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Performance of Family and Non-family Firms with Self-Selection: Evidence from Dubai

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Abstract

This paper contributes to the literature on comparative performance of family and non-family businesses by accounting for self-selection and by comparing performance within and across sectors. Using an extensive data set of Dubai businesses in the four different major sectors in the Dubai economy (construction, manufacturing, services, and trading); we find that the sector matters. Family businesses outperform nonfamily businesses in trading, followed by construction as a far second. Performance of family businesses is weakest in manufacturing and services, only in trading did family businesses outperform nonfamily exporting businesses in other sectors. Reasons for that are discussed and policy implications are drawn. We also find strong evidence of self-selection bias.

Keywords: Business Comparative Performance, Family Businesses, Self-Selection, Sector Performance, Dubai Enterprises

1. Introduction

In their overview of family business performance, Jackiewicz and Klein (2005) [1] report that of the 41 studies that compared family to nonfamily businesses, 25 find the former outperform the latter, 5 find the opposite, and 11 find no significant difference between the two types of firms. Dyer (2006) [2] argues that such differences in results are not surprising given the differences in approaches and definitions of family enterprises (see also [3-7]).

What is surprising, however, is that, as far as we know, none of the studies controlled for self-selection bias [8] and most do not assess differences in performance within and across industries. If selection bias is present, the observed differences in firm performance are attributed to business type when they may be due to differences between the entrepreneurs who chose between the two types of business structures. Similarly, if a business' amenability to family versus nonfamily management hinges on the type of industry, it is crucial to have industry an additional contextual variable.

In this paper we use an extensive data set of Dubai businesses to test for differences in family versus non-family firms within and across the four major sectors in the Dubai economy (construction, manufacturing, services, and trading). Dubai is a particularly interesting and representative case study of the Gulf region, where, until the recent financial crisis, economic growth has been phenomenal and little is known about the relative performance of family businesses and thereby their relative contribution to such growth. Family businesses comprise most of the enterprises in the Gulf region [9]. They account for over 90% of all commercial activities in the Gulf region, compared to rates ranging from 65% to 80% in other regions of the world.

The remainder of the article is organized as follows. The next section reviews and discusses the literature on comparative performance of family and nonfamily firms. Section 3 defines a family business in general, and Section 4 develops a working definition for a family business in Dubai. Section 5 presents the data, method, and results. Section 6 summarizes and concludes.

2. Family versus Non-family Performance

Casting comparative performance of firms in terms of family versus non-family businesses is a useful approach

to capturing the influence of business structure on business performance. One particularly important element of structure, discussed extensively in the literature, is the degree of ownership and management control [2,10-13]).

It is generally accepted that concentration of control can bring about economic entrenchment and misallocation of resources [14]. Misallocation is attributed to the well-known principle-agent problem but also to the principal-principal conflict emphasizing the problem of minority shareholders [15,16]). The latter conflict is commonly present in emerging economies with institutions that encourage control and tolerate bad corporate governance. In this context, does high concentration of control, as exhibited by a family enterprise, affect firm performance? And what is the role of the supporting institutions operating in the background?

On one hand, institutions are found to significantly determine business performance [17-20]. On the other hand, in the absence of sound institutions and regulatory framework, is ownership and control able to provide a less enforced, but equally potent, internal regulatory environment for business? In China for example, it is reported that family businesses provide alternative framework for businesses to "reduce risk in uncertain, complex and potentially hostile environments" [21].

Furthermore, the degree of concentration of ownership and control is motivated by business strategies, strategies to manage risks stemming from surrounding institutions. Minority shareholders in publicly owned companies have, in general, highly diversified investment portfolios and are therefore considered more likely to accept potentially risky ventures in return for lucrative earnings. Conversely, the owner of a family firm is likely to have a more concentrated investment portfolio, holding a high proportion of personal wealth within the own firm [11,22-24]). Consequently, does this excessive cautious behaviour hinder family firm performance [12,22], and results in sub-optimal capital asset structure and performance?

Some researchers [3] suggest that due to corporate governance issues, such as the lack of transparency and accountability, family enterprises remain small and, therefore, have less access to capital. However, the evidence is inconclusive across samples. Jorissen *et al*. (2005) [25] report that once demographic differences are controlled for, family firms face more financing problems than non-family firms with regards to long- term financing [4,23].

In this connection, Anderson and Reeb (2003) [4] contend that family owners are predominantly concerned with "stability and capital preservation" rather than firm growth, performance and size. However, if stability is used as an indicator of firm performance, Lee (2006) [26] would agree and Suehiro (2001) [27] would disagree that family firms are more stable in times of economic downturn than non-family enterprises.

What transpires from the previous discussion is that, because of the several characteristics of family versus nonfamily firms and the interaction between those characteristics, there is no clear a priori expectation that one type of firm should outperform the other. That expectation becomes less clear when considering contextual variables such as firm size and industry. Hence, relative performance of family versus non-family firms is an empirical question, and preponderance of evidence from different studies is what ultimately shapes the metaview of the superiority of one business over the other. Our empirical analysis for Dubai is a contribution to shaping that metaview. Our starting point is to discuss in the next section the different definitions for a family business used in the literature. After that we discuss our definition of what constitutes a family business in Dubai.

3. Definition of a Family Business

The assortment of family business attributes outlined in section 2 has led to an assortment of definitions of a family business in the literature. In their survey of family business literature, Chua *et al*. (1999) [28] found 21 different definitions.

Basically, family business attributes are related to one of three components: family, ownership, and management; and the definition of a family business depends on the overlap of the three. This is illustrated in the Venn diagram in **Figure 1**. The three components plus the four overlapping areas constitute seven possible connections, with each connection tied to some degree of influence. Individuals with only one connection to the business would lie in 1, 2, or 3, and those with more than one connection would lie in any of the other intersections. For example, intersections 4, 5, and 7 identify family members who are directly involved in the business management and its ownership. Intersections 2, 3, and 6 include managers, employees and possible co-owners from outside the family.

Several examples from the literature will serve to illustrate how different authors in different contexts have devised different definitions based on the overlapping components shown in the Venn diagram. Westhead and Cowling (1997) [6] suggested the following 7 definitions for a family business:

1) *The enterprise is perceived by the chief executive, managing director, or chairman to be a family business.*

2) *More than* 50% *of ordinary voting shares are owned by members of the largest single-family group related by blood or marriage.*

3) 1 *and* 2

4) 3 *and one or more of the management team is*

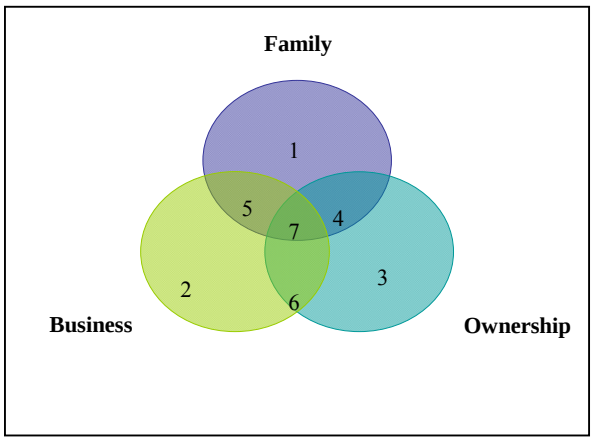

Figure 1. Overlapping Components of a Family Business. Source: Gersick *et al*., (1997) [29].

drawn from the largest family group that owns the business

5) 3 *and* 51% *or more of the management team is drawn from the largest family group that owns the business*

6) 4 *and the enterprise is owned by second-generation or family members*

7) 5 *and the enterprise is owned by second-generation or family members*

4. Definition of a Family Business in the Context of Dubai

The preceding conceptual framework and applications not only require information on family membership, degree of ownership and management by family members; they also require establishing a cut-off point at which the degree of influence is significant enough to designate a business as a family business. Unfortunately, that information is not available for Dubai

What is available is a categorization of family versus non-family businesses in Dubai devised by Rettab (2008) [30] (**Table 1**). The definition draws on UAE's company law which requires 51% ownership of a business by UAE nationals, and on labour law regulating employer-employee[1] relationship.

According to **Table 1**, a business that is more than 50% owned and managed by UAE nationals is defined as a family business, while all other businesses are defined as non-family businesses. The underlying rationale is as follows.

A business that is fully owned by UAE nationals in almost all cases belongs to one single UAE national owner, regardless of the size of the business. Hence, all fully UAE national owned businesses are family businesses.

[1]Residency visa of all expat employees is dependent on employment contracts. Once a contract is terminated, the employee must either leave the country or find another employer. The Law also applies to CEOs.

Table 1. Categories of UAE Owned Businesses in Dubai according to ownership, Management, and Number of Owners and Managers.

Definitions[1]	Numbers of Owners and Managers	Ownership	Management	Category
3	1	100% Family	100% Family	One-Man Family Business
2	2	> 50% Family	100% Family or Shared	Family Business
4	2	> 50% Family	100% Non-Family	Non-Family Business (The Sponsorship System)
1	3 or more	> 50% Family	100% Family or Shared	1st Category Family Business
5		> 50% Family	100% Non-Family	Non-Family Business (The Sponsorship System)
		< 50% Family	100% Family or Shared	Non-Family Business
		< 50% Family	100% Non-Family	Non-Family Business

[1] Numbers in column refer to the categories by Westhead and Cowling (1997) [6]. Source: Rettab (2008) [30].

Defining businesses with a share of foreign equity as non-family businesses is supported by the roles of the UAE partner in the day-to-day management of the business. There are three roles. One, in almost all small businesses (less than 10 workers) with foreign equity, the formal owner of the license is the so-called the UAE national sponsor or the silent partner. The partnership is a well established sponsorship system enforced by law. In this case, since the capital is wholly provided by the foreign partner(s) who attend to all activities and take all decisions related to the conduct of the business, the foreign partners are the actual owners and the managers in full control. The UAE partner does not actively participate in the day-to-day business management but sponsorship is just an arrangement to conform to the Federal Company Law. Therefore, small businesses with foreign equity are classified as nonfamily businesses.

Two, in medium-sized businesses (10 to 19 workers) with foreign equity, UAE nationals are more likely to be non-silent partners, but their presence in the firm is mostly for formality reasons and for facilitating access to local authorities and agencies, as well as monitoring local employees and local clientele. However, control and management remain in the hands of foreign partners.

Three, large businesses (20 employees or more) with foreign equity are formally organized and ownership of capital and liabilities of owners are stipulated in legal documents. However, in most such businesses, although the UAE partner is a member of the board of directors

because of his/her share in capital investment, decision-makers are usually foreigners. Therefore, large businesses with foreign equity are also assumed to be non-family businesses.

5. Data and Analysis

The data set we extract information from to examine the comparative performance of family versus nonfamily businesses comes from the 2005 Dubai Chamber's membership database. The total number of members is 20,576; 10,597 are family businesses and 9979 are nonfamily businesses. Reported by each business are income, exports, number of owners, number of employees, paid-up capital, cohort (whether a business started operation before or after 1990), location (whether or not a business is located in the free zone), and the industry category to which a business belongs. The industry categories are manufacturing, construction, trading, and services.

Performance is represented by the following linear model:

$$\begin{aligned} Y_{nijk} &= \mu + B_i + I_j + E_k + \alpha_{ijk} * OWN_{nijk} \\ &\quad + \beta_{ijk} * CAP_{nijk} + \delta_{ijk} * EMP_{nijk} \\ &\quad + (B*I)ij + (B*E)_{jk} + (I*E)_{jk} \\ &\quad + (B*I*E)_{ijk} + \gamma * SS + e_{nijk} \end{aligned} \quad (1)$$

where Y is income, μ is the intercept, B is business type, I is industry category, E is export status, *OWN* is the number of owners, *CAP* is paid-up capital, *EMP* is number employees, and *SS* is a measure of self-selection. The subscript *nijk* refers to nth firm, for $n = 1,\ldots 20576$; in the ith business, where $i = 1$ for a family business and $i = 2$ for a nonfamily business; in the jth sector, where j=1 for manufacturing (MAN), $j = 2$ for construction (CON), $j = 3$ for trading (TRD), and $j = 5$ for services (SRV). The subscript k is equal to 1 if the firm exports and 2 if it does not.

Although the choice of variables is ex-post, as it is dictated by what is available in the data set, the variables capture the essence, although imperfectly, of some determinants of family versus non-family firms outlined in Section 2. The number of owners is a proxy for agency costs, *i.e.*, the larger the number of owners the higher the agency costs. Paid-up capital is a proxy for risk and extent of internal financing. The number of employees could, as has been assumed in past work, be an indicator of the size of the firm as well as agency costs. With a larger pool of employees, issues related to moral hazard take on crucial importance.

The variable *SS* is the inverse mills ratio calculated from a Probit model as suggested by Heckman (1979) [8]. The ratio controls for selection. A positive (negative) γ that is statistically different from zero indicates presence of selection bias that overstates (understates) the effect family business structure on performance. The bias is overstated (understated) if stronger (weaker) "business people" chose to run a family business. The error $e_{nijk} \sim iid\ N(0, \sigma^2_{ijk})$ accounts for the error structure which allows for heterogeneous variances by business type, industry, and export status.

The Probit model explains belonging to a family or a nonfamily business (B_i) as a function of the number of owners (OWN), paid-up capital (CAP), number of employees (EMP), Location (LOC), industry category (I), and an indicator (COH) which equals 1 if the business started before 1990 and zero after 1990. The period after 1990 represent the take-off growth period for Dubai. Results of the Probit model are presented in **Table 2**.

What transpires from the Probit results is that firms with more owners are less likely to organize as family businesses, as were firms who started business after 1990, a period which witnessed strong FDI inflow to Dubai. The rest of the variables all increase the likelihood of a firm organizing itself as a family business.

From the Probit results, we construct the mills ratio: $SS = \varphi(X,\gamma)/\Phi(X,\gamma)$, where $\varphi(X,\gamma)$ is the density function, $\Phi(X,\gamma)$ is the distribution function, and θ is the vector of parameter estimates from the Probit model reported in **Table 2**.

Before estimating the linear statistical model of performance (Equation (1)), we conducted a preliminary check of the distribution of the regressors through histograms. The check revealed that the regressors are highly skewed, with the largest values of some regressors often being the smallest values. A rule of thumb is that if the largest value is more than three times larger than the smallest value, a log transformation of the regressors is needed, mitigating the problem of extreme outliers [31].

The performance equation was estimated using the SAS Proc Mixed routine [32] by first transforming the variables Y, OWNERS, CAP, and EMP into logarithms and incorporating a different residual variance σ^2_{ijk} for each business (i = 1,2) by industry (j = 1,2,3,4) by export status combination (k = 1,2). Estimates of the

Table 2. Parameter Estimates of the Probit Model

Parameter		Estimate	Standard Error	Chi-Square	Pr > χ2
Intercept		0.694	0.0897	59.96	< .0001
OWN		–0.650	0.0072	8133.68	< .0001
CAP		0.067	0.0110	38.21	< .0001
EMP		0.0005	0.0001	85.04	< .0001
LOC	DUBAI	1.172	0.0856	187.50	< .0001
I	CON	0.154	0.0393	15.53	< .0001
I	MFG	0.454	0.0475	91.30	< .0001
I	SRV	0.675	0.0325	431.53	< .0001
COH	AFTER 1990	–0.380	0.0229	274.74	< .0001

16 residual variances were obtained by performing a separate regression for each one of the 16 combinations. The solution for fixed effects yielded 93 parameter estimates, including the intercept.

The first hypothesis of interest is self-selection bias. The coefficient γ for the variable controlling for selection is 0.239 and a standard error 0.049, indicating (statistically) strong presence of self-selection bias that tends to overstate the effect of family business structure on performance. The implication is that analysis for comparative performance of family and nonfamily businesses in the Dubai case should account for self-selection bias.

The next hypotheses of interest are those related to the statistical importance of the fixed effects, the covariates, and interactions thereof. Results are reported in **Table 3**.

Individually, the fixed effects *B*, *I* and *E* are highly significant and so are the covariates *OWN*, *EMP*, and *CAP*. The interactions are all highly significant with three exceptions: business type by exports status (*B*E*), industry type by export status (*I*E*), and business type by industry by numbers of owners (*OWN*B*I*).

Next we take a look at the comparative performance of family business vis-à-vis nonfamily businesses by industry and by export status. **Table 4** compares mean performance of family and nonfamily businesses in the construction sector. The rows highlighted in gray indicate instances of superior performance of family businesses. The first highlighted row in gray is read as follows: a family business in the construction sector that does not export outperforms a nonfamily business in construction that does not export. The second highlighted row indicates that a family business in construction that does not export outperforms a nonfamily business in manufacturing that does not export. The rest of the rows can be read in a similar manner.

Results for construction can be summarized as follows. Family businesses in construction outperformed nonfamily businesses in 44% of all cases, outperformed nonfamily businesses in the construction business only when nonfamily businesses are not exporters, and in no other instance did family businesses outperform nonfamily businesses who export.

Results for manufacturing are in **Table 5**. It appears that family businesses in manufacturing outperform nonfamily businesses only in 25% of the cases, outperformed nonfamily businesses in manufacturing only when nonfamily businesses in manufacturing are not exporters, and, as in construction; in no other instance did they outperform nonfamily businesses who export.

In the services industry (**Table 6**), family businesses outperformed nonfamily business only in 25% of the cases, did not outperform nonfamily businesses in services only when the family business exports and the nonfamily business does not, and in no other instance did they outperform nonfamily businesses in services who export.

The outcome for the trading sector is radically different (**Table 7**). Family businesses outperform nonfamily business in 7% of the cases. Trading family businesses who do not export outperform only nonfamily businesses who do not export. However, trading family businesses

Table 3. Type 3 Tests of Fixed Effects.

Effect	Num DF	Den DF	F Value	Pr > F
B	1	2114	17.26	< .0001
I	3	1677	8.99	< .0001
E	1	182	107.93	< .0001
B*I	3	1659	10.82	< .0001
B*E	1	182	0.01	0.9098
I*E	3	172	0.15	0.9300
B*I*E	3	172	3.12	0.0275
OWN	1	6011	63.12	< .0001
CAP	1	1824	3210.36	< .0001
EMP	1	1033	758.01	< .0001
OWN*B	1	2776	13.24	0.0003
CAP*B	1	1819	11.41	0.0007
EMP*B	1	1001	20.76	< .0001
OWN*I	3	2275	10.64	< .0001
CAP*I	3	1444	12.54	< .0001
EMP*I	3	1349	12.05	< .0001
OWN*B*I	3	2290	1.49	0.2153
CAP*B*I	3	1435	17.29	< .0001
EMP*B*I	3	1342	6.47	0.0002

Table 4. Comparative performance of family businesses in construction.

B	I	E	B	I	E	Estimate	Standard Error	DF	t Value	Pr > |t|
FAM	CON	NO	NFAM	CON	NO	0.2677	0.1000	1135	2.68	0.0076
FAM	CON	NO	NFAM	CON	YES	–0.02721	0.1483	584	–0.18	0.8545
FAM	CON	NO	NFAM	MFG	NO	0.5384	0.1152	1158	4.67	< .0001
FAM	CON	NO	NFAM	MFG	YES	–0.1127	0.1224	1079	–0.92	0.3577
FAM	CON	NO	NFAM	SRV	NO	0.2963	0.08637	794	3.43	0.0006
FAM	CON	NO	NFAM	SRV	YES	–0.04539	0.1362	508	–0.33	0.7390
FAM	CON	NO	NFAM	TRD	NO	–0.04079	0.07347	519	–0.56	0.5790
FAM	CON	NO	NFAM	TRD	YES	–0.3853	0.066	578	–5.77	< .0001
FAM	CON	YES	NFAM	CON	NO	0.7182	0.2322	32.4	3.09	0.0041
FAM	CON	YES	NFAM	CON	YES	0.4233	0.2619	49.5	1.62	0.1124
FAM	CON	YES	NFAM	MFG	NO	0.9889	0.2389	36.3	4.14	0.0002
FAM	CON	YES	NFAM	MFG	YES	0.3378	0.2481	40.2	1.36	0.1808
FAM	CON	YES	NFAM	SRV	NO	0.7468	0.2259	29.2	3.31	0.0025
FAM	CON	YES	NFAM	SRV	YES	0.4051	0.2546	44.5	1.59	0.1186
FAM	CON	YES	NFAM	TRD	NO	0.4097	0.2222	27.3	1.84	0.0760
FAM	CON	YES	NFAM	TRD	YES	0.06517	0.2261	27.8	0.29	0.7753

who export outperform all other nonfamily businesses who export in all sectors except those who also trade. Still, in the latter case, there is no statistical difference between the two.

6. Summary and Conclusions

The message from the preceding results is that industry and institutions matter. In terms of preponderance of evidence by sector, as measured by the statistically significant cases in which family businesses outperform nonfamily businesses; family businesses are strongest in trading, followed by construction as a far second. Family businesses are weakest in manufacturing and services. More importantly, only in trading did family businesses outperform nonfamily exporting businesses in other sectors.

There are three distinguishing characteristics of the trading sector in Dubai that may explain the superior performance of family businesses in that sector relative to other sectors. The first is institutional. UAE families in

Table 5. Comparative performance of family businesses in manufacturing.

B	I	E	B	I	E	Estimate	Stan-dard Error	DF	t Value	Pr > |t|
FAM	MFG	NO	NFAM	CON	NO	0.1152	0.1032	255	1.12	0.2654
FAM	MFG	NO	NFAM	CON	YES	–0.1798	0.1506	417	–1.19	0.2331
FAM	MFG	NO	NFAM	MFG	NO	0.3858	0.1175	351	3.28	0.0011
FAM	MFG	NO	NFAM	MFG	YES	–0.2652	0.1249	435	–2.12	0.0343
FAM	MFG	NO	NFAM	SRV	NO	0.1438	0.08782	157	1.64	0.1036
FAM	MFG	NO	NFAM	SRV	YES	–0.1979	0.1373	336	–1.44	0.1504
FAM	MFG	NO	NFAM	TRD	NO	–0.1933	0.07806	113	–2.48	0.0147
FAM	MFG	NO	NFAM	TRD	YES	–0.5379	0.07202	126	–7.47	0.0001
FAM	MFG	YES	NFAM	CON	NO	0.3059	0.1528	251	2.00	0.0464
FAM	MFG	YES	NFAM	CON	YES	0.01097	0.1950	421	0.06	0.9552
FAM	MFG	YES	NFAM	MFG	NO	0.5766	0.1629	311	3.54	0.0005
FAM	MFG	YES	NFAM	MFG	YES	–0.07450	0.1760	368	–0.42	0.6723
FAM	MFG	YES	NFAM	SRV	NO	0.3345	0.1433	198	2.33	0.0206
FAM	MFG	YES	NFAM	SRV	YES	–0.00721	0.1852	360	–0.04	0.9690
FAM	MFG	YES	NFAM	TRD	NO	–0.00261	0.1370	167	–0.02	0.9848
FAM	MFG	YES	NFAM	TRD	YES	–0.3472	0.1432	175	–2.42	0.0164

Table 6. Comparative performance of family businesses in services.

B	I	E	B	I	E	Estimate	Standard Error	DF	t Value	Pr > |t|
FAM	SRV	NO	NFAM	CON	NO	–0.04689	0.06359	2694	–0.74	0.4610
FAM	SRV	NO	NFAM	CON	YES	–0.3418	0.1269	394	–2.69	0.0074
FAM	SRV	NO	NFAM	MFG	NO	0.2238	0.08432	1010	2.65	0.0081
FAM	SRV	NO	NFAM	MFG	YES	–0.4273	0.09479	813	–4.51	< .0001
FAM	SRV	NO	NFAM	SRV	NO	–0.01828	0.02726	3481	–0.67	0.5026
FAM	SRV	NO	NFAM	SRV	YES	–0.3600	0.1093	294	–3.29	0.0011
FAM	SRV	YES	NFAM	CON	NO	0.4823	0.1831	124	2.63	0.0095
FAM	SRV	YES	NFAM	CON	YES	0.1874	0.2197	215	0.85	0.3946
FAM	SRV	YES	NFAM	MFG	NO	0.7530	0.1913	145	3.94	0.0001
FAM	SRV	YES	NFAM	MFG	YES	0.1019	0.2028	169	0.50	0.6159
FAM	SRV	YES	NFAM	SRV	NO	0.5109	0.1738	102	2.94	0.0041
FAM	SRV	YES	NFAM	SRV	YES	0.1692	0.2100	183	0.81	0.4213
FAM	SRV	YES	NFAM	TRD	NO	0.1738	0.1704	94.2	1.02	0.3104
FAM	SRV	YES	NFAM	TRD	YES	–0.1707	0.1756	97.5	–0.97	0.3333

Table 7. Comparative performance of family businesses in trading.

B	I	E	B	I	E	Estimate	Standard Error	DF	t Value	Pr > |t|
FAM	TRD	NO	NFAM	CON	NO	0.2043	0.05755	2193	3.55	0.0004
FAM	TRD	NO	NFAM	CON	YES	–0.09064	0.1237	363	–0.73	0.4640
FAM	TRD	NO	NFAM	MFG	NO	0.4749	0.08124	918	5.85	< .0001
FAM	TRD	NO	NFAM	MFG	YES	–0.1761	0.09112	728	–1.93	0.0537
FAM	TRD	NO	NFAM	SRV	NO	0.2329	0.02861	3591	8.14	< .0001
FAM	TRD	NO	NFAM	SRV	YES	–0.1088	0.1091	291	–1.00	0.3192
FAM	TRD	YES	NFAM	CON	NO	0.6178	0.07954	2319	7.77	< .0001
FAM	TRD	YES	NFAM	CON	YES	0.3229	0.1448	425	2.23	0.0263
FAM	TRD	YES	NFAM	MFG	NO	0.8884	0.09806	1169	9.06	< .0001
FAM	TRD	YES	NFAM	MFG	YES	0.2374	0.1182	901	2.01	0.0449
FAM	TRD	YES	NFAM	SRV	NO	0.6464	0.06198	2177	10.43	< .0001
FAM	TRD	YES	NFAM	SRV	YES	0.3047	0.1326	352	2.30	0.0221
FAM	TRD	YES	NFAM	TRD	NO	0.3093	0.04132	1015	7.48	< .0001
FAM	TRD	YES	NFAM	TRD	YES	–0.03527	0.05844	1296	–0.60	0.5463

the trading sector have historically been granted exclusive commercial licenses by the government. To the extent that such licenses might lead to monopoly power, the implications for performance are clear. Second, because successful trading has historically been and still is tied to strong family networks, the stronger performance of family businesses is a manifestation of the strength of those networks. The strength of family network also helps explain why nonfamily businesses who export are on par with family businesses who also export. Nonfamily businesses in the trading sector also rely on family and nonfamily networks in native countries of the owners of nonfamily businesses. Third, trading has the least technological requirement, thus exposing UAE traders to less competition from the rest of the sectors, where the technological requirements are relatively higher.

The policy implication is that in order to bring Dubai family businesses on par with nonfamily businesses in the other more technologically demanding sectors, a technology adoption agenda needs to be targeted towards family businesses in those sectors.

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