Do foreign visitors reward post-communist countries? Panel evidence for the tourism-growth nexus.

Raufhon Salahodjaev[1]

Nilufar Safarova

Antonio Andres

Abstract: Using cross-country panel data for 27 post-communist countries over the period of 1991-2012, we provide new empirical evidence that tourism has a significant and positive effect on economic growth after controlling for conventional determinants in the growth equation. The System GMM results suggest that when per capita tourism receipts increase by 10%, the per capita growth rate increases by 1.36% points, ceteris paribus. The results remain robust under various estimation methods.

Keywords: tourism, economic growth, post-communist, GMM, PCSE.

HIGHLIGHTS:

- Estimate the effect of tourism on economic growth in post-communist countries.
- Use various techniques such as panel-corrected standard error (PCSE) and System GMM.
- Results are in line with related cross-country studies.

[1] Corresponding authors email – salahodjaev@gmail.com

1. Introduction

Economists are increasingly paying attention to tourism as an important driver of development. The increase in tourism receipts has been recognised as a source of household income, tax revenue and foreign exchange earnings (Sinclair, 1998; Lee & Chang, 2008). Naturally, tourism has important implications for sustainable development, as it is considered to be an effective tool for poverty reduction (de Kadt, 1979), employment generation (Lim, 1997) and female empowerment (Tucker & Boonabaana, 2011).

In addition, since the seminal works of Lanza and Pigliaru (2000) and Balaguer and Cantavella-Jordà (2002), the empirical literature on the relationship between tourism and economic growth has boomed. By and large, cross-country (Lanza et al., 2003; Eugenio-Martin et al., 2004; Holzner, 2011) and time series (Dritsakis, 2004; Massida & Mantana, 2013) studies lend support to the positive effect of tourism on economic growth. A celebrated seminal paper by Lee & Chang (2008) reports that a 1% increase in tourism is associated with a 0.13-0.36% increase in domestic real income in OECD countries and an estimated increase of 0.17-0.61% in non-OECD countries.

More recently, a meta-study by Castro-Nuño et al. (2013) of 87 papers shows that tourism contributes to economic growth and concludes with the statement "future research focused on specific groups of countries (from specific geographic regions, with a similar income level) would likely extend their findings". Similarly, Chou (2013 p.227) argues that tourism spending-growth relationships may be country-specific; therefore, it is necessary to recognise the heterogeneous nature of the countries under investigation. Within the extended discussion over the increasing relevance of tourism as a determinant of economic growth, there is not yet evidence of the link between tourism and economic growth in post-communist economies. Although the share of tourism in the GDPs of post-communist countries has been small compared to global averages, the region has experienced an immense increase in tourism receipts in recent years. Recorded average real per-capita tourism receipts in post-communist nations increased from nearly US$180 in 1990 to an estimated US$471 in 2012.

Over the past 25 years, the nature of tourism in post-communist societies has significantly changed in terms of the relationships between tourism product supply and demand, dominant modes of tourism activities, the industry's organisational structure and many other major characteristics. If communist states had a monopolistic power over all aspects of tourism, after the 1990s they began to deregulate tourism activities, as well as to liberalise the respective economies and become integrated within the dynamic domestic and global tourism markets. The transformation process from social tourism to a market-oriented tourism industry has been investigated by Hall (1991; 1995), Richards (1996) and others. However, these studies concentrate mainly on describing the nature of those processes and there is a considerable lack of critical evaluation and analysis of tourism-growth behaviour in post-communist societies.

Related literature provides several different channels, both direct and indirect, through which tourism development may have an effect on economic growth in post-communist countries. Firstly, international tourism expansion increases economic growth via foreign exchange earnings, which contribute to capital goods that can be used in the production process (McKinnon, 1964). Increasing foreign exchange earnings used to pay for imports of goods and innovative technologies for the manufacturing sector, as well as maintaining the level of international reserves, is one of the top priorities for post-communist government authorities.

Secondly, tourism as a significant employment generator increases and activates income for citizens through multiplier effects (Brida et al, 2014). This channel has important implications for inclusive economic growth as it attracts poorer people into productive employment and increases public welfare. Since tourism spill-overs often go to impoverished households and increase earnings, they could become a large-scale resource transfer tool that could alleviate poverty levels and increase final consumption.

Thirdly, tourism stimulates private and public investments in new infrastructure, technology and human resources (e.g. Eugenio-Martin et al, 2004; Sakai, 2009). Technology and human capital play a critical role in explaining economic growth (e.g. Romer, 1990; Hall and Jones, 1999; Barro, 2001). Improved physical (e.g. Feng & Morrison, 2007; Lemmetyinen & Go, 2009) and human capital (e.g. Blake et al., 2006) in tourism leads to the efficient allocation of production factors and reduces inequality (e.g. Haddad et al., 2013) via innovation diffusion, enhancement in competitiveness (e.g. Krueger, 1980; Helpman & Krueger, 1985) and economies of scale (e.g. Andriotis, 2002; Croes, 2006). Indeed, increases in economies of scale enable businesses to reduce average production costs and diversify tourism facilities and products (Weng & Wang, 2004).

Finally, tourism stimulates other industries by producing direct, indirect and induced effects (Syriopoulos, 1995; Spurr, 2009). Changes in tourist spending impact many sectors of the economy and produce multiplier effects of tourism. The magnitude of tourism multipliers depends on the size of the country's territory and its self-sufficiency. A higher propensity of businesses and households to buy goods and services from local suppliers supports higher tourism multipliers in the destinations visited by tourists.

In light of the above, the main purpose of this paper is to empirically assess the relationship between tourism development and economic growth based on a sample of 27 post-communist countries over the period 1991-2012. The post-communist countries considered in this paper make up the former Soviet republics (with the exception of Turkmenistan, due to the absence of available data) together with other Central and Eastern European countries with a common political history[2]. The rationale and motivation for our research question is that there is a clear gap within current literature on a subject that is critical for the future economic development and social change in post-communist countries. Our empirical model exploits the longitudinal feature of the data, and deals with the issue of endogeneity and serial correlation in the error term, which have been largely neglected in earlier panel data studies on tourism in post-communist countries. For that reason, we estimate different panel data models in a dynamic context. This research demonstrates that tourism development helps further explain variations in economic growth. Higher levels of tourism receipts result in higher levels of economic growth. These results remain robust when we apply different model specifications.[3]

This paper is organised as follows: Section 2 provides an overview of the link between tourism development and growth; Section 3 discusses the recent trends and characteristics of tourism in post-communist countries; Section 4 presents the data and outlines the methodology; Section 5 includes a discussion of the main empirical results; and Section 6 forms a conclusion.

2. Tourism and Growth

Since being proposed by Shan and Wilson (2001), the "Tourism-led Growth" (TLG) hypothesis has received substantial attention over the last two decades. Empirical evidence that aims to identify tourism-growth relationship behaviour has been developed in various empirical research traditions.

Some cross-country studies have been conducted as they provide an opportunity to eliminate the effects of economic cycles and possible structural changes on the relationship between tourism specialisation and economic growth (Pablo-Romero & Molina, 2013). However, cross-country techniques have been criticised on account of heterogeneity and endogeneity

[2] Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russian Federation, Serbia, Slovak Republic, Slovenia, Tajikistan, Ukraine, Uzbekistan

[3] Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russian Federation, Serbia, Slovak Republic, Slovenia, Tajikistan, Ukraine, Uzbekistan

problems, along with the potentially spurious contemporaneous correlation between the time-averaged data.

Brau et al. (2007) is an early cross-country study examining the hypothesis for a data sample of 143 countries, differentiating between small countries, OECD members, oil-producing countries and countries that are specialised or are not specialised in tourism over the period 1980-2003. The authors presented a higher positive correlation between average tourism receipts and average rates of growth in real GDP in small countries only when these countries specialised in tourism. Moreover, they showed that the positive correlation between tourism specialisation and growth has not weakened even after controlling for initial per capita income and for trade openness.

Another paper by Singh (2008) investigated whether a link exists between the tourism industry and economic development, and the extent of the industry's contribution among 37 small developing islands. This study applied a simple cross-sectional regression model to estimate the relationship between economic development and tourism receipts. In addition, tourism income multipliers estimated for several of the islands.

Po and Huang (2008) examined the nonlinear relationships between tourism and economic growth using a sample of 88 countries, which were divided into 3 groups based on the contribution of tourism receipts to GDP. According to their results, a significant positive relationship between tourism and economic growth exists when the relative share of tourism receipts in GPD is below 4.05% or above 4.73%; otherwise, empirical results do not support the TLG hypothesis.

Over the course of time, as more statistics became attainable in developed and lower-income nations, the nature of research has shifted to cross-section time series studies. In this sub-section we provide an overview of several pieces of prominent and recent evidences.

Lanza et al. (2003) is an early empirical study, presenting the link between tourism and economic growth using panel data for 13 OECD nations over the period 1977-1992. The authors argue that tourism has a stronger effect on the economy in less-industrialised nations and "international tourism is a luxury [factor of growth] in industrialised countries" (p. 319). Sequeira and Nunes (2008) use conventional growth specifications by Barro (1991) and the empirical panel data approach by Islam (1995), documenting that tourism has a significant positive impact on economic growth in a broad sample of countries and in a sample of low-income countries. Eugenio-Martín et al. (2004), while commenting on a study by Islam (1995), limit the sample solely to Latin American countries and investigate the link between tourism and economic growth between 1985 and 1998. By also relying on the methodology of Islam (1995) and controlling for the endogeneity of the right-hand-side variables, they find that tourist arrivals have a positive effect on real GDP per-person growth only in low- and medium-income countries. Further evidence of the link between tourism and economic growth in world panel data of countries is provided by Sequeira & Campos (2007) and Holzner (2011).

More recent panel evidence focuses on the heterogeneity of countries. For example, Fayissa et al. (2008) provide evidence of the positive impact of tourism on economic growth in 42 sub-Saharan countries. They apply the Arellano & Bond (2002) estimator with autocorrelation. Their estimates show that a 10% increase in tourism receipts leads to a 0.4% increase in GDP per capita.

Pratt (2015) explores the link between tourism development and economic growth in "small island developing states", by using the Computable General Equilibrium model to estimate the macroeconomic and industry impacts of increased tourism in these nations. The authors conclude that "$1 million [of tourism expenditure] would generate economic output from a high of $1.8 million in the Seychelles to only $1.03 million in American Samoa in direct and indirect impacts" (p. 155).

In the same vein, similar studies report the positive effect of tourism on economic growth in non-OECD countries (Lee & Chang, 2008), Southern European countries (Proenca & Soukiazis, 2008), Pacific islands (Narayan et al., 2010), Mediterranean countries (Dritsakis, 2012) and Caribbean countries (Apergis & Payne, 2012).

It is noteworthy that the number of studies that have examined the tourism and economic growth relationship in post-communist societies is limited, namely to those by Payne & Mervar (2010) for Croatia, Surugiu & Surugiu (2013) for Romania, and Chou (2013) for 10 countries in Central and Eastern Europe. In addition, these studies have several limitations. Firstly, they use a small dataset. Secondly, as the countries subjected to empirical analysis are limited to countries in Central and Eastern Europe, omitting the former Soviet Union members, there may be some regional bias in the empirical results. Finally, the statistical robustness of the estimation results has not been comprehensively examined. We attempt to overcome the issues outlined above by employing more rigorous panel data techniques, using long-term panel data that covers almost all post-communist countries.

3. Recent trends and the characteristics of tourism in post-communist countries

The collapse of the USSR and the end of communist rule has led to the emergence of a number of newly independent nations in Eastern Europe and Central Asia, which have undergone transformation in all facets of their society, including in terms of tourism. Whilst tourism and other industries in the Soviet Union were planned centrally from Moscow prior to 1991, the demise of the "iron curtain" meant that independent countries were able to institute their own economic policies and reforms when it came to planning and promoting tourism development.

Nevertheless, all the countries have experienced large influxes of foreign tourists over the past couple of decades. In 2012, for example, post-communist nations reported 137,987,000 tourists (up from 49,013,000 in 1995). In some countries, the increase in tourism arrivals was even more dramatic. In Uzbekistan, the number of tourism arrivals has increased more than 21-fold since 1995 (see Table 1 in Appendix).

In 2012, tourism receipts in 27 post-soviet countries were estimated at approximately US$73 billion. Tourism receipts in the region were comparably small, representing 6% of total global receipts and only 37% of those to the USA, which receives the most.

Relative to GDP, the contribution of tourism development in post-soviet nations is also generally smaller than in other developing countries. In 2012, the total contribution of tourism to GDP in Russia was 5.75%, compared to 9.3% in China and 9.1% in Brazil. In addition, the estimated total contribution of tourism to GDP was less than 6% in Kazakhstan, Kyrgyzstan and Uzbekistan. In absolute terms, Russia, Poland and Croatia recorded the largest volume of tourism receipts in the region.

According to the World Tourism and Travel Council (2015), every US$1 spent on the travel & tourism sector generates US$3.2 in GDP across the entire economy. In post-communist countries, the tourism multiplier varies between 2.25 in the Czech Republic to 4.1 in Serbia. Overall, tourism has many other socio-economic benefits, which positively transmit to economic growth, particularly in post-communist countries.

For some nations, tourism is also an essential source of foreign currency. For instance, in 2012 in Georgia, Armenia and Croatia, international tourism receipts amounted to more than 15% of export earnings (Figure 1).

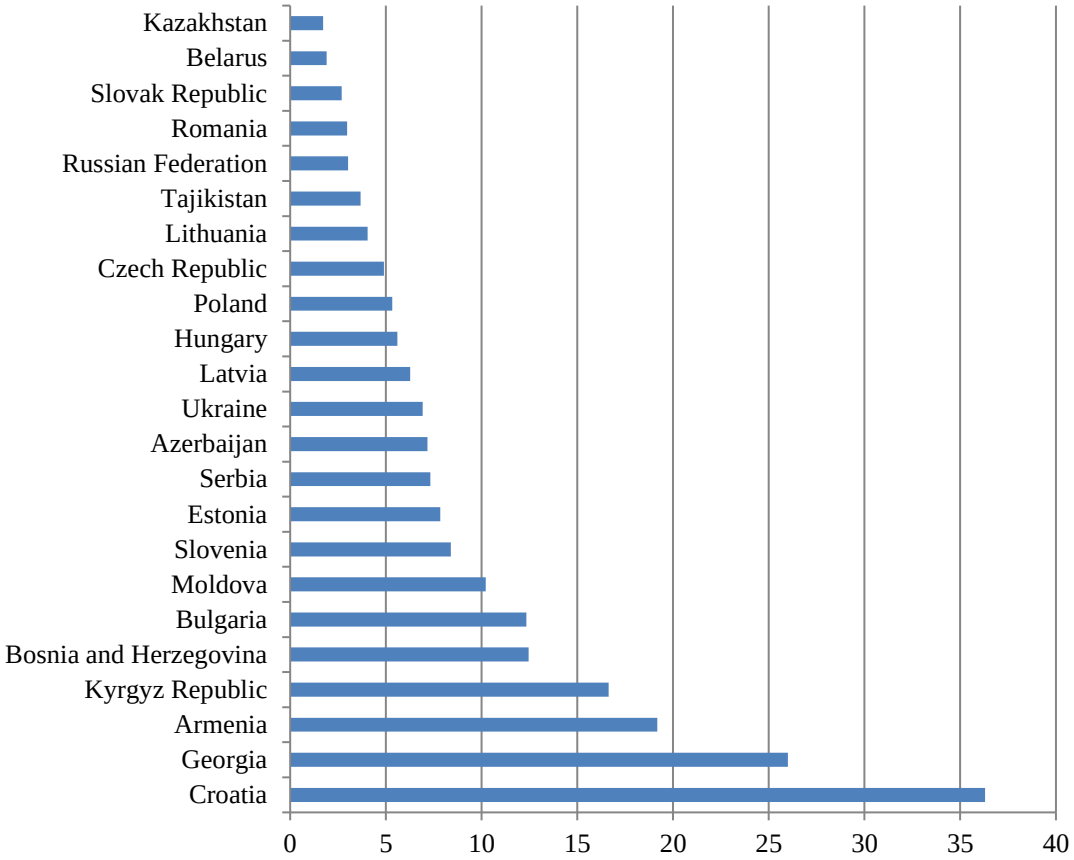

Figure 1 International tourism receipts (% of total exports)
Source: World Bank, 2013

4. Data and methodology

The aim of this study is to explore whether tourism has an effect on economic growth in a sample of post-communist countries. To test this, we use a conventional growth model derived from existing literature. Our dataset contains annual observations at the country level over the years 1991-2012 for up to 27 post-communist countries.

Dependent variable

This paper mainly concentrates on a single dependent variable: GDP growth measured as the annual percentage growth rate of GDP at market prices based on constant local currency. The data is from the World Development Indicators (WDI)[4]. According to the data, 1991-2012 was a period of somewhat diverse (stable and sluggish) economic growth across the post-soviet nations. For Central Asian countries, 1995 signified their recovery after the demise of the Soviet Union. Amongst Eastern European nations, some suffered severe downturns – particularly Serbia and Moldova – but most have maintained stable (positive) growth rates in the 2000s.

Independent variable

[4] http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG

The main independent variable in our study is per capita tourism receipts. This variable has been successfully used as a proxy for tourism development in empirical literature (e.g. Dritsakis, 2012; Fayissa et al., 2008). For example, Ridderstaat et al. (2014) documents that a 1% growth in tourism receipts would lead to a 0.49% increase in the real GDP of Aruba in the long run, ceteris paribus. We draw data on tourism receipts from the World Tourism and Travel Council (WTTC). This variable includes visitor expenditure on accommodation, food and drink, local transport, entertainment and shopping. We log this variable to correct for skewness.

Control variables

To the econometric model we add other variables that are standard in growth literature. We include a lagged dependent variable as a conventional scenario to eliminate potential autocorrelation in the residual. A lagged level of economic development is the logarithm of GDP per capita based on purchasing power parity (PPP). PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. We also control for investment as a share of GDP, inflation rates and population growth rates. The data is taken from the World Bank's World Development Indicators (World Bank, 2016).

Methodology

Based on the above theoretical discussion, we estimate the following econometric model to investigate the impact of tourism development on economic growth:

$$growth_{i,t} = \alpha_i + \alpha_t + \alpha_1 T_{i,t} + \beta X'_{i,t} + \varepsilon_{i,t} \quad (1)$$

where the *i*th country's economic growth at year *t* is a function of tourism development, the vector of control variables, *X*, and the random error term, $\varepsilon_{i,t}$[5].

We investigate the impact of tourism on economic growth using various techniques: (a) individual random effects (RE), (b) individual fixed effects (FE), (c) random-effects estimator with an assumed first-order autoregressive error (REGAR), (d) panel-corrected standard error (PCSE) estimates, and (e) system generalised method of moments (GMM).

5. Empirical evidence

Table 1 presents the main results. Looking at benchmark RE estimates in column 1, we find that the coefficient for a logged per capita tourism receipt is positive and statistically significant at the 1% level. Considering the linear-log specification, this suggests the following: if per capita tourism receipts increase by one standard deviation, the GDP growth rate increases by 1.37% point, ceteris paribus. The overall fit of the model is sufficient as supported by a statistically significant F-test and the amount of variance in dependent variable explained by the independent variables (R^2=0.38).

The corresponding estimates for control variables establish the following notable points:

- The lagged GDP per capita is negative and statistically significant at the 1% level. These findings are in line with the convergence hypothesis of neoclassical growth models (e.g. Barro, 1991).
- Investment rates have a positive effect on economic growth at the 1% level of significance. When the investment ratio increases by 1%, the growth rate increases by 0.26%.
- In line with intuition and existing empirical evidence, inflation rates and population growth rates are inversely related to economic growth. As suggested by Bittencourt (2012 p. 334), "high inflation is detrimental to growth …[I]t either outweighs the Mundell–Tobin effect, or creates particular distortions, including increased volatility and uncertainty, which results in a shift to less productive activities and consequently slower growth rates."

Taking into account cross-sectional time-series data, we re-estimate our regression model using fixed effects (column 2 in Table 1). The estimated coefficient for tourism remains positive

[5] α_i and α_t are country and year fixed effects, respectively.

and significant, although it has quantitatively increased. A one standard deviation increase in tourism development increases economic growth by about 2.2%, ceteris paribus.

As suggested by Eq. (1), the residual ($\varepsilon_{i,t}$) is believed to be white noise, fulfilling the conventional I.I.D.~$(0,\sigma^2)$ assumption. On the other hand, if the premise of zero serial correlation is false, then standard errors obtained in Eq. (1) are biased. Econometric literature suggests employing AR(1) to address this issue. Therefore, in column 3 we use a random-effects estimator with an assumed first-order autoregressive error to control for potential autocorrelation in our sample (e.g. Baltagi & Wu, 1999). As before, tourism has a positive and statistically significant effect on economic growth.

Moreover, one may argue that using a sample of 27 post-communist nations in the empirical exercise leads to a commonly known small-N problem in econometrics (see e.g. Beck & Katz, 1995). In particular, considering similarity across countries, errors may be heteroscedastic and contemporaneously correlated across units. To deal with this issue, we use the panel-corrected standard error (PCSE) method (column 4 in Table 1). As can be observed, the results for tourism development and the vector of control variables are very similar to those discussed above.

Finally, as tourism receipts can be affected by economic growth, we present results based on a system GMM estimation that controls for the potential endogeneity of the explanatory variables (column 5 in Table 1). The estimate for per capita tourism receipts is 1.359 and statistically significant at the 1% level. Furthermore, the "Sargan test" indicates that our model is correctly specified and the instruments are valid.

Therefore, the results in Table 1 provide evidence that tourism is significantly related to economic growth in post-communist countries.

Table 1
Regression results

	(1) RE	(2) FE	(3) REGAR	(4) PCSE	(5) GMM
Tourism development$_t$ (log)	0.854***	1.354**	1.760***	1.039***	1.359***
	(0.321)	(0.547)	(0.557)	(0.313)	(0.385)
Growth$_{t-1}$	0.458***	0.424***	0.364***	0.378***	0.450***
	(0.040)	(0.041)	(0.036)	(0.061)	(0.037)
GDP per capita$_{t-1}$ (log)	-3.484***	-8.322***	-5.869***	-3.969***	-5.355***
	(0.709)	(1.318)	(1.197)	(0.838)	(0.860)
Investment (% of GDP)$_t$	0.264***	0.251***	0.156***	0.315***	0.305***
	(0.059)	(0.065)	(0.060)	(0.081)	(0.058)
Population growth rate$_t$	-1.062***	-0.666	0.090	-1.075**	-1.318***
	(0.395)	(0.623)	(0.553)	(0.517)	(0.387)
Inflation rate$_t$	-0.003***	-0.003***	-0.004***	-0.003***	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Constant	27.736***	72.261***	48.001***	31.212***	43.853***
	(6.259)	(11.990)	(10.397)	(7.492)	(7.567)
N	448	448	425	448	448
adj. R^2	0.405	0.322	0.387	0.341	-
Sargan test					p=0.069

Note: ***, **, and, * indicate significance at the 1%, 5%, and, 10% levels, respectively. Standard errors are in parentheses.

6. Conclusions

This study attempts to investigate the validity of the tourism-led-growth (TLG) hypotheses in post-communist countries in 1991-2012. Although a large number of studies documents that tourism is an important determinant of economic growth, the related literature has not produced empirical evidence taking advantage of the cross-section and time series data for post-communist countries. Our findings indicate that if per capita tourism receipts increase by one standard deviation, the GDP growth rate increases by 1.37%, ceteris paribus.

Furthermore, we find that tourism development yields statistically significant effects, at the 1% level, on economic growth after controlling for the potential endogeneity of the right-hand-side variables.

Therefore, post-soviet countries need to promote tourism development and exploit its direct and indirect social and economic benefits. Generally speaking, the travel and tourism sector has the ability to provide a variety of positive economic impacts such as: improved infrastructure, increased employment, increased domestic income, and foreign currency earnings on the local economy. In addition, inflation must be curbed in the long run in order to avoid the negative effect it has on economic growth.

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