NEITHER PARASITE NOR PARAGON: ARE BUSINESS GROUPS A SOURCE OF COMPETITIVE POWER?

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Abstract

While profit persistence has been widely examined in the current literature, there have been no extensive studies on the link between business group membership and profit persistence on an emerging market. Using panel data econometric methods, this article examines the link between profit persistence and membership in a large industrialists' group, also known as the TUSIAD (Turkish Industrialists' and Businessmen's Foundation), in the Turkish manufacturing sector in the period 1990–2017. The findings show that the relative magnitude of profit persistence of firms with TUSIAD membership is higher than those without TUSIAD membership in the Turkish manufacturing sector.

Keywords: Profit persistence, business group membership, Turkish manufacturing sector
JEL Classification: L16, L19, L69

1. Introduction

In developing economies and emerging markets, poor institutional structure is generally seen. Thus, business groups have emerged in different forms as an alternative to poor institutional structure (see Chottoor *et al*., 2015, for a detailed investigation). However, these business groups in developing economies may serve a different role instead of avoiding fractions based on the poor institutional structure. The present study examines how business groups may serve oligopolistic profit accumulation purposes on a leading emerging market, *i.e.*, Turkish economy, over a period of 25 years. The Turkish manufacturing sector is a natural laboratory to research the link between profit persistence and business group membership since the member firms dominate the Turkish manufacturing sector.

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Profit rate could be counted as an essential factor of economic growth of firms or industries since profit rate is vital for investment or entrepreneurial activity (see Robinson, 1965). However, standard macroeconomic theories establish a link between income distribution and economic growth through profit rate (Pasinetti, 1962, is a seminal work). For Harrodian and Kaldorian economic growth models, profit rate is an essential factor determining the optimal saving ratio, which is necessary for sustainable long-run economic growth in an economy (see Kaldor, 1957).

The TUSIAD (Turkish Industrialists' and Businessmen's Foundation) consists of 4,500 member companies, and the exports of TUSIAD member companies account for 85% of total exports in the Turkish economy. At the same time, the TUSIAD member companies constitute 50% of the workforce and added value in the country.

There is a vast body of literature in applied economics on profit persistence. There is a significant difference between developing and developed countries regarding the magnitude of profit persistence. However, this article concentrates on a different determinant of profit persistence; a special industrialist group membership in the Turkish economy. The present study concentrates on the link between profit persistence and business group membership in the Turkish economy over a period of 25 years. The time series is long enough to evolve the profit persistence of the firms affiliated with the TUSIAD.

This article examines comparatively how the competitive power of firms with a particular business group membership has persisted over the years in the Turkish manufacturing sector. Firms in the Turkish manufacturing sector without group membership may suffer from weak competitive conditions in terms of their profit persistence in the long run.

This article investigates the relationship between profit persistence and TUSIAD membership by using differenced econometric methods that tackle endogeneity and firm-level heterogeneity for the period 1990–2017 in the Turkish economy. The findings show that the profit persistence of firms with TUSIAD membership is higher than those without TUSIAD membership. This article contributes to the current literature on profit persistence since the profit persistence estimations are classified for industrialist organization member firms and others in a developing/emerging country.

The organization of this paper is as follows. Section 2 discusses the link between profit persistence and special group membership. In the third section, profit persistence literature with a particular emphasis on developing economies is discussed. The third part presents the data set, hypothesis, methodology and findings from econometric estimations. In the fourth and final part, the general conclusion, limitations and recommendations for further studies are given.

2. Link Between Profit Persistence and TUSIAD Membership

Business groups are defined as "firms which, though legally independent, are bound together by a constellation of formal and informal ties and are accustomed to taking coordinated action" (Khanna and Rivkin, 2001, p. 47). In the current literature, the main aim of business groups on developing and emerging markets is to fill an institutional void (Khanna and Palepu, 2000a, 2000b; Khanna and Yafeh, 2007). Business groups may play an essential role in the economic landscape of many emerging economies (Chottoor *et al*., 2015).

Under the institutional voids theory in the current literature, which is emphasized by Carney *et al*. (2011), Chang and Hong (2002), Hoskisson *et al*. (2004), Khanna and Palepu (2000a, b), and Khanna and Rivkin (2001), business groups may serve as an alternative solution to poor institutional structure.

In addition, business groups are different from conglomerates. Ray and Chaudhuri (2018, p. 958) underline that "…conglomerates are being consisted of unified internal control of a portfolio of firms". In addition, business groups are a more complex web of formal and informal firm-level mechanisms, as Gerlach (1992), Granovetter (2005), Carney *et al*. (2011) underline.

The relevant literature examines business group membership in different countries with different perspectives. Hoshi *et al*. (1991) examine the Keiretsu membership in Japan; Shin and Park (1999) examine the Chaebol membership in the South Korean economy, Perotti and Gelfer (2001) examine special business group membership in India, Hermes and Lensink (1998) examine business group membership for Russia and Chile.

Business group membership usually has an advantage for activities of firms on the market where they operate (for India, Khanna and Palepu, 2000; Lensink *et al*., 2003) in terms of investment, profit or financial performance. However, no studies examine the persistence of profits in the current literature. In terms of establishing a link between business group membership and profit persistence, membership in the TUSIAD, an influential business group especially in the manufacturing sector in the Turkish economy, is used in the analysis of the present study.

The TUSIAD has an essential power for directing the industrial sector's demand and needs. Since its establishment, the TUSIAD has played a vital role in leading the industrial policies and madespecific demands for its rent-seeking activities from the government. The TUSIAD is also considered an elitist big business group consisting of large industrial organizations. The TUSIAD is also defined as a big business group that has largely finished its capital accumulation process in the relevant literature. It has wanted to include some political and economic agenda since its establishment. Thus, the TUSIAD

membership of an industrial firm gives the firm specific privileges in the Turkish economy. Due to the specific privileges of the TUSIAD membership, it can increase its competitive power on the markets.

The TUSIAD participates actively in economic policy decisions, and aims at gaining acceptance for their interests from the government since its establishment and has benefited from the financial liberalization process of the economy since the early 1980s (Bayer and Öniş, 2010; Barlas Yılmaz, 2013). Another study, Gölbaşı (2007), underlined that the TUSIAD has been playing an essential role for the economic policy and structural transformations in the economy.

The TUSIAD can be defined as a rent-seeking organization that aims at rents of large-scale manufacturing capital, mainly holdings or large family-owned manufacturing firms. Buğra (1998) emphasized that the TUSIAD combines large-scale firms located or headquartered in Istanbul, and these features contribute to the elitist background of the TUSIAD. TUSIAD members have benefited from the financial liberalization process of the economy since the early 1980s; they have even their banks or related businesses, as Barlas Yılmaz (2013) underlined.

One of the TUSIAD's most prominent features is centralized organizational/management strategy. The TUSIAD has no branches; however, it has representations in Washington D.C., Brussels and Berlin, as Doğangün (2005, p. 74) underlined. On the other hand, as Akkemik and Özen (2014) point out, TUSIAD members are also large-scale family businesses.

The literature on the persistence of profits has been developing since the late 1970s after the seminal work of Mueller (1977). The long-run equilibrium of profits has been analysed using averaged cross-sectional units without allowing time-varying analysis. The current literature focuses on concentration, economies of scale, entry and exit conditions in industry-level examinations, firm-level determinants, and financial and production factor-based resources for profit persistence (see Caves and Porter, 1977; Barney, 2001; Yurtoglu, 2004). However, most of the studies use averaged and time-invariant methodologies (see Section 3 for a detailed investigation of this issue). Unlike the previous studies, this article uses advanced econometric methods to use time-variant AR(1)-based dynamic models that account for endogeneity, unobservable firm- and time-based features. In this article, macro-level variables are also used to control macroeconomic conditions for profit persistence. Therefore, as far as the author knows, this article is a very early attempt to control the macroeconomic conditions in the profit persistence literature in a dynamic analysis.

From an empirical standpoint, profit persistence literature arises from the late 1970s with the seminal studies of Mueller (1977; 1986). Profit persistence literature mainly

concentrates on the persistence of profits in the long run; in other words, the literature focuses on the long-run equilibrium of profits (Gschwandtner, 2012).

Bartolini and Baussaura (2009) emphasize that profit persistence, which shows the earnings of some firms more than those on the competitive markets, is a controversial issue in the profit persistence literature. For developing countries, the studies which examine profit persistence are Yurtoglu (2004), Kambahampati (1995), Glen *et al*. (2001). For developed countries, studies that examine the persistence of profits are Jenny and Weber (1990), Khemani and Shapiro (1990), Cubbin and Geroski (1990), Mueller (1990), Schwalbach et al. (1989), Yamawaki (1989), Geroski and Jacquemin (1988), Goddard and Wilson (1999), Waring (1996), Schohl (1990), Odagiri and Yamawaki (1990), Marayuma and Odagiri (2002), Cable and Gschwandtner (2008), Cable and Jackson (2008), Cable and Mueller (2008), Gschwandtner and Cuaresma (2013).

The current literature emphasizes that the empirical examinations of profit persistence mainly rely on cross-sectional averages, which means that the persistence of profits does not vary with time, as Gschwandtner and Cuaresma (2013) emphasized. However, in Mueller (1986), the persistence of profits is a function of the profits in the previous period. In other words, the persistence of profits follows a purely autoregressive process in the first order. Thus, this article follows the approaches of Mueller (1990) and Gschwandtner and Cuaresma (2013), and therefore, an AR(1)-based empirical approach is employed here. While most of the studies concentrate on cross-sectional averages or do not use a time-varying approach, time-varying profit persistence estimations are used in the current applied literature; these studies are Mueller (1990), Cable and Gschwandtner (2008), Cable and Jackson (2008), Cable and Mueller (2008), Gschwandtner and Cuaresma (2013). Mueller's (1990) perspective on profit persistence is based on the Schumpeterian framework, and the profit persistence, which is determined by entry conditions, implying threats to incumbent firms and allowing adjustments towards their equilibrium level, is driven by creative destruction (Bartolini and Baussaura, 2009). In Mueller's (1990) work, profit persistence at the time $t = 0$ (or current term) is determined by entry conditions that define profits at the time $t–1$. The assumption is based on a pure autoregressive process. In other words, the profit persistence of firms at $t = 0$ is based on previous profits under the market conditions. Such an approach is more realistic than the cross-sectional averaged profit persistence approach. Thus, this article uses the AR(1) approach that accounts for time-varying dynamic effects for the profit persistence estimation.

In the current literature, while the periods and samples are different, the magnitude of profit persistence differs according to the market conditions, firm-level conditions and country-wide features.

Markets in developing countries have imperfections due to poor regulatory frameworks (Laffont, 1998; Yurtoglu, 2004), poor market conditions (Krugman *et al*., 1989); poor financial conditions or financing constraints despite financial liberalization (for Turkey, see Demir, 2008, 2009; Gezici, 2007; Doruk, 2017)[1]. Markets in developing countries are characterized mainly by oligopolies (see World Bank, 2019 for a series of World Bank Enterprise Surveys). Therefore, the persistence of profits mostly belongs to the firms that operate on these markets. In sum, the differences in profit persistence between developing and developed countries mostly come from market conditions, regulatory frameworks and the financial deepening level. Therefore, the present study can answer how business group affiliation may serve as an essential tool for profit persistence on emerging markets.

3. Dataset, Hypothesis and Econometric Estimations

3.1 Dataset

The dataset used in this article comes from the Finnet database. The dataset covers the period from 1990 to 2017; the frequency is annual. The dataset consists of publicly held manufacturing firms. Since outliers have biased effects on the firm-level estimations, outliers are eliminated as follows: a firm is excluded from the sample if either the firm's total assets, capital stock or sales are zero or missing. The outliers are cleaned using trimming under the 1 percentile and above the 99 percentile of tails of the variables[2]. The descriptive statistics are given in Table 1.

1 In the Keynesian vein, profit rate is related with financial system through availability of external funds (Keynes, 1937). In other words, profit rate and financial system are interrelated.
In the Schumpeterian vein, profit rate is an essential source for entrepreneurial system. For Steindl (1952), macroeconomic stagnation lays on the ground of falling profit rate. Therefore, profit rate has an importance for macroeconomic stability. In Joan Robinson's growth model, saving rate is determined by expectations or animal spirit through which profit rate under imperfect competition (see Robinson, 1965).

2 The possible reason for the outliers is poor accounting reporting practices. It is a random occurence since these outliers are not seen for all firms and years in the sample.

Table 1: Descriptive statistics

Panel A: Whole sample

Variable		Mean	Std. dev.	Min	Max	Observations
$\pi/K_{i,t}$	**overall**	0.4121498	0.6483220	−1.1477800	4.0651450	N = 2,844
	between	–	0.2966275	−0.1211960	1.4031900	n = 113
	within	–	0.5782385	−1.3460110	3.8906370	T-bar = 25.1681
$Lev_{i,t}$	**overall**	0.1247319	0.1087447	0.0045020	0.5861233	N = 2,955
	between	–	0.0630274	0.0266121	0.3398536	n = 113
	within	–	0.0889136	−0.1737462	0.5385653	T-bar = 26.1504
$gsales_{i,t}$	**overall**	0.0198357	0.2138329	−0.7249203	0.7256784	N = 2,844
	between	–	0.0391546	−0.0969647	0.1485800	n = 113
	within	–	0.2104751	−0.7630116	0.7459471	T-bar = 25.1681

Panel B: Non-TUSIAD firms

Variable		Mean	Std. dev.	Min	Max	Observations
$\pi/K_{i,t}$	**overall**	0.3441335	0.6052339	−1.1477800	4.0209320	N = 1,791
	between	–	0.2493610	−0.1211960	0.9571336	n = 71
	within	–	0.5522330	−1.4140270	3.8226200	T-bar = 25.2254
$Lev_{i,t}$	**overall**	0.1273199	0.1119185	0.0045020	0.5861233	N = 1,853
	between	–	0.0681548	0.0266121	0.3398536	n = 71
	within	–	0.0892645	−0.1711582	0.5411532	T-bar = 26.0986
$gsales_{i,t}$	**overall**	0.0201404	0.2192083	−0.7226896	0.7256784	N = 1,783
	between	–	0.0413703	−0.0969647	0.1485800	n = 71
	within	–	0.2155631	−0.7429471	0.7462519	T-bar = 25.1127

Panel C: TUSIAD firms

Variable		Mean	Std. dev.	Min	Max	Observations
$\pi/K_{i,t}$	**overall**	0.5278357	0.7009664	−1.1001670	4.0651450	N = 1,053
	between	–	0.3342265	0.0478408	1.4031900	n = 42
	within	–	0.6202418	−0.8548965	3.9232060	T-bar = 25.0714
$Lev_{i,t}$	**overall**	0.1203802	0.1030915	0.0045303	0.5804412	N = 1,102
	between	–	0.0538474	0.0456056	0.3017601	n = 42
	within	–	0.0883610	−0.1141932	0.4908754	T-bar = 26.2381
$gsales_{i,t}$	**overall**	0.0193235	0.2045823	−0.7249203	0.7128677	N = 1,061
	between	–	0.0355646	−0.0529677	0.1381736	n = 42
	within	–	0.2017359	−0.7635237	0.6760333	T-bar = 25.26

Source: Own calculations

The correlation matrix of the variables is given in Table 2. This correlation table shows that there is no multicollinearity between the variables.

Table 2: Correlation matrix

Panel A: Whole sample

	$\pi/K_{i,t}$	$Gsales_{i,t}$	$Lev_{i,t}$	$\pi/K_{i,t-1}$
$\pi/K_{i,t}$	–	–	–	–
$gsales_{i,t}$	0.200	–	–	–
$Lev_{i,t}$	−0.190	−0.009	–	–
$\pi/K_{i,t-1}$	0.650	−0.050	−0.140	–

Panel B: TUSIAD firms

	$\pi/K_{i,t}$	$\pi/K_{i,t-1}$
$\pi/K_{i,t}$	–	–
$\pi/K_{i,t-1}$	0.660	–

Panel C: Non-TUSIAD firms

	$\pi/K_{i,t}$	$\pi/K_{i,t-1}$
$\pi/K_{i,t}$	–	–
$\pi/K_{i,t-1}$	0.610	–

Source: Own calculations

The final sample contains 113 firms with 28 years of observations, including most large-scale firms in the Turkish manufacturing sector. The final sample covers the period between 1990–2017. Out of the 113 firms, 42 are TUSIAD members.

3.2 Hypothesis

As discussed in the previous parts of the present study, TUSIAD membership is used as a business group membership variable in the present study. TUSIAD member firms can benefit from accumulating their profit in the long term since TUSIAD membership gives firms a competitive advantage. The TUSIAD is an active industrialists' group in the Turkish manufacturing sector. According to its website (2019), the TUSIAD is responsible for production value added, registered employment and foreign trade in the Turkish economy and for a large part of GDP, excluding public. In other words, TUSIAD membership may serve as a powerful tool for the firms in terms of competitive advantage. As underlined in the current literature (see Khanna and Palepu, 2000; Carney *et al*., 2011; Chang and Hong, 2002; Hoskisson *et al*., 2004; Khanna and Rivkin, 2001) there are several reasons for the existence of business groups on emerging markets. There are multiple financial frictions and institutional voids in the Turkish economy. The hypothesis of this article is based on the reasons mentioned above and relevant literature. The hypothesis of the present study is, therefore, defined as follows:

H_1: Firms in the Turkish manufacturing sector with TUSIAD membership have more relative profit persistence than those without TUSIAD membership.

3.3 Econometric model

Unconditional profit persistence estimation

In the analysis, first, the unconditional profit persistence is estimated for firms, which is in line with the profit persistence literature. In doing so, the unconditional profit persistence model can be described as:

$$\frac{\pi_{i,t}}{K_{i,t-1}} = \beta_0 + \beta_1 \frac{\pi_{i,t-1}}{K_{i,t-2}} + \varepsilon_{i,t}\,, \tag{1}$$

where π_t, and π_{t-1} denote profits and lagged profits, respectively, and are scaled by beginning-of-period capital stock (denoted as *K*). The subscripts *i* and *t* denote firm-level observations and time dimensions. $\varepsilon_{i,t}$ denotes the error term of the estimation.

Conditional profit persistence estimation

The firm-level control variables can have an effect on firm profitability, and therefore, the conditional profit persistence is estimated.

The econometric estimation used for conditional profit persistence estimations is defined as:

$$\frac{\pi_{i,t}}{K_{i,t-1}} = \beta_0 + \beta_1 gsales_{i,t} + \beta_2 Lev_{i,t} + \beta_3 \frac{\pi_{i,t-1}}{K_{i,t-2}} + \varepsilon_{i,t}\,, \tag{2}$$

where g_{sales} denotes the growth rate of sales, *Lev* denotes the firms' leverage and the subscripts *i* and *t* denote individual units and time dimensions. *Lev* denotes the leverage at the firm-level, and is calculated by dividing total debt by total assets, all the items (total debt and total assets) taken from the balance sheet. $\varepsilon_{i,t}$ denotes the error term of the estimation.

Profit rate (π/K) denotes the profitability calculated using net operating profit in the income statement[3].

g_{sales}: the growth rate of sales is used as a proxy for controlling future growth opportunities. Future growth opportunities have a significant effect on the profit rate.

The GDP deflator is used to deflate all firm-level variables[4] to eliminate the effect of inflation on the variables within the sample.

3 Most of the studies in the current literature use profitability or profit rate estimation as follows; $\pi_{i,t} = (\Pi_{i,t} - \pi)/\pi$, where Π_{it} is firm *i*'s profit at time *t* and π is the relevant mean. However as Cable and Gschwandtner (2008: 248) emphasized that "…though not often noted, a caveat is in order here: on the reasonable assumptions that (a) there is on average a positive degree of market power in the economy and (b) there are likely to be fewer firms below the true normal profit than above *it*, any sample or economy-wide average will overstate true normal profits. Hence, any measure of excess profits based on such averages will tend systematically to understate persistence of profits above the norm, and overstate persistence below *it*." Since these reasons that may cause underestimate the persistence of profits in the analysis, the direct estimation of profit rate is preferred in this article.

4 While all the firms operate in the manufacturing sector, there is no available wholesale price index for deflating these variables. Hence, GDP deflator which is available for the whole period are used in the present study.

4. Methodology

In the current literature, endogeneity is the primary concern. In addition, the endogenous nature of business group affiliation and listing participation are the main concerns of estimating business group-related models (see Chottoor *et al*., 2015); the present study, therefore, uses the Least Squares Dummy Variable Corrected approach (henceforth, the LSDVC). The classical OLS method is biased when the lagged dependent variable is added as a right-hand side regressor to the econometric model (this is known as Nickell's bias; see Nickell, 1981). Besides, instrumental variables are used to appropriately model the firm dynamics, which is the results of past experience and behaviour of the firm and management executives. For representing real-world firm dynamics, it is handy to use past values of firm-level variables; therefore, the panel dynamic method, which is called the LSDVC, is used in the present study.

Since the cross-section of the dataset is relatively small for usual GMM datasets[5], the LSDVC method, which wisely handles the poor estimates of a small number of cross-sectional units, is used in the present study. The LSDVC method is based on Kiviet (1995). When the dataset has a small number of cross-sectional units, the GMM instruments may be too large, as Roodman (2009) states. As Arellano and Bond (1991) and Blundell and Bond (1998) point out, GMM estimators are asymptotically efficient with a large number of cross sections. The GMM modelling strategy may suffer from small-sample bias when the panel dynamic model has a few cross sections. As Kiviet (1995) shows, the small-sample bias can be corrected using the LSDVC method, which is more efficient than the other panel dynamic data methods. In these terms, the LSDVC is more beneficial than the estimations of the GMM. The LSDVC method which is used in the present study is defined as follows:

$$y_{i,t} = \alpha_{i,t} + \sum_{s=1}^{p} \gamma_s y_{i,t-s} + x_{i,t}\beta + u_{i,t} + \varepsilon_{i,t}\,, \tag{3}$$

where y denotes the dependent variable, x denotes the independent variables vector, and u denotes the firm-level fixed effects.

In the present study, Bruno's (2005) method, which is developed for unbalanced panels, is used. He also gives robust estimations for small samples with unbalanced datasets. The Differenced GMM-based LSDVC correction is used since the differencing method eliminates unobservable firm-level fixed effects such as technology and managerial

5 Nevertheless, in the robustness checks, the GMM based panel dynamic sequential model that based on the full-sample is used upon the suggestion of the reviewers.

ability, as Ndikumana (1999, p. 45) and Orhangazi (2008) point out. Moreover, year dummies are added to the econometric models to control for time-specific unobservable factors. The LSDVC methodology also controls omitted variable bias, endogeneity, potential correlation between the lagged dependent variable and firm-specific effects, and the error term (see Akkemik and Özen, 2014). We use differenced GMM corrections based on Arellano and Bond (1991) [6].

5. Findings

5.1 Main model findings

The econometric estimations are depicted in Table 3. According to the findings obtained from the unconditional profit persistence estimations, the profit persistence of TUSIAD firms is greater than that of their peers without TUSIAD membership. The coefficients of profit persistence are positive in both regressions and are statistically significant at the 5% level. The findings validate the main hypothesis of the present study that the effect of business group membership on profit persistence is positive and gives a competitive advantage over their peers without any business group membership.

Table 3: Unconditional profit persistence estimations

	(1)	(2)
	$\pi/K_{i,t}$ **TUSIAD members**	$\pi/K_{i,t}$ **Non-TUSIAD members**
$\pi/K_{i,t-1}$	0.542***	0.466***
	(0.03)	(0.02)
Time dummies	Yes	Yes
N	996	1,703

Note: Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.
π/K denotes the profit rate. The econometric estimations are based on the bootsrapped standard errors.

Source: Own calculations

6 The bootsrapping method alleviates the heteroscedasticity in the econometric models, which is shown empirically by Cribari-Neto & Zargas (1999).

Table 4: Conditional profit persistence estimations

	(3)	(4)
	$\pi/K_{i,t}$ TUSIAD members	$\pi/K_{i,t}$ Non-TUSIAD members
$\pi/K_{i,t-1}$	0.59***	0.44***
	(0.03)	(0.02)
$Lev_{i,t}$	−0.65**	−0.75***
	(0.2.7)	(0.13.)
$gsales_{i,t}$	0.80***	0.59***
	(0.10)	(0.06)
Time dummies	Yes	Yes
N	964	1,653

Note: Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. π/K denotes the profit rate. The econometric estimations are based on the bootsrapped standard errors.

Source: Own calculations

In Table 4, profitability in the previous period has a significant and positive effect on profitability in the current term for firms with TUSIAD membership. For firms which do not have TUSIAD membership, this effect is less pronounced. The growth rate of sales on profitability is positive and statistically significant at the 5% level for both TUSIAD member and non-member firms. Both estimated profit persistence coefficients are statistically significant at the 5% level. Again, this result validates the main hypothesis of this article when additional control variables are used for estimating the conditional profit persistence for the firms.

Moreover, for firms with non-TUSIAD membership, the magnitude of such a growth rate of sales effect is lower than for those with TUSIAD membership. This result shows that TUSIAD member firms are mature firms and prone to future growth options as non-member firms have less market share. According to the study findings, leverage, which is another control variable, has a negative effect on profitability for both TUSIAD member and non-member firms. However, the magnitude of this effect is lower for TUSIAD member firms than their non-member peers.

Table 5: Robustness checks results 1

	(5)	(6)	(7)	(8)
	$\pi/K_{i,t}$ TUSIAD firms, unconditional profit persistence estimations with macroeconomic variables	$\pi/K_{i,t}$ Non-TUSIAD firms, unconditional profit persistence estimations with macroeconomic variables	$\pi/K_{i,t}$ TUSIAD firms, profit persistence estimations with macroeconomic and firm-level control variables	$\pi/K_{i,t}$ Non-TUSIAD firms, profit persistence estimations with macroeconomic and firm-level control variables
$\pi/K_{i,t-1}$	0.543***	0.467***	0.596***	0.445***
	(0.03150)	(0.02520)	(0.03060)	(0.02710)
x/m_t	−0.00250	−0.0153*	−0.00167	−0.00182
	(0.00979)	(0.00622)	(0.00819)	(0.00607)
RER_t	−0.00179	−0.00322***	−0.00194	−0.00186
	(0.00209)	(0.00096)	(0.00186)	(0.00143)
$Ggdp_t$	0.0193*	0.00860	0.00188	−0.00213
	(0.00792)	(0.00561)	(0.01060)	(0.00450)
$M2/Y_t$	−0.00275	0.00497	−0.00130	−0.00694
	(0.00796)	(0.00340)	(0.00733)	(0.00537)
$Lev_{i,t}$	–	–	−0.654**	−0.753***
	–	–	(−2.67)	(−4.48)
$gsales_{i,t}$	–	–	0.800***	0.587***
	–	–	(9.23)	(9.63)
Time dummies	Yes	Yes	Yes	Yes
N	996	1,703	964	1,653

Note: Ggdpt denotes economic growth rate, x/m_t denotes total trade openness as of GDP, RER denotes the real exchange rate (1987 = 100). M2/Y denotes money supply as of GDP, %. π/K denotes the profit rate. The econometric estimations are based on heteroscedasticity and autocorrelation robust standard errors. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Source: Own calculations

5.2 Robustness checks

Controlling the effect of macroeconomic variables on profit persistence

For a robustness check of the main models, macroeconomic variables that can significantly affect the firms' profitability are used, following Doruk (2019). The macroeconomic variables are the economic growth rate, financial deepening, real exchange rate and trade openness. These macroeconomic variables are added to both unconditional and conditional profit persistence estimations.

The economic growth rate controls demand conditions at the macroeconomic level. Financial deepening, which is measured as M2 as GDP, controls financial conditions. The real exchange rate is used for controlling the exchange rate effect on profitability since most of the TUSIAD member firms are prone to export and import. Additionally, the trade openness rate, measured as exports plus imports as of GDP (%), is used to control the effect of trade openness on profitability.

Table 5 shows that the effect of economic growth rate on profit rate, surprisingly, is negative but statistically insignificant for both firms with and without TUSIAD membership. Financial deepening has a negative effect on profit rate for both TUSIAD membet and non-member firms, but is insignificant. For non-member firms, this effect is found to be insignificant. The effect of the real exchange rate is negative for both TUSIAD member and non-member firms; however, this effect is only significant for the firms without TUSIAD membership. To sum up, the magnitude of the profit persistence is unaltered even if the macroeconomic conditions are controlled.

Panel dynamic model with time-invariant variables

Another robustness check conducted in the present study is the unconditional relative slope estimates[7]. Two econometric models are therefore estimated to estimate the unconditional relative slope estimates. First, a two-step sequential panel dynamic model (see Kripfganz, 2020) is utilized. In the first step of the sequential panel dynamic model, a usual first differenced GMM (Generalized Methods of Moments) methodology is used for a classical profit persistence model (see Equation 1). The dummy variables are excluded in the first differenced GMM models or fixed-effects models; the TUSIAD dummy variable is added to the econometric model in the second step. This methodology is preferred since the second step is only available for the sequential panel dynamic model.

7 Thank to the anonymous reviewer for suggesting this robustness check.

In this estimation, the relative TUSIAD membership advantage for the profit persistence is estimated in a non-linear combination of the estimated coefficients. The econometric model is preferred since it uses a two-step estimation procedure that considers the time-invariant regressors. In the first stage of the regression, as Schwarz and Kripfganz (2019) suggested, the dependent variable is regressed by time-varying regressors only. Then, in the second stage, time-invariant regressors are added to the estimated first-stage residuals in the econometric model in the first stage. The heteroscedasticity and autocorrelation robust standard errors in the econometric estimations are used to correct the biased standard errors[8]. Equation 3 can be re-written for the two-step sequential panel dynamic regression as follows:

$$y_{i,t} = \alpha_{i,t} + \sum_{s=1}^{p} \gamma_s y_{i,t-s} + x_{i,t}\beta + f'\gamma_{i,t} + u_{i,t} + \varepsilon_{i,t}\,, \tag{4}$$

where f represents the matrix of time-invariant variables in the econometric model; in this robustness check, the degrees of freedom are higher than the subsample-based estimations.

The econometric model with TUSIAD dummy as a time-invariant variable can be defined as follows:

$$\frac{\pi_{i,t}}{K_{i,t-1}} = \beta_0 + \beta_1 \frac{\pi_{i,t-1}}{K_{i,t-2}} + \beta_2 TUSIAD_{i,t} + \varepsilon_{i,t}\,. \tag{5}$$

Then, the main aim of the estimation is to estimate the long-run effect of TUSIAD membership on profit persistence. The long-run coefficient of the TUSIAD membership on the profit persistence is estimated as follows: $\beta / (1-\lambda)$. Where β represents the coefficient of TUSIAD membership, $1-\lambda$ represents the long-run effect of $\frac{\pi_{i,t-1}}{K_{i,t-2}}$ (the lagged profit) on $\frac{\pi_{i,t}}{K_{i,t-1}}$ (or the current level of profit). The obtained coefficients are given in Table 6[9].

8 As Kripfganz and Schwarz (2019, p. 527) underline that the panel dynamic sequential regression is preferred since :" If there is unobserved unit-specific heterogeneity, it is often hard to disentangle the effects of the observed and the unobserved time-invariant heterogeneity…. " . Then, the time-varying regressors are collinear with the firm-specific effects in the fixed effects maodel, and also for the GMM models, strong orthogonality assumption cannot be hold. As Kripfganz and Schwarz (2019, p. 527) underline the problem as follows:
"generalized method of moments (GMM) framework …to identify the coefficients of time-invariant regressors, strong orthogonality assumptions need to be imposed …to find valid instruments. If these conditions fail to hold, the estimators of all coefficients …. might be biased and inconsistent."

9 Note that, the full sequential panel dynamic regression model can be requested from the author.

Table 6: The Long-run effect of TUSIAD membership on the profit persistence

Variable	$\beta/(1-\lambda)$ Unconditional	$\beta/(1-\lambda)$ Conditional
TUSIAD membership	0.17 (0.05)***	0.18 (0.05)***
N	2,699	2,699
Number of firms	113	113
Number of instruments	50	99

Note: The econometric estimation is based on the heteroscedasticity and autocorrelation robust standard errors. Time dummies are not reported. Standard errors in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Source: Own calculations

Table 6 gives the obtained long-run coefficient of the TUSIAD membership on the profit persistence among the Turkish manufacturing firms. Note that the obtained parameter is the relative and long-run profit persistence parameter. It shows that the relative effect of the TUSIAD membership on profit persistence is positive and statistically significant at the 5% level.

Controlling for ownership and sectoral effects on profit persistence

The sectoral and ownership-related variables are also added to the panel dynamic sequential regression to check whether the ownership or sectoral status can have an effect on profit persistence. The econometric models include the concentration index, measured as the Herfindahl-Hirschman index (HHI), which measures the first five firms' sectoral concentration for each year (variable HHI*TUSIAD in econometric models showing the interaction of TUSIAD firms and HHI index in the econometric models), to control the confounding sectoral effect on the profit persistence in the long run. The second variable is the firm exporter status since the exporter firms can have a different profit structure in the long run (Wagner, 2012; Guarascio and Pianta, 2017).

Table 7 depicts the findings obtained from this robustness check. The effect of sectoral concentration and exporter status on profit persistence is estimated in this robustness check[10]. These model estimations show no significant effect of sectoral concentration and

10 The author thanks to the anonymous reviewer to point the conditions that can have an effect on the profit persistence within the Turkish manufacturing sector.

exporter status of a firm on the profit persistence in the long run. The effect of TUSIAD membership on profit persistence is still valid and statistically significant at the 5% level in the conditional and unconditional profit persistence estimations.

Table 7: Long-run effect of ownership variables on the profit persistence

Variable	$\beta/(1-\lambda)$ Unconditional	$\beta/(1-\lambda)$ Conditional
TUSIAD membership	0.17 (0.06)***	0.20 (0.05)***
Herfindahl-Hirschman Index × TUSIAD[a]	−0.87 (0.70)	0.94 (0.71)
Exporter firms	−0.03 (0.04)	−0.02 (0.01)
N **Number of firms** **Number of instruments**	2,699 113 52	2,617 113 103

Note: The econometric estimation is based on heteroscedasticity and autocorrelation robust standard errors. Time dummies are not reported.

[a] The model is estimated using the Differenced GMM model since there is a high degree of freedom and no need to estimate time-invariant dummies. The econometric estimations are done by heteroscedasticity and autocorrelation robust standard errors. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Source: Own calculations

Pooled OLS and 2SLS-based slope estimations

The second approach to the relative profit persistence slope, the pooled OLS model, is estimated using the interaction term that combines the lagged profit persistence and TUSIAD membership variables. Year dummies are also used to control the time-based unobservable effects in the econometric models. The pooled OLS-based econometric model is used, in which the interaction term is added is preferred. In the 2SLS estimation, the firm dummies are used to control the firm-level managerial and technical effect of the profit persistence of the TUSIAD membership. Both the OLS and 2SLS models show that there is a significant profit persistence for TUSIAD member firms in the Turkish manufacturing sector. The coefficient shows the slope of difference and is statistically significant at the 5% level (see Table 8 and Table 9).

Table 8: OLS model results

	(1)	(2)
	$\pi/K_{i,t}$	$\pi/K_{i,t}$
$\pi/K_{i,t-1}$ × TUSIAD	0.378***	0.363***
	(0.0364)	(0.0368)
$LEV_{i,t}$	–	–1.032***
	–	(0.0834)
$gsales_{i,t}$	–	0.553***
	–	(0.0641)
β_0	1.049***	1.124***
	(0.1230)	(0.1210)
Year dummies	Yes	Yes
N	2,582	2,505
R^2	0.267	0.337
F stat., *p* val.	0.000	0.000

Note: Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Time dummies are not reported. The econometric estimations are based on heteroscedasticity and autocorrelation robust standard errors.

Source: Own calculations

To sum up, the findings of the econometric estimations show that the persistence of profits of TUSIAD member firms in the Turkish economy is greater than that of those without TUSIAD membership from 1990 to 2017. The findings are in line with the literature that examines the effects of special business group membership on alleviating firms' financial performance and production constraints (see Doruk, 2017; Hermes and Lensink, 1998; Hoshi *et al*., 1991; Khanna and Palepu, 2000; Lensink *et al*., 2003; Perotti and Gelfer, 2001; Shin and Park, 1999). A set of robustness checks is used, and the main model results are unaltered. Thus, these results validate the main hypothesis of this article. The findings can make a significant and potential contribution to the current literature.

In an emerging or developing country, business group membership may be used to fill institutional voids; however, such action is more beneficial than we think. Business groups may serve as a competitive advantage apparatus for firms.

Table 9: 2SLS model results

	(1)
	$\pi/K_{i,t}$
$\pi/K_{i,t-1}$ × TUSIAD	0.528***
	(0.0341)
$gsales_{i,t}$	0.687***
	(0.0620)
$gsales_{i,t-1}$	0.236***
	(0.0572)
$LEV_{i,t}$	−0.694***
	(0.1140)
$LEV_{i,t-1}$	−0.341**
	(0.1220)
β_0	0.414***
	(0.0438)
Firm dummies (in the first stage)	Yes
Year dummies	Yes
N	2,558
R^2	0.400
F stat., *p* val.	0.00

Note: Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Time dummies are not reported. The econometric estimations are based on the heteroscedasticity and autocorrelation robust standard errors.

Source: own calculations

As noted above, the TUSIAD is a major industrialists' group in the Turkish economy. Buğra (1998) indicates that the TUSIAD represents large-scale firms located or headquartered in Istanbul. In other words, the TUSIAD is an industrialist group most of whose members are Istanbul-centred. According to one of the early works on the TUSIAD in the Turkish economy (Bianchi, 1984), the TUSIAD is an active interest group, and there has been a need for heterogeneous active rent-seeking groups in the Turkish economy. The empirical findings prove this, and therefore, they can be viewed as a clear contribution to the current literature.

6. Conclusion

While there is a vast body of literature on profit persistence in both developed and developing countries, there is no relevant study on the effects of special business group membership on profit persistence in an emerging market context. This article examines the effects of membership in the TUSIAD, which could be counted as a specific and privileged industrialists' group in the Turkish economy, on profit persistence in the Turkish manufacturing sector from 1990 to 2017. The findings show that the profit persistence of firms with TUSIAD membership is greater than that of those without TUSIAD membership. This result shows that being a member of the TUSIAD, an elitist industrialists' business group in the Turkish manufacturing sector, has an advantage for the persistence of profits in the long term.

The contribution of this article to the current literature is twofold. Firstly, it proves the profit persistence in a developing or emerging country by using a business group membership: the TUSIAD membership. The TUSIAD membership is a membership in an industrialists' umbrella, which can be counted as a specific business group network, for dominating the market in a developing economy. Therefore, this article provides a view of the profit persistence of industrialist groups in a developing economy in which industrial production plays a vital role in growth and development. Secondly, this article uses a time-varying firm-level profit persistence where the econometric models includes firm-level and macroeconomic level variables. The endogeneity and dynamic structure of profit persistence are controlled over a given long period of time (28 years). In the spirit of Khanna and Yafeh (2000), the business group membership can be an essential tool to accumulate profits in the long run in a developing economy. In other words, the business group membership is an essential and privileged competitive advantage tool in the Turkish economy.

The present study offers a new insight for the existing literature on the effects of business group affiliation on profit persistence in an emerging market context using a hand-collected dataset and novel econometric estimations, such as panel dynamic sequential regression models. The present paper also employs different robustness check practices for the main empirical findings. The findings are not altered after these robustness checks.

The main limitation of this article comes from the fact that it only uses econometric estimations and does not provide a detailed interpretation of the firm-level or specific group-level profit persistence. Further studies may interpret only one firm or business group using case studies or field reports.

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