the author stratified the sample into subsets based on the partner economies' distance and income level. The values of exports to these subsets of economies from Serbia are presented in Figure 4.

In the left panel, partner economies were stratified using the distance criterion defined in the classification of the long-distance travel market (van Goeverden et al., 2019). The segmentation was useful, as different categories typically have a preferred method of arrival to destination, namely tourists

originating from the closest economies may choose cars as the most convenient method of arrival. For the 500-1200 kilometres and 1200-2000 kilometres categories, buses and trains became the preferred method. Finally, for visitors from economies of origin located more than 2000 kilometres from Belgrade, air transportation was the norm. Additionally, the set of countries was further segmented using the standard deviation as a criterion to identify the subset of the most remote partner economies, as many economies' capital cities are located more than 2000 kilometres from the capital city of Serbia.

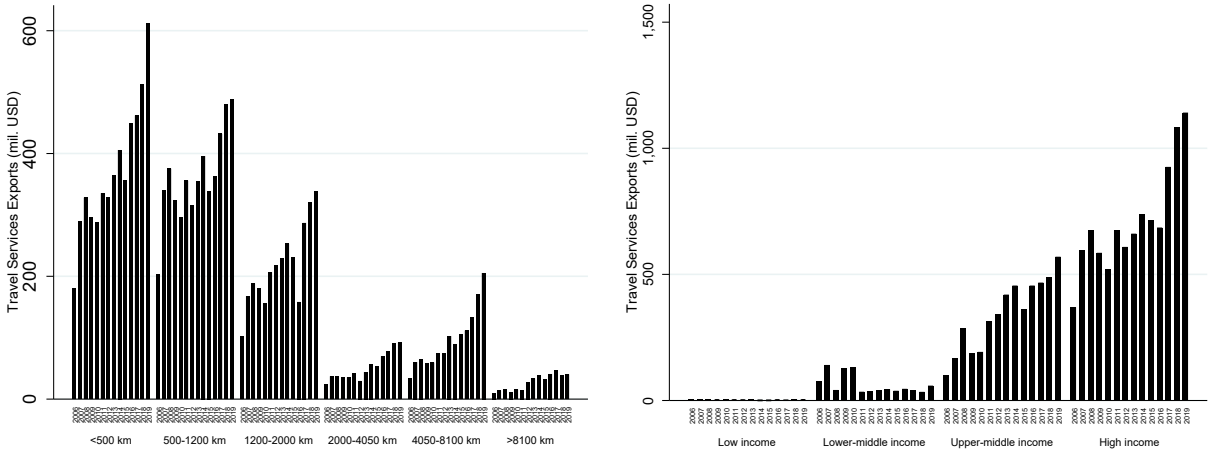

Fig. 4. Travel services exports of Serbia by the characteristics of countries of origin

Source: authors' calculations based on OECD data.

The analysis revealed some interesting patterns. It was noticeable that in all the subsets there was an evident upward trend of travel services exports over time. However, the majority of the exports were realised from the countries geographically closest and located on the same continent. Moreover, the very dynamic increase in exports to the countries on other continents implies the necessity to consider the potential of large distant economies of origin and take the necessary actions, such as visa regime liberalisation and establishing reliable and affordable transport connections.

In the right segment of Figure 4 one can note that despite the relatively high number of economies in the low-income and lower-middle-income categories, the aggregate exports of travel services to these groups of countries were negligible. In addition to relatively low levels of exports, there was a noticeable economic trend, whereas the exports of travel services to upper-middle and high-income countries were relatively high and characterised by a clear upward trend. This suggests that the two groups of countries have a higher potential as export markets for Serbia, and the development of tourist product offers should primarily cater to the tourists originating from these two groups of economies.

Regarding the importance of distance and income levels of partner economies rudimentarily outlined in the descriptive analysis, the study further explored the role of visa liberalisation using the subsamples based on the previously described stratification. Table 5 presents the estimation results based on the subsamples of countries categorised by geographic distance.

Table 5. Model estimations based on partner countries subsets categorised by geographic distance

Variables	<500 km	500-1200 km	1200-2000 km	2000-4050 km	4050-8100 km	>8100 km
GDP_{ijt}	5.302***	0.724***	0.790***	2.434***	0.179***	0.500***
	(0.383)	(0.043)	(0.039)	(0.101)	(0.017)	(0.069)
$DIST_{ij}$	-6.801***	-0.490*	0.301	0.396***	-0.177**	-0.061
	(0.716)	(0.261)	(0.261)	(0.083)	(0.084)	(0.047)
RP_{ijt}	-0.628***	-1.133***	-0.310*	-0.744***	-0.245***	0.042
	(0.200)	(0.321)	(0.159)	(0.081)	(0.037)	(0.117)
$HISTORY_{ij}$	1.937***	2.147***				
	(0.122)	(0.281)				

Variables	<500 km	500-1200 km	1200-2000 km	2000-4050 km	4050-8100 km	>8100 km
$CEFTA_{ijt}$	-0.655***	-0.485				
	(0.142)	(0.321)				
$VISA_{ijt}$	-0.228	-0.135	1.095***	0.252**	1.036***	1.865***
	(0.215)	(0.223)	(0.333)	(0.103)	(0.315)	(0.302)
Constant	5.205***	3.369***	0.466	-0.929***	1.182**	-1.347***
	(0.447)	(0.369)	(0.669)	(0.327)	(0.560)	(0.457)
Observations	140	182	322	322	854	770
Chi-squared	443.06 (0.000)	1312.28 (0.000)	1113.05 (0.000)	1775.16 (0.000)	2062.21 (0.000)	598.92 (0.000)
R^2	0.705	0.762	0.576	0.64	0.749	0.366

Note: Travel services exports are the dependent variable in all specifications. Robust standard errors are provided in the parentheses. Statistical significance levels of 1%, 5%, and 10% are represented by ***, **, and * respectively. Chi-squared refers to chi-squared statistic. The value in the parenthesis underneath refers to the respective p-value. R^2 denotes the pseudo-coefficient of determination.

Source: authors' calculations.

A general pattern of the growing significance of a liberal visa regime with the increase in geographic distance of the country of origin was evident, i.e. the effects of visa requirements on travel services exports were insignificant in the case of countries whose capital cities are located up to 1200 kilometres away from the capital of Serbia. This could be due to the fact that Serbia has already liberalised its visa regime for most countries in this category, whilst the countries for which the visas were required were typically those with developed domestic tourism, generally low international tourism outflows, and a relatively lower income level. As the distance increased, visa requirements became increasingly important. Visa liberalisation has the potential to increase Serbian travel services exports to the group of the most remote countries by 545.5% on average. The presented specifications for the most part support the previously discussed effects of all the control variables, corroborating the relevance of the gravity model of trade in this analysis.

Finally, a similar sensitivity analysis was conducted using the categories of countries based on income level. The results are presented in Table 6.

Table 6. Model estimations based on partner countries subsets categorised by income level

Variables	Low income	Lower-middle	Upper-middle	High income
GDP_{ijt}	2.646***	0.746***	0.369***	0.291***
	(0.535)	(0.105)	(0.025)	(0.034)
$DIST_{ij}$	-0.042	-0.198***	-0.558***	-0.646***
	(0.075)	(0.034)	(0.037)	(0.094)
RP_{ijt}	-0.093***	-0.217***	-0.474*	-3.064***
	(0.021)	(0.078)	(0.270)	(0.488)
$HISTORY_{ij}$		2.497***	1.160***	1.200***
		(0.284)	(0.150)	(0.106)
$CEFTA_{ijt}$		-0.11	0.054	
		(0.220)	(0.158)	
$VISA_{ijt}$	-1.886***	1.347***	0.534***	0.663***
	(0.630)	(0.242)	(0.180)	(0.219)
Constant	-1.208**	0.734***	2.898***	3.541***
	(0.505)	(0.280)	(0.292)	(0.346)
Observations	418	775	663	734
Chi-squared	54.87 (0.000)	1011.54 (0.000)	1167.25 (0.000)	884.69 (0.000)
R^2	0.076	0.631	0.764	0.613

Note: Travel services exports are the dependent variable in all specifications. Robust standard errors are provided in the parentheses. Statistical significance levels of 1, 5%, and 10% are represented by ***, **, and * respectively. Chi-squared refers to chi-squared statistic. The value in the parenthesis underneath refers to the respective p-value. R2 denotes the pseudo-coefficient of determination.

Source: authors' calculations.

Interestingly, visa requirements positively affected travel services exports to low-income countries. This peculiarity was probably caused by the small sample size of the low-income group of countries for which the visa regime was liberalised. There are only a few such countries, all of which are geographically distant and relatively small in terms of economy size and population, leading to negligible exports of travel services to these countries. However, visas are a requirement for most low-income countries, some of which include large countries with which Serbia has higher levels of diplomatic and economic cooperation, which could explain higher exports of travel services. In the case of other subsamples, visa requirements had the expected positive and statistically significant impact on Serbian travel services exports. The effect was the most strongly pronounced for lower-middle-income countries, although the effects were also highly economically significant in the other two groups of economies. This implies that Serbia could greatly increase its exports of travel services by liberalising the visa regime to the aforesaid countries.

The effects of control variables on travel services exports also demonstrated interesting patterns. The market size became less important as a factor determining the travel services exports as the income level of the observed economy progressed. This implies a benefit in focusing on the tourists originating from upper-middle and high-income countries, as the inflows are likely to be less volatile in an unstable global economic environment.

Another interesting pattern identified in our analysis related to the effects of geographic distance, namely distance became an increasingly important factor negatively impacting the exports of travel services as the partner economies' income levels progressed. Hence, this factor's effects were insignificant in the case of low-income economies, whilst significant but with a relatively low intensity for lower-middle-income countries. Exports to upper-middle-income economies negatively reacted approximately twice as much in the case of lower-middle-income economies, whereas the strongest negative effect was found for the subset of high-income countries where the increase in distance by a thousand kilometres decreased the exports of travel services from Serbia to those countries by 91.78% on average.

A similar regularity emerged in the case of relative price levels. Visitors from low-income economies were the least price-sensitive, although the higher standard of living in Serbia did, to a certain extent, limit the tourism inflows from this group of economies. Compared to this, the negative effects were more than twice as intense in the case of lower-middle-income economies and over five times more intense for upper-middle-income countries. The most price-sensitive visitors come from high-income countries, which should be taken into account when formulating measures for attracting tourists from these economies. Finally, cultural proximity mattered the most for exports of travel services to lower-middle-income economies, whereas the importance of these factors dropped for higher-income economies, although it remained statistically significant. This could imply that despite sharing the same history and/or language, an increase in income primarily in Slovenia and Croatia opens up the possibilities for their tourists, increasing the competition Serbia faces when trying to attract the tourists originating from these countries.

5. Discussion and conclusions

Travel services are of growing importance in the global economy. The main barriers to a greater expansion of travel services are visas, as determined by numerous studies. Many countries have liberalised their visa regimes in recent years in order to attract travellers and compete on a global travel market. This liberalisation did not merely include abolishment of visas but also simplification of visa procedures, including visas issued at the border system and the electronic visa (e-visa).

Serbia is a country steadily developing its travel industry and which has made recent visa regime variations. This study examined the effect of visa liberalisation on bilateral travel services exports of Serbia in the period between 2006 and 2019. For this purpose, the author estimated a gravity model

of bilateral travel services exports using the Poisson pseudo-maximum likelihood estimator. The empirical results suggested that the existence of visa requirements for visitors originating from a particular partner economy had a negative effect on travel services exports to that economy. In other words, the visa regime has been very restrictive to travel services exports of Serbia, and visa liberalisation can be considered a strategy for targeted promotion of tourism inflows from economies with high potential. The effects of the other considered determinants shed light on the characteristics of these high potential economies.

The results suggest that the main gravity-type factors have a significant effect on the intensity of bilateral tourism flows. Serbia exports more travel services to partner economies that are economically larger and geographically closer. Traditionally, tourist from European Union countries and CEFTA 2006 economies have made up the majority of visitors in Serbia, found to be price sensitive on average. Finally, cultural factors are also among the major determinants of travel services exports. These findings are in line with the heterogeneity of the visa liberalisation effects determined by the study, i.e. visa liberalisation matters most for visitors from lower income economies that are geographically more distant.

The research results show that visa liberalisation, particularly towards the previously indicated partner economies, can be used as an instrument to promote exports of travel services, however they also reveal the danger of the prospective harmonisation of the visa regime of Serbia with the European Union, a part of its accession process. Serbia has liberalised its visa regime for tourists originating from Iran, Tunisia and India, but under pressure from the EU, in 2022 it harmonised its visa policy with the EU Schengen area countries, again requiring visas towards the mentioned partners. Making the regime more restrictive to populous developing countries is likely to negatively affect Serbia's tourism sector, exacerbating the negative effects already occurring due to the contraction of economic activity of its economic partners. Serbia has liberalised its visa regime towards China and has experienced a large inflow of Chinese tourists. This process needs to be offset by improving the competitiveness of tourism attractions offered by Serbia, which requires substantial future investment.

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Appendix

Table A1. The list of Serbia's partner economies

Afghanistan	Costa Rica	Iceland	Morocco	Slovenia
Albania	Côte d'Ivoire	India	Mozambique	Solomon Islands
Algeria	Croatia	Indonesia	Myanmar	Somalia
Angola	Cuba	Iran	Namibia	South Africa
Antigua and Barbuda	Cyprus	Iraq	Nepal	Spain
Argentina	Czech Republic	Ireland	Netherlands	Sri Lanka
Armenia	Democratic People's Republic of Korea	Israel	New Caledonia	Sudan
Australia	Democratic Republic of the Congo	Italy	New Zealand	Suriname
Austria	Denmark	Jamaica	Nicaragua	Sweden
Azerbaijan	Djibouti	Japan	Niger	Switzerland
Bahamas	Dominica	Jordan	Nigeria	Syrian Arab Republic
Bahrain	Dominican Republic	Kazakhstan	North Macedonia	Tajikistan
Bangladesh	Ecuador	Kenya	Norway	Tanzania
Barbados	Egypt	Kiribati	Oman	Thailand
Belarus	El Salvador	Korea	Pakistan	Timor-Leste
Belgium	Equatorial Guinea	Kuwait	Palestinian Authority or West Bank and Gaza Strip	Togo
Belize	Eritrea	Kyrgyzstan	Panama	Tonga
Benin	Estonia	Lao People's Democratic Republic	Papua New Guinea	Trinidad and Tobago
Bhutan	Eswatini	Latvia	Paraguay	Tunisia
Bolivia	Ethiopia	Lebanon	Peru	Turkey
Bosnia and Herzegovina	Fiji	Lesotho	Philippines	Turkmenistan
Botswana	Finland	Liberia	Poland	Turks and Caicos Islands
Brazil	France	Libya	Portugal	Tuvalu
Brunei Darussalam	Gabon	Lithuania	Qatar	Uganda
Bulgaria	Gambia	Luxembourg	Romania	Ukraine
Burkina Faso	Georgia	Madagascar	Russia	United Arab Emirates
Burundi	Germany	Malawi	Rwanda	United Kingdom
Cape Verde	Ghana	Malaysia	Saint Kitts and Nevis	United States
Cambodia	Greece	Maldives	Saint Lucia	Uruguay
Cameroon	Grenada	Mali	Saint Vincent and the Grenadines	Uzbekistan
Canada	Guatemala	Malta	Samoa	Vanuatu
Central African Republic	Guinea	Mauritania	Sao Tome and Principe	Venezuela
Chad	Guinea-Bissau	Mauritius	Saudi Arabia	Viet Nam
Chile	Guyana	Mexico	Senegal	Yemen
China (People's Republic of)	Haiti	Moldova	Seychelles	Zambia
Colombia	Honduras	Mongolia	Sierra Leone	Zimbabwe
Comoros	Hong Kong, China	Montenegro	Singapore	
Congo	Hungary	Montserrat	Slovak Republic	

Source: authors' study.