

DOES ISLAMIC BANKING STIMULATE ECONOMIC GROWTH: EVIDENCE FROM SUBNATIONAL TURKISH DATA

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Abstract

This study aims to examine the relationship between Islamic banking and economic growth utilizing provincial Turkish data. The originality of this study is in employing subnational panel data to provide an efficient way to increase the number of observations and variability in the data while having the advantages like controlling measurement errors and cultural, religious, political heterogeneity across cross-sections. The relationship between Islamic banking and economic growth has been empirically tested by Generalized Method of Moments (GMM) estimators for 81 provinces of Turkey. This study provides evidence that the Islamic banking and economic growth relation is insignificant in the short run. Besides, negative estimates of parameters for Islamic banking loans when accounted for together with the positive estimates for conventional banking, provides evidence that conventional loans are substitutes for Islamic banking loans, rather than complements, in Turkey.

Keywords: Islamic banking, Islamic finance, Economic growth

JEL Classification: O47, G21, R12

İSLAMİ BANKACILIK EKONOMİK BÜYÜMEYİ TEŞVİK EDER Mİ? TÜRKİYE'DEN KANITLAR

Özet

Bu çalışma, iller düzeyinde veriler kullanarak İslami bankacılık ve ekonomik büyüme arasındaki ilişkiyi Türkiye için incelemeyi amaçlamaktadır. İller düzeyinde kullanılan veriler, kesitler arasındaki ölçüm hatalarını, kültürel, dini ve politik heterojenliği kontrol etme gibi avantajlara sahipken, gözlem sayısının ve değişkenliğin artırılmasını sağlamaktadır. Bu husus, çalışmanın özgün tarafını oluşturmaktadır. İslami bankacılık ve ekonomik büyüme arasındaki ilişki, Türkiye'nin 81 ili için Genelleştirilmiş Momentler Yöntemi (GMM) tahmincileriyle ampirik olarak test edilmiştir. Bu çalışma, İslami bankacılık ve ekonomik büyüme arasında kısa dönemde istatistiksel bir ilişkinin olmadığına dair kanıtlar sunmaktadır. Ayrıca, İslami bankacılık kredilerine ilişkin elde edilen negatif katsayı tahminleri, konvansiyonel bankacılık için elde edilen pozitif tahminlerle beraber değerlendirildiğinde Türkiye'de konvansiyonel bankacılığın tamamlayıcı olmaktan ziyade İslami bankacılık kredilerini dışlayıcı etkisi olduğuna dair bulgular sunmaktadır.

Anahtar Kelimeler: İslami bankacılık, İslami finans, Ekonomik büyüme

JEL Sınıflaması: O47, G21, R12

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1. Introduction

As in the Asian financial crisis of 1997, the outbreak of the global economic crisis in 2008 once again revealed the importance of the financial system to the economy and has sparked the efforts to examine financial institutions and economic growth nexus. A well-developed financial system can contribute to the economic growth process by fulfilling different functions such as reducing the risk, directing the surplus funds of economic units to investments, and ensuring investment diversification. Most research on financial institutions and economic growth have addressed conventional banking (CB hereafter). Yet Islamic Banking (IB hereafter), acting as intermediary between savers and investors like CBs, offers a broad range of financial products and services such as sukuks (Islamic bonds), takaful (Islamic insurance), ijarah (Islamic leasing), and asset management. In this way, IBs provides access to alternative financial resources for residents in countries where IB operations are located.

In this context, a growing number of studies have extensively investigated the link between Islamic financial institutions and economic growth in the last decade. However, the empirical robustness of IB and economic growth relation remains an open issue. Most of which rely on time series or panel data analysis. Cross-country panel data analysis has several advantages compared to single country time series analysis in terms of more information, less collinearity among the variables, more variability, higher degrees of freedom, and higher efficiency (Baltagi, 1995, Lebdaoui and Wild, 2016). However, as stated by Imam and Kpodar (2016) and Jawad and Christian (2019), data compilation methods to measure IB activities across countries may be different and subject to measurement errors. In addition, the expansion of IB activities across countries also depends on different political and religious developments which are very difficult to capture. Given the challenges associated with cross-country panel data and single country time series studies, single country panel data analysis using subnational data can provide an efficient way to increase the number of observations, variability, and decrease collinearity in the data while having the advantages like controlling over measurement errors and heterogeneity across cross-sections. In this context, our study aims to contribute to the recent literature by empirically examining the relationship between IB and economic growth from a different perspective using subnational Turkish data. In Turkey, IBs are included in the banking system as separate legal entities and conventional banks are not allowed to open branches or windows to carry out Islamic banking activities. In this respect, Turkish subnational data provides the opportunity to minimize the issues of heterogeneity and improve data comparability.

The rest of the study is organized as follows. The next section discusses a selective review of the related literature. Section 3 provides a brief overview of IB in Turkey. Section 4 and Section 5 describe the methodology and data, respectively. Section 6 reports the analysis results. Finally, Section 7 concludes with implications, discussions, and suggestions for future research.

2. Literature Review

IB activities started in Egypt in the 1960s (Gudarzi Farahani and Dastan, 2013; Imam and Kpodar, 2016; Zirek et al., 2016). Since then, and especially since the beginning of the 21st century, it can be stated that IB activities has expanded all over the world. (Zirek et al., 2016; Imam and Kpodar 2016). Empirical studies on the relationship between IB and economic growth have increased in direct proportion to the development of the Islamic finance sector. Among those studies on IB and economic growth, two strands of approach can be distinguished concerning the data and methods they employed. One of these approaches has examined the link by using single country time series analysis. Some examples can be given for Indonesia (Abduh and Omar, 2012; Anwar et al., 2020), Saudi Arabia (Mimoun, 2019), Bahrain (Abduh et al., 2012), Malaysia (Furqani and Mulyany, 2009; Abdul Manap et al., 2012; Majid and Kassim, 2015; Kassim, 2016), Turkey (Jobarteh and Ergec, 2017; Yüksel and Canöz, 2017; Yücel and Köseoğlu, 2020), Qatar (Tabash and Dhankar, 2014), United Arab Emirates (Zarrouk et al., 2017), and Pakistan (Ullah et al., 2020). Other studies have examined the IB and economic growth relationship using cross-country panel data analysis (Yusof and Bahlous, 2013; Gudarzi Farahani and Dastan, 2013; Imam and Kpodar, 2016; Zirek et al., 2016; Lebdaoui and Wild, 2016; Boukhatem and Ben Moussa, 2018; Caporale and Helmi, 2018; Jawad and Christian, 2019; Ledhem and Mekidiche, 2020; Chazi et al., 2020; Mensi et al., 2020) implicitly assuming that all countries are not subject to statistical measurement errors.

A review of these studies reveals that the relationship between economic growth and IB is not yet clear. This empirical uncertainty can be observed even for a specific country. For instance, Hachicha and Amar (2015), state in their study for Malaysia that gross domestic product is not sensitive to Islamic finance in the long run. Kassim (2016), on the other hand, showed that the Islamic banks financing activities are making a significant contribution to the real economic activities both in the short and long run for Malaysia. Gudarzi Farahani and Dastan (2013) studied the Islamic finance and growth relation by examining nine countries including Malaysia and pointed out that the presence of a significant relationship between Islamic finance and economic growth is stronger in the long run. Similar

ambiguity can be seen in studies for different countries. Mimoun (2019) provided evidence of a positive relationship between IB and gross domestic product and found that IB has a negative crowding-out effect on CB in Saudi Arabia. Abduh et al. (2012) demonstrated in their study for Bahrain that IB has no effect on economic growth in the short run, but conventional banking does. Caporale and Helmi (2018), on the other hand, state that IB has a positive impact on economic growth in the long run, but this relationship is weak in the short run. In addition, Imam and Kpodar (2016), using a sample of 52 countries, provide evidence of a positive relationship between both CB and IB and economic growth. Lebdaoui and Wild (2016), in a panel of seven countries, states that economic growth and the Islamic banking relationship is evident in the long run, but not in the short run.

There is also limited evidence for Turkey on the relationship between IB and economic growth which is also mixed. Jobarteh and Ergec (2017) state a positive relationship from IB to economic growth both in the short run and long run, while Yücel and Köseoğlu (2020) found this relationship only for the long run. Contrary to those studies, Yuksel and Canöz (2017) concluded that IB loans do not have a significant effect on the improvement of the economy and industry in Turkey. The objective of this study is, therefore, to test the IB and economic growth relationship by using subnational Turkish data.

3. Islamic Banking in Turkey

The first legal regulation on Islamic finance in Turkey was introduced in 1983. With this regulation, the first interest-free financial institution was established in 1985. Islamic financial institutions and conventional banks operated within different legal frameworks until both were included in the scope of the Banking Law in 1999. Islamic financial institutions in Turkey were named participation banks with a new regulation in 2005 and were defined as institutions authorized to provide all kinds of banking services in line with the Islamic financial principles.

According to the Banking Law, deposit account holders of IBs in Turkey become partners in the profit and loss arising from the IBs transactions. While the Banking Law brings some basic standards regarding the transactions of IBs, it does not contain detailed information on Islamic compliance in the activities of IBs. For this reason, while some of the IBs act with the Islamic approval of their advisory board established within their corporate structure, others receive support from some scholars and academicians who are experts in Islamic financial transactions.

The last decade was quite bright for IBs in Turkey as can be seen from some of the in-

dicators shown in Table 1. According to Table 1, IBs doubled their number of branches and their total loans excluding credits to other banks and total deposits grew approximately eightfold in the same period.

Table 1: Key indicators of IBs in Turkey for the 2010-2020 period

Year	Number of Branches	Number of Personnel	IB Loans (Billion Turkish Lira)	IB Deposits (Billion Turkish Lira)
2010	607	12,677	29	29.6
2020	1,255	16,849	240.1	322

Source: Participation Banks Association of Turkey

The picture somewhat changes, however, when this astonishing growth of IBs is evaluated together with the other element of the financial system, CBs. Table 2 depicts further information related to IB and CB in Turkey. As it can be seen from Table 2, total loans of CBs grew approximately eightfold between 2010 and 2020. Moreover, the share of IBs in total loans remained almost unchanged. In terms of deposits, it can be seen that the share of IBs has increased from 5.43% to 8.52%.

Table 2: Comparison of CBs and IBs Banking Activities (Billion Turkish Lira)

Year	IB Loans	CB Loans	IB Loans / IB+CB Loans (%)	IB Deposits	CB Deposits	IB Deposit / IB+CB Deposit (%)
2010	29	440	6.18	29.6	515	5.43
2020	240.1	3,577	6.29	322	3,455	8.52

Source: Banking Regulation and Supervision Agency of Turkey

While IBs have grown their assets in the last decade, they have not been able to increase their share in the banking system to a considerable extent.

A subnational assessment can also provide useful information on IB in Turkey. Istanbul held 53% and 51% of total IB loans in 2010 and 2020, respectively. In terms of conventional banking, Istanbul's share in total loans between 2010 and 2020 was around 40% and 38%, respectively. As of 2020, approximately 80% of IB loans were used by 10 provinces, including Istanbul. The remaining 71 provinces of Turkey used only 20% of IB loans.

From Figure 1, we can see that the provinces with the highest average GDP per capita values for the 2010-2020 period, such as Istanbul, Ankara, and Kocaeli are also ranked among the highest average CB and IB loans per capita. Whereas the amount of average per capita loans by IB is less compared to CB in provinces such as Muğla and Tunceli, known

to have adopted a more secular lifestyle. This amount is higher than average CB loans per capita in provinces such as Konya, where a more conservative lifestyle is dominant.

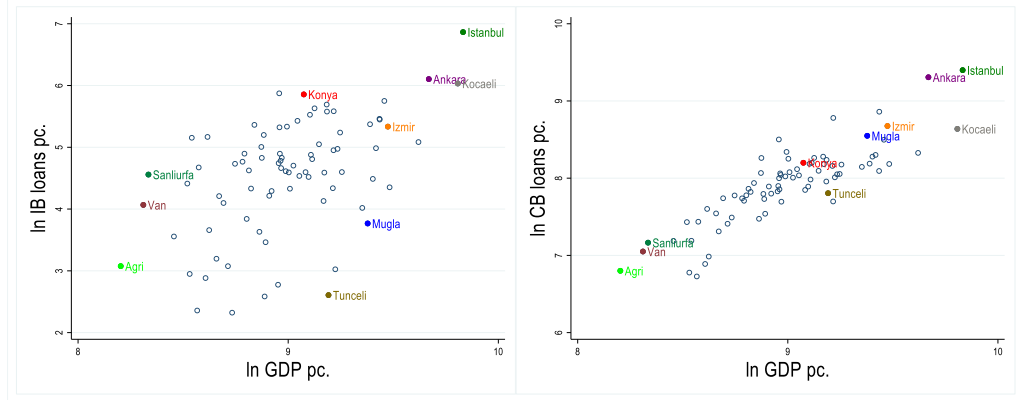


Figure 1: Natural logarithm of average IB loans per capita (panel a) and CB loans per capita (panel b) versus GDP per capita for 81 provinces between 2010-2020

4. Methodology

Following Caselli et al. (1996), Levine et al. (2000), and Imam and Kpodar (2016) the relationship between IB and economic growth has been empirically tested by using the dynamic growth model in Equation (1) below.

$$\ln(Y_{i,t+1}) - \ln(Y_{i,t}) = \beta \ln(Y_{i,t}) + \phi \ln IB_{i,t+1} + \delta W_{i,t+1} + \eta_i + \xi_{t+1} + \varepsilon_{i,t+1} \quad (1)$$

In Equation (1), Y_{it} is real GDP per capita in province i for period t . W_{it} is the vector of explanatory variables, η_i is province-specific effects, ξ_{t+1} is period-specific constant and $\varepsilon_{i,t+1}$ is the error term. Equation (1) can be rewritten as follows.

$$y_{i,t} = \beta y_{i,t-1} + \phi \ln IB_{i,t} + \delta W_{i,t} + \eta_i + \xi_t + \varepsilon_{i,t} \quad (2)$$

Where $\beta = 1 + \beta$ and $y_{i,t} = \ln(Y_{i,t+1})$. Equation (2) makes it clear that estimating Equation (1) is equivalent to estimating a dynamic linear equation with a lagged dependent variable. The fact that IB and CB are components that make up the financial system we should also evaluate CB within the scope of the dynamic growth analysis in order not to fall into the omitted variable bias. As can be seen from Equation (1), real GDP per capita growth is calculated as the log difference of real GDP per capita of two consecutive periods.

Equation (2) requires a dynamic linear estimation in which the lagged value of the dependent variable is included in the model as the explanatory variable. Estimation of such a model by using Ordinary Least Squares (OLS) will be inconsistent due to the endogeneity problem. To eliminate the endogeneity problem, the Generalized Method of Moments (GMM) method is employed. This method is an effective way to control for the unobserved province-specific effects by using the previous realizations of explanatory variables as instruments (Özyıldırım and Önder, 2008). GMM is also a suitable method for large N and small T micro panel data (Caselli et al., 1996; Levine et al., 2000; Andrews and Lu, 2001). Especially for small T panels, the frequently used difference GMM approach gives large finite sample bias and low precision (Alonso-Borrego and Arellano, 1999). For this reason, Arellano and Bover (1995) and Blundell and Bond (1998) introduced the System GMM approach by adding further moment conditions as an alternative to the difference GMM approach. In addition, Arellano and Bover (1995) used forward orthogonal deviations of the transformed model as an alternative to first differencing. Using forward orthogonal deviations for the transformed model has the advantage that the transformed errors are still serially uncorrelated if the untransformed errors were serially uncorrelated, while first differencing produces first-order serial correlation in the transformed error term. For the reasons outlined above, we consider a two-step system GMM approach based on forward-orthogonal deviations to obtain consistent estimates of the impact of Islamic banking on economic growth for Turkish provinces.

5. Data

All data except for IB and CB data were obtained from the Turkish Statistical Institute (TurkStat). Two main variables were used as an indicator of financial intermediation in the study. Of these, total cash loans consist of the total of performing and non-performing loans excluding credits to other banks. Total deposits, on the other hand, represent the total savings and other deposit accounts in foreign currency or Turkish Lira. For both IB and CB, quarterly time series data were obtained from the Banking Regulation and Supervision Agency of Turkey. Following Özyıldırım and Önder (2008), averages of these quarterly data for the relevant year were calculated and included in the analysis as an annual value. All nominal values in the study have been adjusted for Consumer Price Index (2003=100) and converted to real terms.

The analysis is carried out for both absolute measures like IB total cash loans, IB deposits, CB total cash loans, and CB deposits, and relative measures such as IB total cash loans per capita, IB deposits per capita, CB total cash loans per capita, and CB deposits per capita. We also used two other relative measures as explanatory variables, IB loans ratio and IB deposit ratio. Those two variables are calculated as the share of IB total cash loans

in overall cash loans consisting of total IB and CB cash loans and the share of total deposits in overall deposits consisting of total IB and CB deposits.

Total cash loans and total deposits data are available to researchers free of charge from 2007 to 2020. However, for the first quarter of 2010 and previous periods, loans extended by IB to other banks are included in total cash loans. For this reason, total cash loan data presented since 2010 were used in our analysis.

We empirically estimate our growth model with a set of control variables. Education is a proxy variable that is frequently used in empirical economic growth studies as the most important indicator of human capital (Breton 2011; Hanushek and Woessmann 2012; Laverde-Rojas et al. 2019). In this context, following Baldwin (1971), we used the percentage of the total number of faculty, master's, and doctorate graduates to the 15 years of age and over population as a proxy for provincial human capital in Turkey. Another important variable in economic growth studies is the capital input variable. For this purpose, gross fixed capital formation data is widely used as a proxy in cross-country economic growth analysis. Moody (1974) recommends the use of electrical energy as a measure of capital input for theoretical and practical reasons, especially in the absence of reliable data for capital input. Due to the lack of provincial-level gross fixed capital formation data in Turkey, we used industrial electricity consumption per capita (kwh) as a proxy for capital input.

Table 3 presents the descriptive statistics of the variables used in our empirical analysis.

Table 3: Descriptive Statistics

Variables	Mean	Standard Deviation	Min.	Max.
GDP per capita growth	0.045	0.053	-0.149	0.304
ln GDP per cap.	8.976	0.349	8.065	9.981
ln IB Loans	17.732	1.747	12.491	23.537
ln CB Loans	21.101	1.306	18.319	26.181
ln IB Loans per cap.	4.510	1.028	0.925	7.009
ln CB Loans per cap.	7.879	0.573	5.851	9.653
ln IB Loans ratio	1.194	0.745	-1.404	2.958
ln IB Deposits	17.886	1.625	13.750	23.524
ln CB Deposits	20.718	1.330	18.099	26.101
ln IB Deposits per cap.	4.664	0.948	1.625	6.995
ln CB Deposits per cap.	7.495	0.665	5.752	9.573
ln IB Deposits ratio	1.697	0.833	-1.100	3.397
Education	0.116	0.036	0.031	0.265
Ind. Elect. Cons. per cap.	1,280.331	1,472.978	3.000	7,208.000
<i>N</i>	729			

6. Results

Estimation results of system GMM using cash loans and deposits are reported in Table 4 and Table 5, respectively. At the bottom of Table 4 and Table 5, various statistics are presented to test the validity of the estimations. First, rejecting the first-order serial correlation of the first differenced model and failure to reject the second-order serial correlation of the first differenced error term is a necessary condition for the validity of the instruments. As can be seen from Table 4 and Table 5, while AR(1) is rejected in all models, autocorrelation cannot be rejected for AR(2). Second, Sargan-Hansen's overidentification statistic tests the null hypothesis that overidentifying restrictions are valid. Failure to reject this statistic indicates that our models are not overidentified. In addition to these tests, we also test for underidentification of the models which is ignored in most empirical studies. In this regard, the Kleibergen-Paap underidentification statistics test the null hypothesis that the models are underidentified. While the Kleibergen-Paap underidentification test rejects the null hypothesis that the models are underidentified in Table 4, it rejects all models except for Model 9 in Table 5.

Table 4: Two-step System GMM Estimation (Cash Loans)

	Model 1	Model 2	Model 3	Model 4	Model 5
L.In GDP per cap.	-1.083** (0.071)	-0.846** (0.060)	-1.101** (0.072)	-0.730*** (0.036)	-1.276*** (0.044)
ln IB Loans	0.091 (0.006)			-0.514 (0.012)	
ln IB Loans per cap.		0.207 (0.008)			-0.438 (0.018)
ln IB Loans ratio			0.159 (0.015)		
ln CB Loans				0.736* (0.017)	
ln CB Loans per cap.					1.229*** (0.038)
Education	0.475* (0.399)	0.399* (0.346)	0.462 (0.450)	0.260 (0.277)	0.337 (0.334)
Ind. Elect.Cons. per cap.	0.358* (0.000)	0.277 (0.000)	0.353 (0.000)	0.311** (0.000)	0.216* (0.000)
Number of observations	648	648	648	648	648
Number of groups	81	81	81	81	81
Number of instruments	42	44	35	48	46
AR(1)	0.000	0.000	0.000	0.000	0.000
AR(2)	0.609	0.602	0.644	0.587	0.573
S-H overid..(restricted)	0.434	0.517	0.645	0.479	0.609
S-H overid..(unrestricted)	0.251	0.311	0.430	0.281	0.500
Kleibergen-Paap underid.	0.034	0.039	0.019	0.019	0.028

Windmeijer's (2005) robust standard errors are in parentheses. Constant term and year dummies are not reported. S-H overid.: Probability values of Sargan-Hansen overidentification test, Kleibergen-Paap underid.: Probability values of Kleibergen-Paap underidentification test.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

In Table 4, Model 1, Model 2, and Model 3 run the models with absolute and relative measures of IB total cash loans with the control variables. All coefficients of IB in those three models are insignificant. On the other hand, in Model 4 and Model 5, where absolute and relative measures of both IB and CB loans are included, the coefficients of absolute and relative measures of CB are positive and significant and are consistent with the finance-led growth literature. Model 4 and Model 5 also support the previous findings of Özyıldırım and Önder (2008) that provincial conventional bank credits in Turkey have a positive impact on the local per capita GDP growth. More interestingly, in Model 4 and Model 5, the parameter estimate of IB is negative when accounted for together with the CB. This result provides evidence that CB loans are substitutes for IB loans, rather than complements, in Turkey.

Similar results for IB were obtained and reported in Table 5 when absolute and relative measures of deposits are used as an indicator of financial intermediation. All coefficients of absolute and relative measures of IB are insignificant, as in Table 4. In Model 9 and Model 10, where both IB and CB are included in the models, the coefficient of IB is positive. This might support the idea that CB deposits do not appear to crowd out IB deposits.

Table 5: Two-step System GMM Estimation (Deposits)

	Model 6	Model 7	Model 8	Model 9	Model 10
L.In GDP per cap.	-1.464*** (0.072)	-2.061*** (0.108)	-1.429*** (0.078)	-1.089** (0.064)	-2.367*** (0.080)
ln IB Deposits	0.033 (0.009)			0.009 (0.010)	
ln IB Deposits per cap.		0.359 (0.015)			0.114 (0.017)
ln IB Deposits ratio			0.017 (0.018)		
ln CB Deposits				0.276 (0.017)	
ln CB Deposits per cap.					0.944* (0.037)
Education	0.694** (0.459)	0.969** (0.597)	0.620* (0.502)	0.541** (0.364)	0.705** (0.439)
Ind. Elect.Cons. per cap.	0.452* (0.000)	0.705* (0.000)	0.439 (0.000)	0.240 (0.000)	0.709** (0.000)
<i>N</i>	648	648	648	648	648
Number of groups	81	81	81	81	81
Number of instruments	38	37	35	61	37
AR(1)	0.000	0.000	0.000	0.000	0.000
AR(2)	0.614	0.702	0.653	0.612	0.624
S-H overid.(restricted)	0.426	0.459	0.538	0.533	0.757
S-H overid.(unrestricted)	0.320	0.360	0.390	0.273	0.591
Kleibergen-Paap underid.	0.034	0.039	0.026	0.175	0.014

Windmeijer's (2005) robust standard errors are in parentheses. Constant term and year dummies are not reported. S-H overid.: Probability values of Sargan-Hansen overidentification test, Kleibergen-Paap underid.: Probability values of Kleibergen-Paap underidentification test.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The findings from Table 4 and Table 5 are consistent for IB that coefficient for all indicators of IB loans and deposits are not statistically significant and provides evidence that the IB and economic growth relation is insignificant in the short run. This finding for IB from system GMM estimation is consistent with the Yüksel and Canöz (2017) but inconsistent with Jobarteh and Ergeç (2017) for Turkey. It is also consistent with the study by Abduh et al. (2012) for Bahrain that also has a dual financial system.

7. Conclusion and Discussions

In this study, we tried to assess whether IB loans and deposits affect economic growth in Turkey. We empirically tested this question with a novel approach to IB and economic growth relationship by using subnational data. Subnational analysis allows us to govern the variation in the data in a way that even the most complicated cross-country studies in IB and economic growth are unable to control. For example, subnational analysis allows us to control over historical, cultural, political, or religious conditions to a greater extent and study in a relatively homogeneous ground than cross-country studies (Snyder, 2001). Subnational panel data analysis also prevents researchers from “whole nation bias” as Rokkan (1969) stated.

In the study, no statistically significant relationship was found between IBs and economic growth. The main reason for this is that the IB sector in Turkey still has a low share in terms of deposits and loans compared to conventional banking. We focused on Turkey because IBs are included in the banking system as separate legal entities and CBs are not allowed to carry out IB activities, which helps to improve data comparability and reliability. This also constitutes a dual banking system in the country. As Mimoun (2019) stated, there may be positive and negative crowding-out effects in countries with a dual banking system. Our findings suggest that CB loans are substitutes for IB loans, rather than complements, and there exists a negative crowding-out effect in the banking sector of Turkey, especially for credit instruments. This limits the impact of IB on financing investment projects through loans and thus on economic growth.

Although its rapid growth over the years, IBs' share in the financial system is quite small compared to CBs, especially in non-oil developing countries. For this reason, it cannot adequately perform financial intermediation services in terms of converting savings into financing investment projects. However, as shown in the study for CB indicators, the increase in IBs' share within the banking system can have a positive effect on economic growth in the long run. The Islamic Financial Services Board categorizes the countries with a share of IB assets over 15% in the total banking sector as systemically important countries. In this respect, Turkey; along with Pakistan, Oman, Bahrain, Tunisia, and Egypt, is not in the systemically important category. To increase the contribution of IB to economic growth in these countries, the share of IB should be increased not only on the basis of assets but also on the basis of loans and deposits.

Until now, IB and economic growth relationship have not been demonstrated at the subnational level. Considering the advantages of the subnational panel data analysis out-

lined above, additional studies are necessary in the future for different countries and different periods to understand and reveal more reliable results of the IB and economic growth nexus.

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