LONGITUDINAL STUDY OF SMALL AND MEDIUM ENTERPRISES AND FAMILY BUSINESSES IN AN EMERGING MARKET

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Abstract

In our paper, we analysed a longitudinal survey of Hungarian small and medium-sized enterprises (SMEs) and family businesses (FBs). We included a nationally representative, repeated cross-sectional (RCS) sample. We sought to analyse and answer the question of which trends can be detected in four segments (ownership structure, revenue, problem perception, and succession), and whether these trends are similar for SMEs and FBs. We used Grow Curve Modelling and Hierarchical Linear Models (GCM-HLM) to analyse the data. Our results shows that the ownership structure describes a different trend in the case of SMEs and FBs: the former shows a negative trend line, while the latter shows a positive trend line. Although, for sales revenue and sales, in the case of detection of problems, the SMEs and the FBs both can be characterised by an increasing trend line, and no change can be detected in the preparation for succession for either SMEs or FBs.

Key Words

Longitudinal study; SMEs; family businesses; emerging market; Grow Curve Modelling; Hierarchical Linear Models.

INTRODUCTION

Small and medium enterprises (SME) and family businesses (FB) represent the majority of companies and are an important source for the generation of jobs in most countries (Cadbury, 2000; Fattoum & Fayolle, 2009; Hacker & Dowling, 2012; Hoy & Sharma, 2010; Kellermanns, Eddleston, Barnett, & Pearson, 2008, Kuratko & Hodgetts, 2004; Mazzarol, 2006; Ramadani, Fayolle, Gerguri, & Aliu, 2013). The importance of these businesses to a country's economy is substantial.

Family businesses differ from SMEs in many ways (Dunn, 1995; Hoy & Sharma, 2010; Jorissen, Laveren, Martens, & Reheul, 2005; Mandl, 2008). The centre of the firm in family businesses is family, which formally or informally, directly or indirectly influence the firm; their main objectives are both economic and non-economic, respectively sustainability/ long-term family income (stability) as well as family satisfaction; their business orientation is satisfaction of internal and external stakeholders (mainly family, clients, employees, local community); the style of management is value-driven, emotional and goal alignment, they compete on quality, reputation, long-term relationships. Carlock and Ward (2001) described a family business as a scale which should be balanced between the requirements and business opportunities and the needs and desires of the family. Based on this research a very important issue raised recently is whether the family business should be "family business" during the whole its life cycle or not. Mandl (2008) noted that the status of being a family business must not be considered "fixed". According to her, there are several businesses that are family businesses over their whole life cycle. On the other hand, there are businesses which could be 'transferred' over their life cycle from family business to non-family business and vice-versa.

In our study, we investigate this possible transformation between family and SME businesses. We consider it important to examine how can we distinguish between family businesses and SMEs in Hungary regarding the three components (ownership structure, volume of sales and problems or challenges). Although the family business shares values and characteristics with other business entities, like SMEs it confronts unique challenges. The parent-founder faces numerous challenges, including balancing equity with efficiency, succession with merit, and paternalism with agency. Even if there is a far-reaching overlap between the two categories, the part of the literature that specifically focuses on the research of family businesses is expanding. More and more attention is paid to family business research and we would like to contribute to this literature with our paper.

To capture these possible differentiations, we conducted a longitudinal study. Although, a relatively small number of longitudinal analyses have been performed among small and medium-sized enterprises (SMEs) and family businesses (FBs). In our analysis, we primarily aim to address this gap. Aken et al. (2017) conducted one of the most prominent international longitudinal analyses in recent years and found that different governance mechanisms may be interchangeable for SME firms. Alshibani and Volery's (2021) study, Wu's (1996) longitudinal study on the Chinese market, and

Kok's (2014) European longitudinal study have shown that SMEs present a growing role in job creation in the economy in the long run.

Although there is little longitudinal research on SMEs, the research about family businesses is even meagre. Two-thirds of the world's private companies are family-owned, and their scientific research is on the rise (Heras-Rosas & Herrera, 2020). Nonetheless, there has been little longitudinal analysis on family businesses. Numerous research has measured on comparative data, either qualitatively or quantitatively (Hisrich-Fülöp, 1997), and found that FBs play a prominent role in the SME sector both in terms of volume and impact, these results were not examined on time series data. For example, within the Hungarian SME sector, family businesses account for 60-70% (Hisrich-Fülöp, 1997) of the total number of SMEs. The business segments of FBs are significantly intertwined, like the ownership and management (Hisrich-Fülöp, 1997), which in the case of SMEs, is separated, thus the business life cycle of FBs is different from SMEs (Gersick et al., 1997).

Gersick et al. (1997) define family business as the one where at least 51 per cent of the business is owned by a family and the family is involved in the management of the business or the transfer of ownership takes place in part or in full within the family. However, researchers often use a second definition for FBs, which applies to all the above-mentioned criteria except for the subjective self-classification, i.e., the enterprise does not have to consider itself as a family business (Gersick et al., 1997). In our analysis, we examined both definitions and found that the classification according to the first definition fits better to our data.

In our paper, the comparison of SMEs and FBS is made along the dimensions that show the largest differences. Thus, we analysed the ownership structure, revenue streams, and problem perception, and succession issues. The aim of this research is to examine which changes took place between 2017 and 2020 in different economic dimension of Hungarian SME sector, and whether these changes describe different trend lines for SMEs and FBs.

METHODOLOGY AND DATA

Statistics have been dealing with longitudinal analyses for more than 150 years (Lebo & Weber, 2015). During the long history of the method, the boundary conditions necessary for longitudinal analysis of a data set have been developed. Three such basic conditions (meta-conditions) must be met (DeBoef & Lin, 2004): (a) multiple measurements must be made at intervals that can be clearly separated from each other, as classical panel tests are reliable from 40 (t-time) measurements, in which case quadratic, i.e. non-linear correlation patterns can be detected; b) the data recorded at different times must answer the same question(s); and c) the sample size must be the same, according to a measurement aspect.

In our research, we gathered data in two waves (2017 and 2020), and hence, our data do not meet the criterion of a minimum of 40 measurement

dates. Therefore, it is important to note that the level of validity of our analysis does not reach the level of validity of classical panel studies. Thus, our data is inadequate for quadratic correlation analysis. In addition, the second meta-condition was also violated, as the two surveyed questionnaires differed at several points. Some of the questions asked remained the same, while additional questions were added to the questionnaire in the second wave. This caused a high rate of data loss during data matching. Finally, the third meta-condition of a classical panel analysis became impossible due to the GDPR regulations; therefore, we could not question the same respondents in both waves. Consequently, our longitudinal sample can be methodologically classified into repeated cross-sectional (RCS) sample selection.

The structure and analysis of repeated cross-sectional studies (RCS) vary from panel studies, i.e., aggregated cross-sectional time series studies (PCSTS), as cross-sectional units appear only once in the data. Today, however, a number of large-sample analyses are being conducted with an RCS sample, such as the U.S. NAES surveys, CBS/NYT polls, full ICPSR survey, Gallup surveys, and Michigan consumer surveys (Clarke et al., 2005; Hopkins, 2012; Lebo et al., 2007; Lebo & Weber, 2015; Segal & Spaeth, 2002; Wood, 2009).

For RCS analyses, similar to PCSTS analyses, autocorrelation is one of the biggest statistical challenges. However, general solutions, such as differentiation or the use of the “lagging” dependent variable method cannot be applied to RCS since the delay performed in ti results in a logical pitfall. Nonetheless, a multilevel modelling framework has also been developed for RCS samples (Lebo & Weber, 2015). For multilevel models, RCS data can be examined at the aggregate and individual levels. In the aggregate case, most research simply collects observations from all time and aggregates data by subperiods (e.g., Blaydes & Chaney, 2013; Jerit & Barabas, 2012; Moy et al., 2006; Romer, 2006; Stroud, 2008), in which case the observations are treated as if they had been taken in a single cross-section. However, this method has its limitations. It is evident that individual-level analyses can be omitted as an alternative, as seen in the research of Box-Steffensmeier (2009) and DeBoef and Lin (2004); however, significant interpretation error can be observed with this method.

Hence, we used two commonly used analysis methodology for RCS samples, i.e., the Grow Curve Modeling (GCM) and the Hierarchical Linear Models (HLM). Our results are, therefore, based on a GCM-HLM modelling, to which test statistics were provided by repeated measures of ANOVA tests.

A multilevel model of change, also known as growth curve modelling (GCM), is a flexible and efficient method for analysing longitudinal time series data. There are a number of important and comprehensive literature that describe the method in detail (Bryk & Raudenbush, 1987, 1992, 2002; Lindenberger & Ghisletta, 2004; Rogosa & Saner, 1995; Singer & Willett, 2003; Snijders & Bosker, 1999); hence, we only highlight the most important features of the method. The GCM contains four types of variables: the measure of the outcome variable, the measure of time, the predictor of variable changing in time, and one or more time-invariance predictors. The

outcome variable is usually a dependent variable of the variables changing in time, the value of which can be measured at each time point (Singer & Willett, 2003). Time-varying predictors are also included in the model as independent variables. The Level 1 model for GMC provides the estimated value of the outcome variable in the population, which is assumed to be the aggregate result of the effect of predictors on changes over time within population units. Following the notation of Singer and Willett (2003), the equation of this model with two variable predictors is as follows:

$$Y_{ij} = \pi_{0i} + \pi_{1i}\mathrm{TIME}_{ij} + \pi_{2i}X_{2ij} + \pi_{3i}X_{3ij} + \varepsilon_{ij}$$

Where Yij is the estimated result for person i at time j, TIMEij is the value of time for person i at time j, X2 and X3 are the two time-varying predictors within the predictive person, π0i (initial state) is Y when time is zero, and both time variable predictors are zero, π1i (rate of change) is the slope of the linear line of person i, π2i is the unique effect of X2 on Y, π3i is the unique effect of X3 on Y, and finally, εij is the error expression within-person. The standard deviation of this error theorem is estimated in the model.

For the second level of the GCM model, the estimated parameters are the outcome variables of the new equations, in which the time-invariant variables are the predictors. For example, one possible system of equations for the Level 2 model based on Singer and Willett (2003) is as follows:

$$\pi_{0i} = \gamma_{00} + \gamma_{01}F_i + \zeta_{0i}$$
$$\pi_{1i} = \gamma_{10} + \gamma_{11}F_i + \zeta_{1i}$$
$$\pi_{2i} = \gamma_{20} + \gamma_{21}F_i + \zeta_{2i}$$
$$\pi_{3i} = \gamma_{30} + \gamma_{31}F_i + \zeta_{3i}$$

In this model, F (Female) is a dummy variable (code, female: F = 1 male: F = 0). Level 2 γ00, γ10, γ20, and γ30 are the estimated values of the four Level 1 predictors, i.e., π0i, π1i, π2i, and π3i, when all time-invariant predictors are zero. In our example, only one time-invariant predictor was used, and the value of F was 0, therefore γ00, γ10, γ20 and γ30 represent the effect of gender. The model can be extended with additional interpersonal variables, and with their estimated effects, they will provide a similar interpretation. The error terms ζ0i, ζ1i, ζ2i, and ζ3i represent individual differences in Level 1 parameters that are not explained by Level 2 predictors. The model also estimates the standard deviations and covariances of these error terms.

In summary, the goal of GCM statistical modelling is to find the model that best fits the data. Typically, we test a series of models to test whether there is sufficient variability in the data over time. If variability is met for time as a prerequisite, further model building may take place, involving additional predictor variables (Cillessen & Borch, 2006). GCM offers several benefits. First, it allows researchers to simultaneously examine the way measured data relate and change at the aggregate and individual levels. Second, GCM techniques estimate the time velocity of the average change in the sample as well as the variability of the change within the sample. Third, GCM can specifically assess and model the standard deviation of measurement errors at a given time point (Preacher et al., 2008), and finally, GCM can reduce

the biases caused by the dropout rate known in longitudinal studies (Curran et al., 2010).

As our data were recorded at two time points, they are clearly only capable of detecting linear change. Thus, we have incorporated Hierarchical Linear Modeling (HLM) into our model, allowing us to use a better method of analysis to fit our data structure. HLM complements GCM analysis by supplementing multilevel conceptual models with linear analysis of nested data (Bryk & Raudenbush, 1992, 2002; Klein et al., 1994; Ozkaya et al., 2013; Arregle et al., 2006; De Leeuw, cited in Raudenbush & Bryk, 2002). HLM allows us to capture the effect of higher-level constructs on lower-level constructs, highlighting the complex relationships between them (Hofmann, 1997; Bryk & Raudenbush, 1992). HLM can also effectively manage data aggregation and separation (Magnusson et al., 2011), which has been a critical consideration for our data structure. Thus, the HLM technique also provides a solution for how to involve individuals who did not participate in one of the data collection (a fundamental issue for RCS samples) or, for example, how to combine data from individuals tested at different ages in different samples (Woltman et al., 2012; Helson et al., 2002; Alder & Scher, 1994). HLM in longitudinal studies flexibly handles data collection irregularities, which is beneficial for our study (Osgood & Smith, 1995).

During the matching process of our longitudinal database, we merged our databases along three fixed variables: the family business variable, the region variable and the economic sector variable. Coupling occurred only when all three fixed variables depicted the same values in both waves.

As a result of the sequential matching process, our longitudinal database has a total of 526 items, which means that we have managed to match 263 businesses from the first wave to the data recorded in the second wave. This implies that in the first wave, the drop-out rate was 31%, while in the second wave, the drop-out rate was 47%. In the case of the questioner questions, we managed to pair a total of 37 questions from both questionnaires, which were divide into 12 topic blocks, resulting in a total of 81 fitted variables. The distribution of these variables is summarized in Table 1.

Table 1: Statistics on the distributions of the variables in our longitudinal database

	2017	**2020**	**Longitudinal**
Total number of questions	37	37	37
Number of blocks	12	12	12
Basic variables	4	4	8
Ownership structure	13	13	26
Business management	6	6	12
Employees	13	13	26
Family business	2	2	4
Succession	8	8	16
Trainings	2	2	4
Innovation	5	5	10
Social sustainability	11	11	22
Finance	2	2	4
Media Orientation	5	5	10
Problems	10	10	20

TOTAL	**81**	**81**	**162**

Source: Own survey.

In order to compare FBs and SMEs, we developed a subsample of family businesses that includes businesses that see themselves as a family business and at least 51 percent of the company is owned by a family, the family participates in the family business in the management of the business, the members of the family participate in the operation of the business as employees, or the transfer of management and ownership takes place, in whole or in part, within the family. Based on this definition, the subsample of our family business contained 205 items.

HYPOTHESES

In our research, we tested eight hypotheses related to SMEs and FBs to examine how can we distinguish between family businesses and SMEs in an emerging market. Based on the literature we focused on those three dimensions that show the differences between the two market entities. We examined the ownership structure as one of the core determinants of the success of family businesses (Miller, Le Breton-Miller, & Lester, 2011). Research has shown ownership to be of importance for the strategic development and long-term survival of family businesses (Zahra, 2003; Anderson & Reeb, 2003; Miller & Le Breton-Miller, 2005), and it is a complex phenomenon that constitutes dimensions beyond the juridical and financial aspects of ownership. Ownership is considered by the literature to be one of the basic characteristics that differentiates FBs and SMEs. Therefore we examined to what extent and in what direction did the ownership structure of Hungarian SMEs and FBs change between 2017 and 2020? Moreover, what factors will influence the ownership structure of Hungarian SMEs and FBs in 2017 and 2020? Based on these research questions, our hypotheses became the following:

H_1: In the case of Hungarian SMEs and FBs, no change in the ownership structure can be detected between 2017 and 2020.
H_2: Ownership structure of SMEs and FBs can be explained by the same variables in the two waves mainly the business subjective classification and the succession strategy.

Apart from ownership and succession we examined two additional dimensions (volume of sales, and problems / challenges). We include the analysis of volume of sales in our research because in an emerging market this factor has a far-reaching effect on the economic perspective of the companies. For this reason, it can be identified as an important factor when comparing companies (Arnold & Quelch 1998; Dawar & Chattopadhyay 2002). Our research questions aimed at finding out to what extent and in what direction did the volume of sales revenue of Hungarian SMEs and FBs change between 2017 and 2020? Moreover, what factors influence the

development of the sales volume of Hungarian SMEs and FBs in 2017 and 2020? Based on these research questions, our hypotheses became the following:

H_3: In the case of Hungarian SMEs and FBs, no change in the volume of sales revenue can be detected between 2017 and 2020.
H_4: Sales of SMEs and FBs can be explained by the same factors in the two waves, namely the financial situation of the company, the number of employees of the firms, the training and development opportunities for the employees and the value of export.

In our paper, we thought it important to address the question of how FBs and SMEs evaluate and see the socio-economic context. What are the areas that are perceived as problems or challenges, and how much have these areas changed over the years. We also cover what factors are responsible for these perceptions. Our hypotheses were as follows:

H_5: In the case of SMEs and FBs in Hungary, no change can be detected in the case of mentioning problems / challenges between 2017 and 2020.
H_6: Problem perception of SMEs and FBs can be explained by the same factors in the two waves.

Approximately one-third of the family business literature is devoted to succession issues (Sharma, Chua, & Chrisman, 2000, p. 234). Furthermore, according to several authors and consultants, one of the main reasons (if not the single most important reason) for the high failure rate among first- and second-generation family businesses is their inability to manage the complex and highly emotional process of ownership and management succession from one generation to the next (Magretta, 1998; Matthews et al., 1999). As the succession strategy is also a key factor to distinguish between FB and SMEs. Based on that our research questions aimed to examine to what extent and in what direction did the issue of succession for Hungarian SMEs and FBs change between 2017 and 2020? Moreover, what factors influence the development of succession in the case of Hungarian SMEs and FBs in 2017 and 2020? Based on these research questions, our hypotheses became the following:

H_7: In the case of SMEs and FBs in Hungary, no change can be detected in the case of the issue of succession between 2017 and 2020.
H_8: The succession of SMEs and FBs can be explained by the same factors (orientation, and ownership structure) in the two waves.

COMPARATIVE TREND ANALYSIS OF SMES AND FBS

We performed a comparative study of SMEs and FBs on longitudinal data by employing the ownership structure, sales revenue, perception of problems, and the issue of succession.

To examine the change in ownership structure, we analysed the change in private ownership in the total sample and the change in family ownership in the family business subsample. Repeated measure ANOVA testing was used as a prerequisite for the study to test whether the data structure in both the SME and Family Business sample was appropriate for subsequent GCM-HLM modelling (Appendix Tables 1 and 2). The values of the different multivariate tests are significant for both samples, and hence, the means in the two waves are significantly different. The epsilon value for the test, which examines the null hypothesis that the error covariance matrix of orthonormalized transformed dependent variables is proportional to an identity matrix, is also significant in both cases (.000, .000) and shows a value close to 0.1 (.0997, .0987). In addition, the ANOVA analysis shows a significant value that a linear trend can be detected between the data points (.000, .000), as well as the value of the partial Eta1 belonging to the linear trend, which shows a sufficiently low value (.114, .112). This depicts that there is a significant difference and a linear trend in the variable measuring ownership structure in the SME and family business sectors.

In the GCM-HLM analysis, we used a scaled identity matrix to capture the variances using the variables measuring the share of ownership (private ownership in the case of SMEs and family ownership in the case of family businesses) as the dependent variable. In our GCM-HLM analysis, we used the time variable as a predictor variable (fixed effect) and allowed the comparison of the averages along the waves, as well as the intercept value, which helped us to transform the initial values of the cases to X = 0. Moreover, we worked with a random effect based on the number of cases, i.e., we allowed our HLM model to calculate variances at the individual level, for which we used unstructured covariance and calculated with Restricted Maximum Likelihood (REML) in the HLM methodology.

It can be seen from the table of fixed effects (Table 2) that the average of the variable for SMEs in 2017 was 91.802 (+ - 1.524), which was associated with a statistically significant (.000) linear value of -14.508 (+ - 2.480) in 2020. This means that the average of the variable shows a decrease of -14.508 between 2017 and 2020. In the case of family businesses, however, the average of the variable in 2017 was 86.04 (+ - 1,662), accompanied by a statistically significant (.000) linear increase of 8,502 (+ - 1,949) by 2020.

Based on the differences at the individual level, which can be read from the table of covariance parameters, the values measured at level 1 (602.23 + - 69,958, 309.38 + - 32,498) are also significant for SMEs and family businesses (.000). However, the measured value for level-2 is not always significant. For the value, the variance of the intercept (UN 1,1), the variance of the line (UN 2,2), and the covariance between the two (UN 2,1) were

[1] Multivariate tests can be used to test the significance of the deviation of the means. A Wilks' Lambda p-values are significant (.000), Hotelling's Trace test value (.000) as well as Roy's Largest Root (.000) and Pillai's Trace value (.000). Thus, based on multivariate tests, the means of the variable show a significant difference. In addition, for the Sphericity Assumed test, which shows covariance differences between different time points, a significant value (.000) is also obtained, which also confirms that significant differences can be detected between the averages measured in the two waves of the variable.

calculated. The value of the intercept for SMEs is 8.775, which is insignificant, the value of the straight line is 413.736, which is also not significant, and finally, the value of the covariance between the two is -60.204, which is also insignificant. In the case of family businesses, the value of the intercept is significant at 257.450, the value of the straight is insignificant at 150.655, and finally, the value of the covariance between the two is -196.79, which is significant.

This implies that at the individual level, enterprises differ from the average trend in the average for SMEs; however, they do not differ for FBs.

Table 2: GCM-HLM results for ownership structure of SMEs and Family Businesses

Estimates of Fixed Effects[a]							
						95% Confidence Interval	
Parameter	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	91.802281	1.524212	255.406	60.229	.000	88.800657	94.803906
time	-14.508667	2.480494	267.518	-5.849	.000	-19.392440	-9.624893

Estimates of Covariance Parameters[a]							
						95% Confidence Interval	
Parameter		Estimate	Std. Error	Wald Z	Sig.	Lower Bound	Upper Bound
Repeated Measures	Variance	602.231697	69.958535	8.608	.000	479.604636	756.212491
Intercept + time [subject = id]	UN (1,1)	8.775914	75.049327	.117	.907	4.613592E-7	166934279.519158
	UN (2,1)	60.204463	56.813273	1.060	.289	-51.147505	171.556432
	UN (2,2)	413.736600[b]	.000000	.	.	.	.

Estimates of Fixed Effects[a]							
						95% Confidence Interval	
Parameter	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	86.048780	1.662843	249.223	51.748	.000	82.773764	89.323797
time	8.502009	1.949351	282.588	4.361	.000	4.664918	12.339101

Estimates of Covariance Parameters[a]							
						95% Confidence Interval	
Parameter		Estimate	Std. Error	Wald Z	Sig.	Lower Bound	Upper Bound
Repeated Measures	Variance	309.384085	32.498577	9.520	.000	251.817181	380.111126
Intercept + time [subject = id]	UN (1,1)	257.450627	46.992488	5.479	.000	180.021366	368.183104
	UN (2,1)	-196.790673	32.372894	-6.079	.000	-260.240379	-133.340966
	UN (2,2)	150.655293[b]	.000000	.	.	.	.

Source: Own survey.

Thus, in the case of enterprises, the share of private ownership in the ownership structure in 2017 and 2020 follows a declining trend, but enterprises may deviate from this trend at the individual level. In contrast, in the case of family businesses, we can show an increasing trend in the case of family property, from which FBs do not differ significantly at the individual level.

We do not have enough information with respect to 2017 data to explain the change for SMEs and FBs, as no correlation can be detected with other variables. However, in the 2020 data, the ownership structure for SMEs correlated with three variables: family ownership ratio (.257**), family business subjective judgment (-.227*), and succession strategy (-.175*). In the FB sample, the variable correlated with two variables: the private ownership ratio (.237**) and the succession strategy (-.145*). However, in both cases, the variables were not fit into an OLS model. Hence, a stochastic explanation of the probable causes of the changes in the statistical sense cannot be given based on the present database.

In the following, we move on to the analysis of the data from the point of view of sales revenue. With all this, we analyse the change in the financial performance of SMEs and FBs on time series data. For our analysis, we repeatedly used ANOVA as a test statistic, based on the results of which it can be concluded that for both SMEs and FBs, a significant difference and a linear trend can be detected in the two waves in the variable measuring annual sales volume (Tables 3 and 4 in Appendix).

In the GCM-HLM analysis, we used the settings already described for the ownership structure to build our model. As a dependent variable, we used a five-value variable measuring annual sales revenue (1 = 50-100 mHUF, 2 = 100-300 mHUF, 3 = 300-500 mHUF, 4 = 500 mHUF - 1 billion HUF, 5 = more than 1 billion HUF). In the case of the GCM-HLM results, the table of fixed effects shows that in 2017, the average of the variable for SMEs was 3.07 (+ - .077), for which .057 (+ - .088) was a statistically significant (0.000) linear value associated with 2020. For FBs, there was also a significant increase of 1.02 among the variables on average.

Individual-level differences at level-1 are significant, with values of .822 (+ - .078) for SMEs and 1.22 (+ - .15) for FBs. At the individual level, neither SMEs nor FBs deviate significantly from the average trend of the average.

Table 3: GCM-HLM results of sales revenue of SMEs and Family Businesses

Estimates of Fixed Effects[a]							
						95% Confidence Interval	
Parameter	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	3.076046	.077021	309.517	39.938	.000	2.924494	3.227597
time	.057034	.088616	346.547	.644	.000	-.117258	.231327

Estimates of Covariance Parameters[a]					
Parameter	Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval

						Lower Bound	Upper Bound
Repeated Measures	Variance	.822689	.078448	10.487	.000	.682447	.991751
Intercept + time [subject = id]	UN (1,1)	.737497	.116405	6.336	.000	.541263	1.004874
	UN (2,1)	-.556385	.095617	-5.819	.000	-.743791	-.368979
	UN (2,2)	.419899[b]	.000000	.	.	.	.

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	2.170732	.086239	204.000	25.171	.000	2.000697	2.340766
time	1.029268	.122330	204	8.414	.000	.788074	1.270462

Estimates of Covariance Parameters[a]

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Repeated Measures	Variance	1.221343	.151877	8.042	.000	.957169	1.558428
Intercept + time [subject = id]	UN (1,1)	.303287	.138193	2.195	.028	.124166	.740806
	UN (2,1)	-.430738	.098413	-4.377	.000	-.623624	-.237851
	UN (2,2)	.625081[b]	.000000	.	.	.	.

Source: Own survey.

Thus, it can be stated that in the case of SMEs and FBs, the volume of annual turnover shows an increasing trend between 2017 and 2020, and enterprises did not deviate from this trend at the individual level.

For both SMEs and FBs, we further analysed by conducting OLS regression on the possible explanations for interpreting the trend line. We built a total of four models; two for 2017 data while the other two for 2020 data. During the development of each model, 14 explanatory variables and sales revenue were included in the model as dependent variables. The stepwise method was used in the model construction.

For SMEs, the explanatory power of the final model in 2017 was 58% (R2 .337), while for FBs, it was 62.2% (R2 .387). The value of the unbiased estimate of the explanatory power of the 2020 models (R2) is .385 for SMEs and .400 for FBs. The value of the F-test for the ANOVA test of the models was significant in all cases (.000), i.e., our models represent a significant part of the total heterogeneity.

In 2017, for SMEs, the final model retained four variables showing significant levels for the t-test (.001, .000, .018, .000). The model retained the variable measuring production for export (Bs value -.169), the negative value of which shows that the more a given enterprise produces for the domestic market, the higher its turnover. The number of employees (Bs. .436) showed that more the people an SME employs, the higher its turnover. The variable of training provided to employees (Bs -.124) shows that the less

an SME provides training to its employees, the higher its sales. Finally, the variable measuring the number of news sources (Bs .204) showed that more the information sources an SME is able to realise, the higher its sales revenue.

For FBs, the final model also retained four variables, the export variable (Bs -.102), the variable measuring the number of employees (Bs. 490), the variable measuring the number of trainings (Bs -.155) and the variable measuring the number of media sources (Bs. 212).

Table 4: OLS regression and t-values

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.922	.412		4.666	.000
	Export	-.444	.135	-.169	-3.294	.001
	Number of employees	.496	.060	.436	8.321	.000
	Training for employees	-.348	.147	-.124	-2.374	.018
	Orientation, how many media sources	.163	.041	.204	3.984	.000

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.520	.426		3.571	.000
	Export	-.265	.146	-.102	-1.821	.040
	Number of employees	.563	.066	.490	8.562	.000
	Training for employees	-.419	.154	-.155	-2.728	.007
	Orientation, how many media ources	.161	.043	.212	3.766	.000

Source: Own survey.

In our 2020 model, we used the same model build as the 2017 model design. For SMEs, the regression algorithm retained three variables in the final model: the market position (Bs .133), which shows that the better the market the higher the turnover of the company; the export variable (Bs -.169), on the basis of which the same conclusion can be drawn as in 2017, and finally, the variable measuring the number of employees (Bs .552), on the basis of which it can be seen that the more employees a company employs, the higher its turnover. In the case of FBs, three variables had a significant effect on the dependent variable: the assessment of the subjective market position (Bs. 132), the export variable (Bs -.131), and the number of employees (Bs. 576).

Table 5: OLS regression t-values of for SMEs and FBs (2020)

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.226	.451		4.932	.000
	Financial situation of the company	.196	.072	.133	2.708	.007
	Export	-.589	.173	-.169	-3.410	.001
	Number of employees	.596	.054	.552	11.114	.000

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.923	.482		3.993	.000
	Financial situation of the company	.188	.078	.132	2.396	.018
	Export	-.446	.189	-.131	-2.367	.019
	Number of employees	.614	.059	.576	10.345	.000

Source: Own survey.

Thus, it can be stated that the sales volumes in 2017 and 2020 can be explained by similar variables for both SMEs and FBs based on our data. Furthermore, in 2017, the turnover of both SMEs and FBs can be explained by the same variables for both SMEs and FBs (exports, number of employees, training for employees, information from several news sources). In 2020, the export variable and the number of employees also demonstrated an important explanatory power for both SMEs and FBs; however, the situation in 2020 is not substantially explained by the number of information channels or training. In contrast, subjective market judgment played a greater role in the explanation. In other words, the annual turnover of SMEs and FBs, which mainly produce for the domestic market and have many employees, has increased in the last four years.

After analysing sales revenue, the types and problems or challenges perceived by businesses and whether there has been a shift in the two waves were assessed. The qualitative responses in the questionnaire were quantified and a distribution table of the variable was developed using the multiply response set method (Table 6).

Table 6: What is the TOP3 thing you would change in your environment?

	2017 SME (%)	**2017 FB (%)**	**2020 SME (%)**	**2020 FB (%)**
Labor force	6,3	6,0	20,4	20,8
Suppliers	6,7	6,8	5,2	5,8
Technology	0,7	0,9	8,1	7,2
Investment	7,2	7,7	7,3	6,2
Regulation	62,5	64,5	14,3	15,3
Grants	4,7	3,4	12,4	12,6
Profitability	4,1	3,0	11,8	12,4

CEO	2,1	1,3	2	1,0
Competitive situation	5,7	6,4	18,5	18,8
Total	**100,0**	**100,0**	**100,0**	**100,0**

Source: Own survey.

Based on the distributions, it can be clearly seen that in 2017, the overwhelming majority (64.5%) of the responses were among SMEs and FBs that would have changed the regulatory environment (reduction of taxes, reduction of bureaucracy). By 2020, however, one of the most important challenges has been to find and employ the right workforce (20.8%), while the fact that over-bureaucratised and high-tax regulations (15.3%) continue to be a major problem for SMEs and FBs in Hungary.

In our analysis, we performed a repeated measure ANOVA for the variable measuring the number of nine-valued problems as a pre-statistic for our GCM-HLM model. The results of the ANOVA test showed a significant difference in the case of SMEs and FBs (Tables 5 and 6 in Appendix).

In the case of both SMEs and the FB sample, the developed GCM-HLM model was built according to the system already presented (Table 7). The table of fixed effects for SMEs shows that the average of the variable in 2017 is 0.88 (+ - .045), and 0.89 (+ - .053) for FB, for which 1.319 (+ - .072) was associated with a statistically significant (0.000) linear value of 1.258 (+ - .081) for FBs by 2020. This implies that the averages of the variables increased for both SMEs and FBs. For individual level differences, the value measured at level-1 is significant for SMEs (.536 + - .061), and for FBs (.509 + - .067) the values are significant in both cases (.000). In the case of level-2 measured values, neither the values of the intersection points nor the values of the straight lines are significant. This means that businesses may deviate from the average trend at the individual average at the individual level, both for SMEs and FBs.

Table 7: GCM-HLM results of SMEs and FBs for problems / challenges

Estimates of Fixed Effects[a]							
						95% Confidence Interval	
Parameter	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	.889734	.045683	262.000	19.476	.000	.799781	.979686
time	1.319392	.072997	262.000	18.075	.000	1.175656	1.463127

Estimates of Covariance Parameters[a]							
						95% Confidence Interval	
Parameter		Estimate	Std. Error	Wald Z	Sig.	Lower Bound	Upper Bound
Repeated Measures	Variance	.536459	.061221	8.763	.000	.428940	.670928
Intercept + time [subject = id]	UN (1,1)	.012405	.063708	.195	.846	5.273791E-7	291.789357
	UN (2,1)	.026010	.047092	.552	.581	-.066289	.118308
	UN (2,2)	.328499[b]	.000000	.	.	.	.

Estimates of Fixed Effects[a]						
Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval

						Lower Bound	Upper Bound
Intercept	.892683	.053038	204	16.831	.000	.788111	.997255
time	1.258537	.081429	204.000	15.456	.000	1.097986	1.419088

Estimates of Covariance Parameters[a]							
						95% Confidence Interval	
Parameter		Estimate	Std. Error	Wald Z	Sig.	Lower Bound	Upper Bound
Repeated Measures	Variance	.509743	.067295	7.575	.000	.393529	.660276
Intercept + time [subject = id]	UN (1,1)	.066919	.073609	.909	.363	.007749	.577897
	UN (2,1)	.018016	.054803	.329	.742	-.089396	.125429
	UN (2,2)	.339816[b]	.000000	.	.	.	.

Source: Own survey.

In the case of both SMEs and family businesses, there is a growing trend in the perception of challenges/problems by businesses between 2017 and 2020, and businesses have not deviated from this trend on an individual level. This implies that in four years, the spectrum of problems faced by FBs and SMEs has expanded, albeit slightly.

We do not have enough information to explain the causes of the change either in the case of SMEs or FBs, as we could not fit the variables into the OLS model in either case. Hence, a stochastic explanation of the probable causes of the changes in the statistical sense cannot be given based on the present database. Although, we consider it very important to point out that there have been radical changes in perceptions over the past years. The labor force can be seen as a growing problem. It is likely that this is closely related to the labor shortage that developed as a result of high emigration. An interesting development is the reduction of the problem of regulation. We do not have a clear answer to the reasons for this, but between 2017 and 2020, businesses were not affected by a radical regulatory reorganization, so it can be assumed that the reduction of the problem can be attributed to the lack of this. The increase in grants as a problem is probably due to the decrease in available grant resources. In Hungary, the policy of state centralism can also be observed in the economic sector. All this means that access to grants can be strongly linked to the closeness of relations with the state. The growth of the problem can probably be traced back to the appearance of this problem. The growth of profitability as a problem can also be assumed to be linked to the central role of the state in the market. In Hungary, in the period between 2017 and 2020, the state became an unavoidable economic actor on the market. Orders for the state can be characterized as having a strong market-distorting effect and have a strong influence on which companies receive highly profitable orders and which are forced out of this circle. Presumably as a result of this factor, businesses assessed profitability as a growing problem.

Switching to the analysis of succession time series data, we also used ANOVA as a test statistic, the results of which show that no significant difference and linear trend can be detected in the two waves in the succession variable for both SMEs and FBs (Tables 7 and 8 in the

Appendix). Hence, the degree of presence of the succession strategy between SMEs and FBs did not change between the two waves. This is also supported by GCM-HLM analyses (Appendix Table 9)[2].

For both SMEs and FBs, we analysed the possible explanations for the interpretation of the results using OLS regression analysis. We built a total of four models; two for 2017 data while the other two for 2020 data. For SMEs, the explanatory power of the final model in 2017 was 41.1% (R2 .169), while for FBs, it was 43.4% (R2 .188). However, no statistically significant model can be built on the 2020 data for either SMEs or FBs.

For SMEs, the final model for 2017 retained three variables that demonstrate that the significance levels for the t-test are appropriate (.006, .000, .000): the variable from information sources (Bs is .171), which shows that more the news sources that the company is informed about, the more it can be characterised by having a succession strategy; the variable of the spouse as owner (Bs. 229), which shows that the higher the share of the spouse in the company, the more it can be characterized by the SME ownership strategy, and finally the variable of children as owners (Bs .261), based on which it can be seen that the more owners of children in an SME, the more it can be characterised by the succession strategy of the enterprise.

In the case of FBs, the final model retained the same three variables that measured the orientation from the news source (Bs. 190), ownership of the spouse (Bs. 248), and the number of children (Bs. 275).

Table 8: 2017 OLS regression t-values for SMEs and FBs

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.863	.070		40.638	.000
	Orientation, how many media sources	-.063	.023	.171	-2.777	.005
	Owner's spouse as owner	-.279	.075	.229	-3.729	.000
	Owner's children as owner	-.371	.088	.261	-4.233	.000

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.885	.074		38.850	.000
	Orientation, how many media sources	-.069	.023	.190	-2.969	.003
	Owner's spouse as owner	-.301	.078	.248	-3.883	.000
	Owner's children as owner	-.385	.090	.275	-4.298	.000

[2] The mean of the variable included in the GCM-HLM analysis for SMEs was 2.53 (+ - .039), with an increase of .113 (+ - .055), but the value was not statistically significant (0.092). In the case of FBs, an increase of .065 can be detected among the averages of the variable, however, the change wasn't significant (.303).

Thus, it can be stated that the succession in 2017 can be explained by similar variables for both SMEs and FBs. However, no significant model can be established for 2020, and hence, our hypothesis cannot be proved.

As a summary of our results, we present the verification of our hypotheses in Table 8.

Table 8: Summary of hypotheses

Hypothesis	Result	Verification method	Basis of verification
H_1	Not verified	RM ANOVA test and GCM-HLM	Pillai's Trace, p < .001 Wilks' Lambda, p < .001 Hotelling's Trace, p < .001 Roy's Largest Root, p < .00 Sphericity Assumed, p < .0 Greenhouse-Geisser, p < . Huynh-Feldt, p < .001 Sphericity Assumed, p < .0 F-érték, p < .001 t-érték, p < .005, p < .001
H_2	It cannot be verified	OLS Regression	t-érték, p < .005, p < .001
H_3	Not verified	RM ANOVA test and GCM-HLM	Pillai's Trace, p < .001 Wilks' Lambda, p < .001 Hotelling's Trace, p < .001 Roy's Largest Root, p < .00 Sphericity Assumed, p < .0 Greenhouse-Geisser, p < . Huynh-Feldt, p < .001 Sphericity Assumed, p < .0 F-érték, p < .001 t-érték, p < .005, p < .001
H_4	Verified	OLS Regression	t-érték, p < .005, p < .001
H_5	Not verified	RM ANOVA test and GCM-HLM	Pillai's Trace, p < .001 Wilks' Lambda, p < .001 Hotelling's Trace, p < .001 Roy's Largest Root, p < .00 Sphericity Assumed, p < .0 Greenhouse-Geisser, p < . Huynh-Feldt, p < .001 Sphericity Assumed, p < .0 F-érték, p < .001 t-érték, p < .005, p < .001
H_6	It cannot be verified	OLS Regression	t-érték, p < .005, p < .001
H_7	Verified	RM ANOVA test and GCM-HLM	Pillai's Trace, p < .001 Wilks' Lambda, p < .001 Hotelling's Trace, p < .001 Roy's Largest Root, p < .00 Sphericity Assumed, p < .0 Greenhouse-Geisser, p < . Huynh-Feldt, p < .001 Sphericity Assumed, p < .0 F-érték, p < .001 t-érték, p < .005, p < .001
H_8	It cannot be verified	OLS Regression	t-érték, p < .005, p < .001

Source: Own survey.

CONCLUSION

In this paper, we conducted a longitudinal survey of small and medium-sized enterprises and family businesses in Hungary on a national, representative, cross-sectional sample. The businesses were surveyed in two waves, in 2017 and 2020. For our analysis, we used GCM-HLM modelling, for which we ran a repeated measures analysis of variance, as well as analysing the data with the help of OLS regression.

Based on the literature, on the one hand, we examined what changes can be measured between FBs and SMEs in the case of succession and ownership and we supplemented the analysis with value of sales and problem perception, which are important factors of an emerging market according to the literature. Therefore, we sought to answer the question of the extent to which enterprises and family businesses operating in the Hungarian SME sector have changed over the past four years and whether it is possible to find a difference between FBs and SMEs along these dimensions.

The summary table of our trend results is summarised in Table 9, where the increase of the trend is indicated with "+" signal, the decrease of the trend is shown with a "-" signal, while the "0" represents the constant state of the trend.

Table 9: Summary of trend movements

Segment	Subsegment	SMEs	FBs
Ownership structure	Privately or Family owned	-	+
Succession		0	0
Finance and market	Sales revenue	+	+
Problems / Challenges		+	+

Source: Own survey.

Our results demonstrate that Hungarian SMEs and family businesses showed similar movements between 2017 and 2020 in several aspects. However, an important difference in the ownership structure is that while the decreasing trend of private ownership has taken place in the case of SMEs, there has been an increasing takeover of family ownership in the case of family businesses in the last four years. However, we do not have enough data to explain either the 2017 or the 2020 results to give a statistically reliable statement regarding the cause of this trend. Therefore, our results, in line with the literature, support the fact that the ownership structure is an important factor in distinguishing between FBs and SMEs.

The presence of the succession strategy has neither strengthened nor decreased among either SMEs or FBs but has remained constant. We can explain the succession strategy with the same variables for both SMEs and FBs; however, we were unable to establish a statistically significant model for the 2020 data. This allows us to conclude that in the case of the

succession strategy, contrary to the literature, we do not find a sharp dividing line in the case of FBs and SMEs in the emerging markets. This result deserves further research in which it would be worthwhile to include the influence of norms and culture, which we were unable to address during this paper.

In our research, we focused on sales value and the subjective perception of problems. We did all this because both dimensions can be defined as important factors in an emerging market. In the case of both Hungarian SMEs and FBs, the share of annual sales increased between 2017 and 2020. Based on our data, the trend can be explained with the same drivers for SMEs and FBs; however, sales in 2017 and 2020 will be determined by other factors. In 2017, four variables had an impact on sales revenue, exports (negative), number of employees, employee training, and information from multiple news sources. In 2020, the fact that the company and the high number of employees did not produce for export also had an important explanatory power; however, the number of information channels and training did not significantly explain the situation in 2020, whereas subjective market perception played a significant role in the explanation. In other words, the annual turnover of SMEs with a large number of employees producing/providing services to the domestic market and a high number of employees has increased in the last four years, which was not dependent on the training of employees. By 2020, the use of various, diversified news sources was not considered important.

Based on our results, it can also be seen that both in the case of Hungarian SMEs and in the case of FBs, the number of problems and challenges that affected their operation increased between 2017 and 2020. However, we do not have enough data to give a statistically reliable statement to explain the causes of this trend lines.

In the case of both factors, a smaller difference can be seen between FBs and SMEs. However, no significant difference can be measured between the two market entities.

This implies that family businesses and small and medium sized businesses change in a very similar fashion in Hungary. Based on our data the processes determining the SME sector, apply to the FB sector as well. However, a difference can be measured in the ownership structure, which leads to the conclusion that even in the case of the emerging market, it is worth treating family businesses separately from the small and medium-sized business sector. In summary, it is worthwhile to carry out further research in order to better understand and explore the characteristics of the two sectors as well as their changes over time in the case of the emerging market as well.

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APPENDIX

Table 1: ANOVA test of SME ownership structure

Descriptive Statistics			
	Mean	Std. Deviation	N
Magántuljadon_arány_2017	91.80	24.566	263
Magántuljadon_arány_2020	77.29	33.772	263

Multivariate Tests[a]									
Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[c]
time	Pillai's Trace	.114	33.855[b]	1.000	262.000	.000	.114	33.855	1.000
	Wilks' Lambda	.886	33.855[b]	1.000	262.000	.000	.114	33.855	1.000
	Hotelling's Trace	.129	33.855[b]	1.000	262.000	.000	.114	33.855	1.000
	Roy's Largest Root	.129	33.855[b]	1.000	262.000	.000	.114	33.855	1.000

Tests of Within-Subjects Effects									
Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
time	Sphericity Assumed	27680.935	1	27680.935	33.855	.000	.114	33.855	1.000
	Greenhouse-Geisser	27680.935	1.000	27680.935	33.855	.000	.114	33.855	1.000
	Huynh-Feldt	27680.935	1.000	27680.935	33.855	.000	.114	33.855	1.000
	Lower-bound	27680.935	1.000	27680.935	33.855	.000	.114	33.855	1.000
Error(time)	Sphericity Assumed	214217.079	262	817.622					
	Greenhouse-Geisser	214217.079	262.000	817.622					
	Huynh-Feldt	214217.079	262.000	817.622					
	Lower-bound	214217.079	262.000	817.622					

Tests of Within-Subjects Contrasts									
Source	time	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]

time	Linear	27680.935	1	27680.935	33.855	.000	.114	33.855	1.000
Error(time)	Linear	214217.079	262	817.622					

Table 2: ANOVA test of FB ownership structure

Descriptive Statistics			
	Mean	Std. Deviation	N
Family ownership rate 2017	85.88	25.874	199
Family ownership rate 2020	94.53	15.491	199

Multivariate Tests[a]									
Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[c]
time	Pillai's Trace	.073	15.702[b]	1.000	198.000	.000	.073	15.702	.976
	Wilks' Lambda	.927	15.702[b]	1.000	198.000	.000	.073	15.702	.976
	Hotelling's Trace	.079	15.702[b]	1.000	198.000	.000	.073	15.702	.976
	Roy's Largest Root	.079	15.702[b]	1.000	198.000	.000	.073	15.702	.976

Tests of Within-Subjects Effects									
Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
time	Sphericity Assumed	7450.462	1	7450.462	15.702	.000	.073	15.702	.976
	Greenhouse-Geisser	7450.462	1.000	7450.462	15.702	.000	.073	15.702	.976
	Huynh-Feldt	7450.462	1.000	7450.462	15.702	.000	.073	15.702	.976
	Lower-bound	7450.462	1.000	7450.462	15.702	.000	.073	15.702	.976
Error(time)	Sphericity Assumed	93949.538	198	474.493					
	Greenhouse-Geisser	93949.538	198.000	474.493					
	Huynh-Feldt	93949.538	198.000	474.493					
	Lower-bound	93949.538	198.000	474.493					

Tests of Within-Subjects Contrasts

Source	time	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
time	Linear	7450.462	1	7450.462	15.702	.000	.073	15.702	.976
Error(time)	Linear	93949.538	198	474.493					

Table 3: SME Sales ANOVA Test

Descriptive Statistics			
	Mean	Std. Deviation	N
Sales revenue 2017	2.24	1.251	263
Sales revenue 2020	3.259	1.1858	263

Multivariate Tests[a]									
Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[c]
time	Pillai's Trace	.257	90.696[b]	1.000	262.000	.000	.257	90.696	1.000
	Wilks' Lambda	.743	90.696[b]	1.000	262.000	.000	.257	90.696	1.000
	Hotelling's Trace	.346	90.696[b]	1.000	262.000	.000	.257	90.696	1.000
	Roy's Largest Root	.346	90.696[b]	1.000	262.000	.000	.257	90.696	1.000

Tests of Within-Subjects Effects									
Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
time	Sphericity Assumed	136.548	1	136.548	90.696	.000	.257	90.696	1.000
	Greenhouse-Geisser	136.548	1.000	136.548	90.696	.000	.257	90.696	1.000
	Huynh-Feldt	136.548	1.000	136.548	90.696	.000	.257	90.696	1.000
	Lower-bound	136.548	1.000	136.548	90.696	.000	.257	90.696	1.000
Error(time)	Sphericity Assumed	394.452	262	1.506					
	Greenhouse-Geisser	394.452	262.000	1.506					
	Huynh-Feldt	394.452	262.000	1.506					
	Lower-bound	394.452	262.000	1.506					

Tests of Within-Subjects Contrasts

Source	time	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
time	Linear	136.548	1	136.548	90.696	.000	.257	90.696	1.000
Error(time)	Linear	394.452	262	1.506					

Table 4: FB Revenue ANOVA Test

Descriptive Statistics			
	Mean	Std. Deviation	N
Sales revenue 2017	2.17	1.235	205
Sales revenue 2020	3.200	1.1350	205

Multivariate Tests[a]									
Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[c]
time	Pillai's Trace	.258	70.793[b]	1.000	204.000	.000	.258	70.793	1.000
	Wilks' Lambda	.742	70.793[b]	1.000	204.000	.000	.258	70.793	1.000
	Hotelling's Trace	.347	70.793[b]	1.000	204.000	.000	.258	70.793	1.000
	Roy's Largest Root	.347	70.793[b]	1.000	204.000	.000	.258	70.793	1.000

Tests of Within-Subjects Effects									
Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
time	Sphericity Assumed	108.588	1	108.588	70.793	.000	.258	70.793	1.000
	Greenhouse-Geisser	108.588	1.000	108.588	70.793	.000	.258	70.793	1.000
	Huynh-Feldt	108.588	1.000	108.588	70.793	.000	.258	70.793	1.000
	Lower-bound	108.588	1.000	108.588	70.793	.000	.258	70.793	1.000
Error(time)	Sphericity Assumed	312.912	204	1.534					
	Greenhouse-Geisser	312.912	204.000	1.534					
	Huynh-Feldt	312.912	204.000	1.534					
	Lower-bound	312.912	204.000	1.534					

Tests of Within-Subjects Contrasts

Source	time	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
time	Linear	108.588	1	108.588	70.793	.000	.258	70.793	1.000
Error(time)	Linear	312.912	204	1.534					

Table 5: ANOVA test of SME problems / challenges

Descriptive Statistics			
	Mean	Std. Deviation	N
How many problems 2017	.89	.741	263
How many problems 2020	2.21	.964	263

Multivariate Tests[a]									
Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[c]
time	Pillai's Trace	.555	326.690[b]	1.000	262.000	.000	.555	326.690	1.000
	Wilks' Lambda	.445	326.690[b]	1.000	262.000	.000	.555	326.690	1.000
	Hotelling's Trace	1.247	326.690[b]	1.000	262.000	.000	.555	326.690	1.000
	Roy's Largest Root	1.247	326.690[b]	1.000	262.000	.000	.555	326.690	1.000

Tests of Within-Subjects Effects									
Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
time	Sphericity Assumed	228.914	1	228.914	326.690	.000	.555	326.690	1.000
	Greenhouse-Geisser	228.914	1.000	228.914	326.690	.000	.555	326.690	1.000
	Huynh-Feldt	228.914	1.000	228.914	326.690	.000	.555	326.690	1.000
	Lower-bound	228.914	1.000	228.914	326.690	.000	.555	326.690	1.000
Error(time)	Sphericity Assumed	183.586	262	.701					
	Greenhouse-Geisser	183.586	262.000	.701					
	Huynh-Feldt	183.586	262.000	.701					
	Lower-bound	183.586	262.000	.701					

Tests of Within-Subjects Contrasts

Source	time	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
time	Linear	228.914	1	228.914	326.690	.000	.555	326.690	1.000
Error(time)	Linear	183.586	262	.701					

Table 6. ANOVA test of FB problems / challenges

Descriptive Statistics			
	Mean	Std. Deviation	N
How many problems 2017	.89	.759	205
How many problems 2020	2.15	.976	205

Multivariate Tests[a]									
Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[c]
time	Pillai's Trace	.539	238.874[b]	1.000	204.000	.000	.539	238.874	1.000
	Wilks' Lambda	.461	238.874[b]	1.000	204.000	.000	.539	238.874	1.000
	Hotelling's Trace	1.171	238.874[b]	1.000	204.000	.000	.539	238.874	1.000
	Roy's Largest Root	1.171	238.874[b]	1.000	204.000	.000	.539	238.874	1.000

Tests of Within-Subjects Effects									
Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
time	Sphericity Assumed	162.351	1	162.351	238.874	.000	.539	238.874	1.000
	Greenhouse-Geisser	162.351	1.000	162.351	238.874	.000	.539	238.874	1.000
	Huynh-Feldt	162.351	1.000	162.351	238.874	.000	.539	238.874	1.000
	Lower-bound	162.351	1.000	162.351	238.874	.000	.539	238.874	1.000
Error(time)	Sphericity Assumed	138.649	204	.680					
	Greenhouse-Geisser	138.649	204.000	.680					
	Huynh-Feldt	138.649	204.000	.680					
	Lower-bound	138.649	204.000	.680					

Tests of Within-Subjects Contrasts

Source	time	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
time	Linear	162.351	1	162.351	238.874	.000	.539	238.874	1.000
Error(time)	Linear	138.649	204	.680					

Table 7: ANOVA test for the succession variable for SMEs

Descriptive Statistics			
	Mean	Std. Deviation	N
Your company has a succession strategy 2017	2.53	.591	224
Your company has a succession strategy 2020	2.585	.6907	224

Multivariate Tests[a]									
Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[c]
time	Pillai's Trace	.004	.933[b]	1.000	223.000	.335	.004	.933	.161
	Wilks' Lambda	.996	.933[b]	1.000	223.000	.335	.004	.933	.161
	Hotelling's Trace	.004	.933[b]	1.000	223.000	.335	.004	.933	.161
	Roy's Largest Root	.004	.933[b]	1.000	223.000	.335	.004	.933	.161

Tests of Within-Subjects Effects									
Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
time	Sphericity Assumed	.377	1	.377	.933	.335	.004	.933	.161
	Greenhouse-Geisser	.377	1.000	.377	.933	.335	.004	.933	.161
	Huynh-Feldt	.377	1.000	.377	.933	.335	.004	.933	.161
	Lower-bound	.377	1.000	.377	.933	.335	.004	.933	.161
Error(time)	Sphericity Assumed	90.123	223	.404					
	Greenhouse-Geisser	90.123	223.000	.404					
	Huynh-Feldt	90.123	223.000	.404					
	Lower-bound	90.123	223.000	.404					

Tests of Within-Subjects Contrasts									
Source	time	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]

time	Linear	.377	1	.377	.933	.335	.004	.933	.161
Error(time)	Linear	90.123	223	.404					

Table 8. ANOVA test for the succession variable of FBs

Descriptive Statistics			
	Mean	Std. Deviation	N
Your company has a succession strategy 2017	2.51	.592	202
Your company has a succession strategy 2020	2.569	.6966	202

Multivariate Tests[a]									
Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[c]
time	Pillai's Trace	.004	.724[b]	1.000	201.000	.396	.004	.724	.135
	Wilks' Lambda	.996	.724[b]	1.000	201.000	.396	.004	.724	.135
	Hotelling's Trace	.004	.724[b]	1.000	201.000	.396	.004	.724	.135
	Roy's Largest Root	.004	.724[b]	1.000	201.000	.396	.004	.724	.135

Tests of Within-Subjects Effects									
Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
time	Sphericity Assumed	.300	1	.300	.724	.396	.004	.724	.135
	Greenhouse-Geisser	.300	1.000	.300	.724	.396	.004	.724	.135
	Huynh-Feldt	.300	1.000	.300	.724	.396	.004	.724	.135
	Lower-bound	.300	1.000	.300	.724	.396	.004	.724	.135
Error(time)	Sphericity Assumed	83.200	201	.414					
	Greenhouse-Geisser	83.200	201.000	.414					
	Huynh-Feldt	83.200	201.000	.414					
	Lower-bound	83.200	201.000	.414					

Tests of Within-Subjects Contrasts									
Source	time	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
time	Linear	.300	1	.300	.724	.396	.004	.724	.135
Error(time)	Linear	83.200	201	.414					

Table 9: GCM-HLM results for SMEs and FBs for succession

Estimates of Fixed Effects[a]							
						95% Confidence Interval	
Parameter	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	2.532448	.039231	225.100	64.553	.000	2.455142	2.609755
time	.113940	.055882	264.128	2.039	.092	.003908	.223971

Estimates of Covariance Parameters[a]							
						95% Confidence Interval	
Parameter		Estimate	Std. Error	Wald Z	Sig.	Lower Bound	Upper Bound
Repeated Measures	Variance	.296575	.034378	8.627	.078	.236301	.372224
Intercept + time [subject = id]	UN (1,1)	.051307	.035426	1.448	.148	.013257	.198564
	UN (2,1)	-.037980	.025358	-1.498	.134	-.087681	.011721
	UN (2,2)	.171262[b]	.000000	.	.	.	.

Estimates of Fixed Effects[a]							
						95% Confidence Interval	
Parameter	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	2.519651	.041383	203.002	60.886	.000	2.438055	2.601247
time	.065715	.063576	204.138	1.034	.303	-.059636	.191065

Estimates of Covariance Parameters[a]							
						95% Confidence Interval	
Parameter		Estimate	Std. Error	Wald Z	Sig.	Lower Bound	Upper Bound
Repeated Measures	Variance	.319285	.040972	7.793	.000	.248284	.410591
Intercept + time [subject = id]	UN (1,1)	.030081	.041840	.719	.472	.001970	.459449
	UN (2,1)	-.019442	.030164	-.645	.519	-.078564	.039679
	UN (2,2)	.188322[b]	.000000	.	.	.	.