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FDI-led tourism growth hypothesis: empirical evidence from Croatian tourism

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Abstract: The aim of this paper is to explore the causal relationship between the foreign direct investment (FDI) stock in tourism and the number of international tourist arrivals in the Republic of Croatia in the period from 2000 to 2012. The study uses quarterly time series data from 2000(1) to 2012 (4). The augmented Dickey–Fuller (ADF) test was carried out to test the stationarity of variables. The Johansen co-integration test was used to test a long-term relationship between the variables, and given the absence of the same, the vector autoregression (VAR) model is set up. The Granger and Toda–Yamamoto test was conducted to test a short-run causality between the selected variables. The results indicated a one-way short-run causality relationship running from FDI in tourism to international tourism arrivals at a high significance level of 1%. The research results emphasise the need to establish a favourable macroeconomic environment, as well as a policy of incentive investment measures specifically targeted at the tourism sector. This would enhance the conditions for higher FDI inflow essential for qualitative and quantitative positioning of Croatian tourism compared to competing destinations.

Keywords: FDI in tourism; International tourism arrivals; VAR; Granger causality test; Toda-Yamamoto test.

1 Introduction

The liberalisation of the world market has resulted in the reduction or elimination of barriers in the movement of goods, services, people and capital on the world market. Such liberalisation has also enhanced tourism development. It has been more than a decade that tourism has become the world's largest industry and its development is still continuing (Lashkarizadeh, Keshmir & Gashti, 2010). Most of the developing countries and the less-developed countries are still oriented towards tourism development. This is a consequence of its large contribution to foreign exchange earnings, national income and opportunities for the development of new jobs that have a significant economic impact on the aforementioned countries (Salleh, Othman & Sarmidi, 2011). As further tourism development requires capital, foreign direct investment (FDI) is imposed as a significant factor contributing to further tourism development, despite the fact that the share of global FDI in tourism is less significant (Endo, 2006; UNCTAD, 2007). FDI allows host countries to be integrated into international tourism networks, which will lead to an increase in the tourist flow and generate more income from tourism-related activities (Endo, 2006).

Tourism is extremely significant for the Croatian economy. It has been proven that the tourism-led growth hypothesis is valid for Croatia (Pavlovic, Svilokos & Suman Tolic, 2015). Although tourism in developed countries may be treated predominantly as a social activity with economic consequences, in Croatia it is, as is usual for developing countries and less developed countries, an economic activity with social consequences (Vaugeois, 2000). The average share of tourism revenues in the GDP in the period from 2001 to 2012 is 14.7% (Central Bureau of Statistics, 2013).

Figure 1 shows the robust growth of the number of foreign tourist arrivals during the observed period and also indicates the importance they have in the overall visitor structure.

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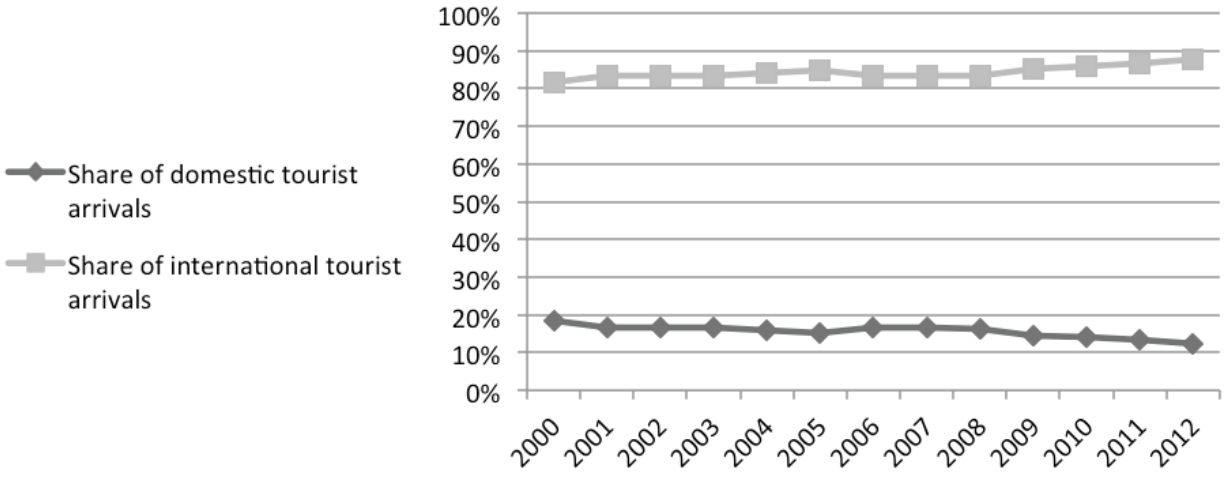

Figure 1: Structure and evolution of tourist arrivals, 2000–2012 (percentage)
Source: own calculation according to Central Bureau of Statistics

In 2000, Croatia recorded 7.137 million tourist arrivals, of which 81.7% were foreign arrivals. In 2012, there were 11.835 million tourist arrivals, of which 87.6% were foreign arrivals. It can be concluded that Croatian tourism is mostly based on foreign tourists. A tremendously small share of domestic tourists is the result of a modest standard of living which is, influenced by the economic crisis, further reduced.

An analysis of FDI in hotels and restaurants points to the conclusion that such investments were very sporadic during the observed period and obtained particularly negative characteristics after 2008 and the sudden economic crisis (see Table 1). From 2009 to 2011, FDI in hotels and restaurants almost disappeared.

Table 1: FDI inflow in the Croatian tourism (2001–2011), million Euro

	FDI in tourism	Total FDI	Share (FDI in tourism/total FDI)
2001.	27.40	1,467.50	1.9%
2002	93.40	1,137.90	8.2%
2003	19.00	1,762.40	1.1%
2004	38.00	949.60	4.0%
2005	92.70	1.467.80	6.3%
2006	31.50	2,764.80	1.1%
2007	50.50	3,651.30	1.4%
2008	141.80	4,218.60	3.4%
2009	4.10	2,415.00	0.2%
2010	4.60	297.50	1.5%
2011	–40.80	1074.80	–3.8%
2012	54.80	1,143.4	4.8%

Source: own calculation according to the Croatian National Bank.

With regard to the total investment of foreign capital in the Croatian economy, it is necessary to emphasise that this is mostly brown field investments and, to a lesser extent, green field investment. The three largest green field investments were recorded in 2010 (FDI Report 2012). It was made by the Turkish investor Dogus Group, which invested 80.8 million Euro, and the English investor Cubus Lux, who invested 71.8 million Euro twice in 2010. As for mergers and acquisitions (M&A), the largest takeover in the observed period was achieved in 2008 when the Marfin Investment Group took over 49.99% of the Sunce Concern Inc. for 141.71 million US dollars. Amongst major M&A, it is necessary to highlight restructuring within holding companies, for example, in 2004, when Riviera Holding acquired 66.30% of the Babin Kuk facility in Dubrovnik, the purchase of a minority stake of Jadranka Hotels in the amount of 30% by the European Bank for Reconstruction and Development in 2008, and the acquisition of Sunčani Hvar with 46.89% by the Orco Property Group in 2005. Mentioned investments are largely ventures privatisation and acquisitions.

The aim of this paper is to explore the causal relationship between the FDI stock in tourism and the number of international tourist arrivals in the Republic of Croatia from 2000 to 2012. According to the authors, causality testing between selected variables has not been carried out on the example of the Croatia, which is one of the main contributions of this work. Another contribution of this paper is that according to the authors, there is also, at the global level, no research based on the causality of

the FDI stock in tourism and the number of foreign tourist arrivals. The majority of research conventionally used the inflows of FDI in tourism. Although the use of data in the form of flows can result in empirical estimates that are accurate, given the sign and significance that flows have in building the FDI stock, the use of data in the form of flows is not consistent with the FDI theory and is not likely that the coefficients will be of appropriate size (Ford, Rork & Elmslie, 2008). Lastly, considering the importance given to FDI in tourism and expectations of the Croatian government from further entry of foreign capital in the Croatian tourism sector, research findings have significant wider socio-economic implications.

The paper is structured as follows. The next section reviews the literature on the relationships between FDI and tourism growth. The subsequent section describes the data and methodology used for testing the hypotheses and reports the empirical results and their explanation. The paper concludes with summarised findings and further comments.

2 Literature review

Despite a permanent tourism increase (increase in the number of tourists, the number of growth rates and growth in tourism revenues) and the FDI growth in the past 20 years, the area that relates to FDI in tourism is still insufficiently researched (Sinclair & Stabler, 1991; Contractor & Kundu, 1999; WTO, 2004; Dwyer, Forsyth & Dwyer, 2010). However, interest in this research area is continuously growing in the long run (Dunning & Kundu, 1982; Sanford & Dong, 2000; Endo, K. 2006; Craigwell & Moore, 2007; Tang et al., 2007; Moore & Craigwell, 2008, Bezić et al., 2010; Zhang et al., 2011; Salleh et al., 2011; Karticioglu, 2011; Selvanathan et al., 2012; Othman et al., 2012; Samini et al., 2013; Fereidouni & Al-mulali, 2014).

Review of the current state of research points to several potential possible effects of FDI on tourism. For instance, pioneering research on the effects of FDI in tourism (Dunning & Kundu, 1982) has shown that the effects of foreign-owned hotels vary depending on the type of tourism, the country of origin of transnational corporations, the host country and the comparative advantages and objectives of individual transnational corporations. Foreign-owned hotels generate higher revenue per room and have a significantly higher average level of added value compared to local hotels, and the transfer of skills is an important factor in the development of the domestic hotel sector. Furthermore, tourism could be a valuable source of first-hand information about a particular country that may be useful to other potential investors. This means that changes in tourism are positively associated with new flows of FDI (Sanford & Dong, 2000). Foreign-owned hotels connect the host country to international marketing and promotional networks, which consequently increases the number of foreign tourists and generates higher revenues (Endo, 2006).

Recent research regarding the impact of FDI on tourism is based on testing the so-called FDI-led tourism growth hypothesis (Salleh et al., 2011, 251). This may indicate that FDI preceding the arrival of foreign tourists is in some way associated with FDI and not only that the change in the number of foreign tourists is a result of changes in the level of FDI. As can be seen from Table 2, available empirical studies have recognised different results considering relationship between tourism arrivals and tourism-related FDI or total FDI.

Most of them found a one-way causal relationship running from FDI to international tourism arrivals (Tang et al., 2007; Bezić et al., 2010; Zhang et al., 2011; Selvanathan et al., 2012). Moreover, there is also evidence of a one-way causal relationship running from international tourist arrivals to FDI (Kartircioglu, 2011) and also the evidence of two-way causality between the observed variables (Salleh et al, 2011; Samini et al, 2013).

Relevant research indicates that there are three possible types of causality between FDI and the number of foreign tourists: 'tourism-led FDI', that is, when foreign tourists attract new FDI; 'FDI-led tourism', that is, when FDI encourages the arrival of foreign tourists and a two-way causal relationship between FDI and the number of foreign tourists or the possibility that there is no causality between the observed variables.

According to the author's knowledge, causality test between selected variables so far has not been carried out in the example of Croatia and there is the necessity for such an empirical analysis.

3 Data set and methodological framework

The study uses quarterly time series data from 2000 (1) to 2012 (4). A variable FDI stock in tourism (FDI-T) has been obtained from the Croatian National Bank. The variable is deflated by the implicit deflator of gross investment and reduced the base year 2005. A variable number of international tourist arrivals have been taken from

Table 2: Empirical findings of previous studies

List of researchers	Case study and period	Variables	Methodology	Result of the direction of causality
Samini et al. (2013)	20 developing countries, 1995–2008	Tourism-related FDI, tourism arrivals	Panel VECM, Granger causality, Pedroni co-integration test	T-FDI → ARR ARR→ T-FDI (only long-run causality)
Othman et al. (2012)	18 major international tourism destinations, 1995–2010	Tourism arrivals, tourism-related FDI, economic growth	ARDL methodology, Granger causality	Mixed results
Selvanathan et al. (2012)	India, 1995Q2–2007Q2	FDI, international tourism arrivals	VAR, Granger causality	FDI → IARR
Katircioglu (2011)	Turkey, 1970-2005	International tourism arrivals, FDI	ARDL methodology, Granger causality	IARR → FDI
Salleh et al. (2011)	Malaysia, Singapore, Thailand, China and Hong Kong, 1978–2008	Tourism arrivals, FDI	ARDL methodology, Granger causality	Mixed results
Zhang et al. (2011)	China, 1978–2005	International tourism arrivals, FDI	VECM, Johansen co-integration, Granger causality	FDI → IARR
Bezić et al. (2010)	Croatia	International tourism arrivals, FDI	Toda-Yamamoto causality	FDI → IARR
Moore and Craigwell (2008)	21 SIDS, 1980–2004	FDI, tourism GDP	Granger causality (HINC, HC, HENC)	Bidirectional causality
Tang et al. (2007)	China, 1978–2005	FDI, economic growth, tourism	VECM, Granger causality	FDI → tourism

Source: own

the Central Bureau of Statistics and seasonally adjusted (Census X-12). Both variables are in the form of logarithms.

The aim of this paper is to explore the causal relationship amongst these variables by using the Granger and Toda–Yamamoto causality tests. An econometric analysis examined the stationarity by unit root, that is, the augmented Dickey–Fuller (ADF) test and co-integration through the Johansen co-integration test. Owing to the absence of co-integration, the unrestricted *vector autoregression* (VAR) model within which the Granger causality and Toda–Yamamoto causality are tested is set up.

3.1 ADF Test and the Johansen co-integration

As a first step of the empirical analysis, stationarity testing is conducted because non-stationarity is a common characteristic of time series. The ADF unit root test is used to examine the stationarity. The Johansen co-integration test examines the long-run relationship between non-stationary variables and tested H0 that the number of co-integrating vectors is less than or equal to r. The important pre-condition that needs to be fulfilled in applying the Johansen co-integration test is that the data must be of the same order of stationarity. The VAR model should also be very well specified before approaches testing co-integration. This requires the selection of the optimal lag length through the usual information criteria and the evaluation of the quality of the model itself. Selection of the optimal lag length is crucial for the reliability of VAR models (Liu, 2005). The quality of the VAR model will be verified by testing the normality of the distribution (the Jarque–Bera test), serial correlation (LM test) and heteroscedasticity (White's test) of their residuals. Third, if variables are integrated of order one, I(1), and there is no stable co-integration relationship between them, the VAR model is built. Studies using a VAR in a situation where there is co-integration between the variables in the model are actually wrongly specified. This is also the reason why the paper first tests whether there is co-integration between the variables.

3.2 Granger causality test

Unrestricted VAR is used when the observed time series are of the same order of integration but not co-integrated. When the data are I (1), VAR is usually estimated in the

first difference (Malešević & Perović, 2009). However, if the VAR is used for testing Granger causality, which is the aim of this research, it is necessary to use the data in levels (Giles, 2011).

As part of the evaluation of the VAR model, the following models are specified:

$$logiarr_{-t} = a_0 + a_1 logiarr_{t-1} + \cdots + a_p logiarr_{t-p} + b_1 logfdi\_t_{t-1} + \cdots + b_p logfdi\_t_{t-p} + u_t \quad (1)$$

$$logfdi\_t_t = c_0 + c_1 logfdi\_t_{t-1} + \cdots + c_p logfdi\_t_{t-p} + d_1 logiarr_{t-1} + \cdots + d_p logiarr_{t-p} + v_t \quad (2)$$

where logfdi_t and logiarr are the logarithmic forms of the FDI in tourism and international tourism arrivals, respectively, in Croatia and p is the optimal lag length.

Also, as part of the mentioned VAR model, it is possible to express the Granger causality. The Granger causality test is used in the time series analysis to examine the direction of causality between the two variables. In other words, it is a technique that determines whether data on the time series of one variable are useful for predicting the other one. This methodology is Grangers' work from 1969 and was modified by Toda and Yamamoto in 1995 (Toda and Yamamoto, 1995).

The Granger causality test is a way to implement the Wald test for the first p parameters of other variables in the VAR model, and if the Wald test is significant, it rejects the null hypothesis of no causality.

3.3 Toda–Yamamoto test

A small number of observations, usually not more than 40 observations per country, are a common feature of empirical studies involving causality testing (Zachariadis, 2006), especially in the case of South Eastern Europe. The above mentioned is also the case in this research. In order to get more reliable research findings, two methods of determining causality are used.

Along with the Granger causality test, the modified Granger causality test or the Toda–Yamamoto causality test (Toda & Yamamoto, 1995) is used. The Toda–Yamamoto causality test enables a more concrete conclusion making (Magnus & Fosu, 2008, 106). Toda–Yamamoto test ignores any possible non-stationarity or co-integration between series when testing for causality and fitting a standard VAR in the levels of the variables (rather than first differences, as is the case with the Granger causality test) (Mavrotas & Kelly, 2001, 100). In this manner, the risks associated with possibly wrongly identifying the orders of integration of the series or the presence of co-integration are minimised, and it also minimises the distortion of the tests' sizes as a result of pre-testing (Chowdhury & Mavrotas, 2005, 4). The Toda–Yamamoto causality test involves estimation of an augmented VAR (p + m) model, where p is the optimal lag length in the original VAR system and m is the maximal order of integration of the variables in the VAR system.

As part of applying the Toda–Yamamoto causality test, the following models are specified:

$$logiarr_{-t} = a_0 + a_1 logiarr_{t-1} + \cdots + a_p logiarr_{t-p} + b_1 logfdi\_t_{t-1} + \cdots + b_p logfdi\_t_{t-p} + u_t \quad (3)$$

$$logfdi\_t_t = c_0 + c_1 logfdi\_t_{t-1} + \cdots + c_p logfdi\_t_{t-(p+m)} + d_1 logiarr_{t-1} + \cdots + d_p logiarr_{t-(p+m)} + v_t \quad (4)$$

where *logfiarr* and *logbdv_t* are logarithmic forms of the FDI in tourism and international tourism arrivals in Croatia, p is the optimal lag length and m is maximal order of integration of the variables in the VAR system.

4 Results and discussion

The results of the unit root test in levels and first difference are shown in Table 3.

Table 3: ADF test results

Variable	Level			First difference		
	Constant	Constant and Trend	None	Constant	Constant and Trend	None
LOGIARR	−3.36**	−4.57***	1.08	−7.57***	−7.53***	−7.33***
LOGFDI_T	−2.91**	−1.59	1.66	−6.16***	−6.75***	−5.94***

Note:
- The significance of p-value: *** p < 0.01, **p < 0.05 and *p < 0.1
- Lag length in the model is based on the Schwarz information criterion. Source: own

The results of the ADF test point to the fact that both series, IARR and FDI_T, are stationary after the first difference. Thus, both the series are denoted as I (1).

Although the standard information criteria indicate the selection of a maximum lag length of 1 for each variable, the quality of the vector autoregressive model – testing the normality of distribution (Jarque–Bera test), autocorrelation (LM test) and heteroscedasticity (White's test) of their residuals – is satisfied if the maximum lag length is increased to p = 9. It is also necessary to verify whether the model is 'dynamically stable'. Figure 2 shows the above mentioned.

Owing to the fact that none of the root is outside the circle, it is possible to conclude that the VAR model is stable, which means that results and conclusions following from further analysis are not questionable. Considering both variables are of the same order of integration I (1), the Johansen co-integration was tested and the results are displayed in Table 4.

The data displayed indicate for the trace statistic no existence of the co-integrating equations between FDI-T and IARR at the 1% level. Also, no existence of the co-integrating equations is found for the maximum eigenvalue at the 1% level. Hence, the Johansen methodology indicates that co-integration is not present.

As can be seen from Table 5, the Granger causality test indicates that in the case of the first dependent variable (logfdi_t), there is no presence of short-run causality running from international tourism arrivals to FDI in tourism. As a result, the null hypothesis 'logiarr non-cause logfdi_t' could not be rejected.

Concerning the other dependent variables, the second null hypothesis 'logfdi_t non-cause logiarr' could be rejected. The results of the research indicate that in the case of the second dependent variable (logiarr), short-run causality running from FDI in tourism to international tourism arrivals at the high significance level of 1% is the present.

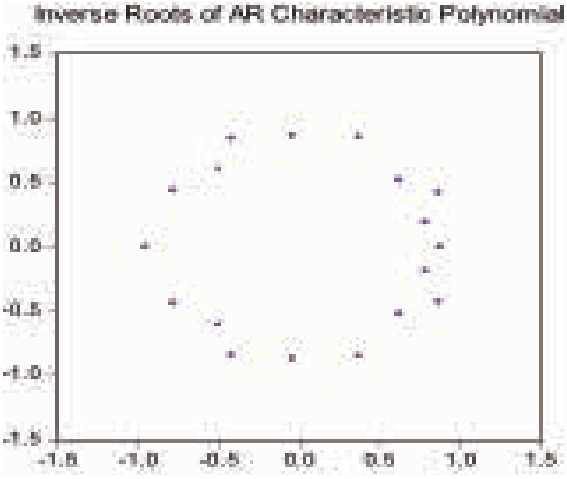

Figure 2: Stability of the VAR model
Source: own

The previously specified VAR model is added to m = 1 extra lags of each variable in each equation to test Granger non-causality, and the results are shown in Table 6.

Results have shown that the first null hypothesis '*logiarr non-cause logfdi_t*' could not be rejected, that is, cannot be concluded that the international tourist arrivals affect FDI in tourism. The second null hypothesis '*logfdi_t non-cause logiarr*' could be rejected, that is, it can

Table 4: Johansen Co-integration test results

H_0	Trace Statistic	1% Critical Value	Max-Eigen Statistic	1% Critical Value
r = 0	16.26038	19.93711	12.74691	18.52001
r = 1	3.513474	6.634897	3.513474	6.634897

Note: r is the number of co-integration vector under null hypothesis of no co-integration.
Source: own

Table 5: Granger Causality Test

Dependent variable	Independent variable	
	logiarr	logfdi_t
	X^2 ($b_i = 0$; $d_i = 0$)	
logfdi_t	8.346475	-
logiarr	-	27.99818***

Note:
- Critical values for X^2 (9): na 1% = 21.67, na 5% = 16.92, na 10% = 14.68
- The significance of p-value: *** p < 0.01, **p < 0.05 and*p < 0.1.
Source: own

Table 6: Toda–Yamamoto Causality Test

Dependent variable	Independent variable	
	logiarr	logfdi_t
	X^2 ($b_i = 0$; $d_i = 0$)	
logfdi_t	9.205294	-
logiarr	-	27.32828***

Note:
- Critical values for X^2 (9): na 1% = 21.67, na 5% = 16.92, na 10% = 14.68
- The significance of p-value: *** p < 0.01, **p < 0.05 and *p < 0.1.
Source: own

be concluded that FDI in tourism has a causal link with international tourist arrivals. It may be concluded that FDI in tourism have a causal relationship with international tourist arrivals. The second null hypothesis is rejected at a high significance level of 1%.

5 Conclusion and policy implications

The results of previous research on causality between FDI and international tourism arrivals are not uniform, which clearly points to the need to analyse the mentioned issues on a concrete example, that is, the specific country, in this study, on the example of the Croatia, in order to credibly identify such effects.

In addition, it should be emphasised that each country has its own particularities, which should be perceived and integrated in a wider socio-economic context (Surugiu, Surugiu, 2013). Given the above mentioned, it cannot be claimed that the FDI-led tourism hypothesis is valid for each respective country.

The aim of this paper is to explore the causal relationship between the FDI stock in tourism and the number of foreign tourist arrivals in the Republic of Croatia. The study used quarterly time series data from 2000 (1) to 2012 (4).The empirical results of Granger and Toda-Yamamoto causality within the VAR model confirmed that the FDI-led tourism hypothesis is valid for Croatia. Granger and Toda-Yamamoto's test indicated a short-term causality running from the FDI in tourism to the international tourist arrivals at a high significance level of 1%. Research results are also in line with the research conducted so far which maintains that FDI in tourism affects the number of international tourist arrivals (Tang et al., 2007; Bezić et al. 2010; Zhang et al. 2011; Selvanathan et al. 2012).

The research results have implications for the holders of economic and development policy in Croatia because they suggest the need to create conditions for increasing FDI inflows, first of all, through the establishment of an enabling macroeconomic environment and investment incentive policy measures specifically aimed at the tourism sector. Such an approach would significantly improve the area for qualitative and quantitative positioning and a growing competitive competence of Croatian tourism in the world market. This would ensure the sustainable development of Croatian tourism, which is becoming questionable because of the poor offer of the hotel capacities. Also, the authors encourage other researchers to use the FDI stock as an adequate measure of FDI effects, which is consistent with the theory of FDI.

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