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# **The Use of the Guttman Scale in Development of a Family Business Index**

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## Summary

The purpose of this paper is to introduce a new approach for operationalizing family business variables. It is consistent with multidimensional definitions of family business such as the F-PEC scale. This paper demonstrates the use of the Guttman scaling procedure, on a random sample of 885 Dutch SMEs. More specifically, the research question is as follows: Can various indicators of family business be validly combined using a Guttman scale? After reviewing the different definitions dealt with in the family business research literature, the paper presents the results of an analysis of various items available for this particular dataset. In particular, the index assigns a value of family relatedness to a company depending upon the criteria that it meets. The study uses a series of statistical procedures, including factor analysis and cross tabulations, to identify a potential ordering of criteria varying in difficulty. The least difficult criterion, that one or more of the management team is drawn from the family that owns the business, is met by 77.6% of the responding firms. The most difficult of the criteria, met by only 26% of the firms, is that current management plans to transfer the enterprise to the next generation. Eighty-five percent of the sample can be classified properly according to this Guttman scale: If a company meets one of the more difficult criteria, it also meets all the easier criteria. In the second part of the paper, the proposed Guttman Scale is compared with the individual criteria making up the scale as well as other family business variables to predict self-perceptions of family business. In particular, the scale is positively correlated with the outcome of the question, 'Would you consider your firm a family business?' In addition, a multiple regression of the individual criteria on the dependent variable is compared with the use of the index. The paper sums up with further discussion of the possible advantages and disadvantages of the Guttman scale technique, both for theoretical and empirical development in family business research.

□



# 1 Introduction

The purpose of this paper is to introduce a new approach for operationalizing family business variables. A wide variety of family business definitions and related measures already exist. They have often been classified as broad or narrow, depending upon the criteria included (Klein, 2000; Flören, 1998; Shanker and Astrachan, 1996; Westhead and Cowling, 1999). One of the criticisms launched against the broad definitions is that they can be so all encompassing, especially when applied to SMEs, that the vast majority of SMEs are classified as family businesses. In a recent study of Dutch SMEs (companies with between 1 and 100 employees, excluding self-employed individuals with no employees), 83% of the firms are classified as family firms according to the London Business School definition: more than 50% of shared owned by one family; members of the family are able to control the business substantially and/or at least 50% of the management come from one family (Hulsoff, 2001). Although such broad definitions are perhaps useful for family business advocates, they make it difficult to carry out empirical research examining the differences between family and nonfamily SMEs. Further, the use of dichotomous indices further restricts the variation that might be useful in explaining family effects (Brockhaus, 1994).

Part of the challenge regarding the definition of family business is that it is multidimensional in nature. Thus, it is difficult to pinpoint any one characteristic that is so all-encompassing that both practitioners and academics can agree. However, there do appear to be cumulative effects such that the more characteristics that are present, the more 'family-oriented' the company is likely to be in its objectives, strategies, tactics and corporate culture. For this reason, several researchers have proposed definitions based on multiple criteria, to replace the 'broad versus narrow' paradigm (Litz, 1995). The F-PEC scale, developed by Astrachan, Klein and Smyrniotis is one such example (Astrachan, Klein and Smyrniotis, 2001). The goal of the F-PEC Scale is to define family influence on a continuous scale using three subscales, power, experience, and culture. The present paper can be viewed as a demonstration of a statistical procedure to develop such a continuous scale, using Guttman scaling procedures (Guttman, 1954). The Guttman scaling procedures are particularly useful in this regard in that a defined statistical procedure can be used to test the validity of ordering criteria from 'more' to 'less' difficult. This paper is an effort to demonstrate the use of the scaling procedure on a random sample of 885 Dutch SMEs. More specifically, the research question is as follows: Can various indicators of family business be validly combined using a Guttman scale?

Section 2 reviews past family business definitions and presents the proposed Guttman scale in this context. Section 3 presents the research methodology to be used in this study. Section 4 presents initial results, including the Guttman scale itself. Section 5 provides further analyses linking the Guttman scale to self-perceptions of the family ness of the business. Section 6 presents the discussion, including ideas for further content and methodological development of the scale. It also discusses the possible advantages and disadvantages of the Guttman scale technique, both for theoretical and empirical development in family business research. Section 7 presents the conclusions.





## 2 Literature Review

### 2.1 Past Definitions of Family Business

It is beyond the scope of this paper to include a review of all the past definitions used for family business. Suffice it to say that a broad array of approaches abound (Astrachan, Klein, and Smyrniotis, 2001, Donkels and Fröhlich, 1991; Handler, 1994; Litz, 1995; Neubauer and Lank, 1998; Shanker and Astrachan, 1996). Reviews of family business definitions can be found in other recent publications (Astrachan, Klein and Smyrniotis, 2001; Hulshoff, 2001).

As pointed out by Astrachan, Klein, and Smyrniotis (2001), to be functional, one must be able to both operationalize and quantify a definition. In an earlier paper, Shanker and Astrachan (1996) set forth the concept of a *family universe bull's eye*. In this paper, Shanker and Astrachan present nested definitions ranging from broad to narrow and representing ever-greater family involvement. Although not operationalized, per se, the paper implies that there is an ordering to the characteristics of family business, with an accumulation of characteristics likely to be associated with more extensive family involvement. However, empirical verification of this ordering of characteristics was yet to be completed.

Based on a review of the literature, Astrachan, Klein, and Smyrniotis (2001) identify three specific dimensions of family influence. The first, the power dimension, is based on the extent of family ownership, family governance (for larger firms, on a board of directors), and family participation in management. This component draws from definitions of family business proposed by other researchers. Some combination of family representation in ownership, management or governance is widely used by different research groups (Cowling and Westhead, 1996; Cromie, Stevenson and Monteith, 1995; Daily and Dollinger, 1993; Flören, 1998; Heck and Trent, 1999; Hulsoff, 2001; Klein, 2000; Martin and Suarez, 2001; Westland and Cowling, 1996a;). Astrachan, Klein, and Smyrniotis (2001) also identify a second and third dimension, the experience dimension and the culture dimension. The experience dimension incorporates the concept of succession in ownership, governance, and/or management. A number of authors consider at least the intention of transfer to the next generation as a minimum requirement for the family business (e.g. Heck and Trent, 1999, Ward, 1987, 1998). Past research finds that even where two or more members of the same family are involved with the company as owners, they may not intend to pass the company to the next generation. Thus, this criterion usually is part of a more narrow definition of family business. Finally, the third dimension is that of culture. The F-PEC assesses the extent to which family and the business' values overlap as well as the family's commitment to the business, derived from a subscale developed by Carlock and Ward (2001). In addition to these dimensions some researchers include self-perceptions of the firm as a family business as part of the definition (Guttmann and Peereboom, 1999; Wijers, 1993).

As pointed out by Astrachan, Klein, and Smyrniotis (2001), a relevant issue is 'not whether a business is family or nonfamily, but the extent and manner of family involvement in and influence on the enterprise.' The dilemma remains, how does one effectively combine these different dimensions into one usable scale? The following section proposes one scaling approach that can be used.

## 2.2 The Guttman Scale as a tool to develop multidimensional scales

'Scaling' refers to the various procedures that have been devised to enable the research to assign numbers to a series of objects (Manheim, 1977). Practically all of the techniques of scaling have been developed since the late 1920s in connection with research on attitudes, and to a less extent, psychophysical and psychometric research (Manheim, 1977). Most scales used by researchers today are '*summated*' scales. A widely known example is the Likert Scale. In this, the subject responds to each item by indicating whether he agrees, disagrees or is undecided. Then the items are summed together. Applying that approach, for instance, one might simply add together the scores on the subscales of power, experience and culture. Historically, factor analytic methods and a test of international reliability coefficients, such as Cronbach's alpha, are used to determine whether individual items belong within the same scale or in different scales. This is the technique proposed by Astrachan, Klein and Smyrniotis (2001) for the F-PEC scale.

By contrast, the Guttman Scalogram is an example of a '*cumulative*' scale. Presumably, the items on such a scale measure only a single dimension, and thus if the individual agrees with a given item he will also agree with all the other items which represent a less (or more) extreme attitude (Stouffer, et al, 1950; Guttman, 1954; and Hagood and Price, 1952; Mannheim, 1977; Mokken, 1970; Moser and Kalton, 1971). Researchers have applied the Guttman scale far more infrequently in scaling, perhaps in part because of the rather tough requirements for such a scale to be valid. Most important, the different criteria must clearly be ordered in a way that they are, ordinally speaking, progressively more difficult to meet. However, given the proposed nesting of family business definitions (from broad to narrow), as proposed by Shanker and Astrachan, and based on other empirical evidence gathered in recent research, this may indeed provide a meaningful application of the Guttman Scale (Shanker and Astrachan, 1996).

## 3 Research Methodology

### 3.1 The Sample

The sample is drawn from the 'MKB-Beleidspanel', a representative panel of Dutch SMEs participating in a longitudinal study conducted by *EIM Business and Policy Research*. The participants in the panel are selected on the basis of a representative sample drawn from the so-called DM-CD database. The data are based on information gathered by the Netherlands Chamber of Commerce. Although the total panel consists of 2,000 small and medium sized enterprises with less than 100 persons employed, these include a sizeable number without any employees. These were excluded from the current study, leaving a sample of 885 firms. The panel comprises 9 sectors, including construction, manufacturing, trade, hotel and catering, transport, financial service, hiring, other commercial services, and non-private<sup>1</sup>. The size classes (in terms of persons employed) are 9 or less, 10-49, and 50-99. The panel is constructed to be roughly representative in sector and size class for the Netherlands.

### 3.2 The Items used for the Analysis

Because the study is a secondary analysis, the choice of items was restricted by the availability of the dataset. Nevertheless, it was possible to sample from a variety of established dimensions for family business. The items originally analyzed and considered for use in the Family Business Guttman Scale are listed in Table 1.<sup>2</sup>

Table 1 Variables used in the study

<i>Item (n=815)</i>	<i>Percent=1 (from valid responses)</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Factor Loadings on factor 1</i>
1. <i>Family Ownership of Firm: Are more than half the shares of the firm in the hands of one family? (1=yes; 2=no)</i>	72.4%	1.24	.43	.816
2. <i>Representation of Family in Management: One or more of the management team is drawn from the family that owns the business. (1=yes; 2=no)</i>	73.6%	1.22	.42	.859
3. <i>Family Proportion of Management team: Is at least 50% of the management team drawn from the family that owns the business? (1=more than half; 2=precisely half; 3=less than half)</i>	67.2%	1.60	.90	.822

<sup>1</sup> The non-private sector comprises many different sub-sectors, such as medical services and environmental services. These sub-sectors are generally not rated as part of the SME sector.

<sup>2</sup> Number of generations was also computed in the original study, but due to a problem with missing data, this item had to be excluded from further analysis.

Table 1 Variables used in the study (continued)

<i>Item (n=815)</i>	<i>Percent=1 (from valid responses)</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Factor Loadings on factor 1</i>
4. <i>Family determines strategy:</i> Members of one family determine the general strategy or direction of the company at least to a certain degree. (1=to a very strong degree; 2=to a certain degree; 3=scarcely or not at all)	42.3%	1.52	.50	.527
5. <i>Plans to transfer to family:</i> Current management plans to transfer the enterprise to the next generation. (1=yes; 2=not sure or don't know yet; 3=no)	25.3%	2.24	.83	.426
6. <i>Self-Perceptions Family Business:</i> Would you describe your company as a family business? (1=yes; 2=no)	47.1%	1.96	.91	.591

### 3.3 Data Analysis Procedure

#### 3.3.1 Part 1: Development of the Guttman Scale

Development of the Guttman Scale follows a step-by-step procedure, with the initial step somewhat similar to that for building the summated scales described earlier. The steps are as follows:

- 1 A factor analysis is carried out to check the structure of the items across different factors. Since the intent of the Guttman scale is to develop one scale along a continuum, the different items to be combined should, in principle load on the same factor. Items not clearly loading on the same factor should be considered for deletion at this point.
- 2 A correlation matrix is structured to check for the relationships among the different items to be used in the scale. To meet the criteria needed for the Guttman scale, these correlations should be such that when items are ordered, as they would be for the Guttman scale, the intercorrelations are progressively smaller to the right of each row and toward the bottom of each column. However, all items should be positively related with one another. Uncorrelated items, or items not following the proper order are deleted at this point.
- 3 A cross tabulation is then carried out between each pair of items to be considered for use within the Guttman scale. In cases where an item has three or more points on the scale, this must first be modified to a dichotomous (two-point) scale. This analysis is used to determine which items are more or less difficult criteria. Thus, in a 2x2 matrix for variables A and B, if Variable A is viewed as the easier criterion, then there should be a higher percentage of overall cases where A is answered in the affirmative than where B is answered in the affirmative. Furthermore, there should be a more cases in a cell in which Variable B is answered in the negative among cases for which Variable A is answered in the affirmative, than in the opposite set of circumstances (i.e. Variable A is negative for cases in which Variable B is affirmative).
- 4 Once the ordering the items is identified, using the Cross Tabulation technique, the final choice of items is made based on the 'reversals'. In some cases, if items are

too similar to one another, a choice has to be made, either to drop one of the items, or to combine them into a newly constructed item.

- 5 Once the scale is constructed, it can be applied to the cases in the study. A statistical test (Loevinger's H) is used to see whether the number of exceptions to the ordering of the Guttman scale exceeds a certain level of chance. Generally values above .50 are considered sufficient to support the assumption that the criteria can be ordered according to a Guttman Scale.

Once the scale is constructed, a decision still needs to be made regarding the application of the scale to the dataset. If for example, Criteria 1, 2, 3, and 4 are ordered from less to more difficult, there are a number of choices in applying the scale.

- a. A point can be assigned for each criterion met, even if some criteria are skipped: (Example, if criteria 1, 3, and 4 are met, a score of 3 is assigned).
- b. A score is assigned based on the most difficult criterion met. (Thus if Criteria 1, 3, and 4 are met, a score of 4 is given).
- c. A score is assigned for the first uninterrupted string of criteria from easiest to most difficult (Thus, if criteria 1, 3, and 4 are met, a score of 1 is given).

Though hypothetically, for an individual case, one can see that quite a range of possibilities exists, if there are only a few exceptions in the overall dataset, the impact on the analyses is not that great. Nevertheless, there are no à priori rules about which of these choices to make. That is left up to the researcher.



## 4 Results

### 4.1 Part I: Development of the Guttman Scale

Following the steps of the Guttman scaling procedure, first a factor analysis of the items was carried out, using a principal axis factoring extraction method. The factor analysis resulted in only one factor with an eigenvalue exceeding 1.0 (eigenvalue=3.322) explaining 55.4% of total variation in the matrix). The factor loadings are also presented in Table 1. Intercorrelations among the items are presented in Table 2. Even though the Self-perception item is correlated significantly with the other items, it was decided to exclude this item from the Guttman Scale at this point for content reasons. In particular, few authors in the literature treat this item as a component, and it is not as strongly related to the degree of family influence, as defined in the F-PEC scale and other definitions. Thus, it was dropped from the scale. However, it was chosen as a way of validating the scale in subsequent analyses.

**Table 2** Intercorrelations among Family Business Variables.

	1	2	3	4	5	6
1. Family Ownership of Firm	1.00					
2. Representation of Family in Management	.777	1.00				
3. Family Proportion of Management team	.687	.791	1.00			
4. Family determines strategy	.484	.472	.440	1.00		
5. Plans to transfer to family	.336	.365	.303	.312	1.00	
6. Self-Perceptions Family Business	.431	.353	.357	.447	.386	1.00

*All correlations significant at  $p < .001$ .*

In order to determine the ordering and inclusion of the remaining items, cross-tabulations were computed between each of the pairs of variables. Two examples of such cross tabulations are presented in Tables 3 and 4.

**Table 3** Cross tabulations between Family Ownership of the Firm and Representation of Family in Management

	V2. Representation of Family in Management		Total	
	Yes	No		
V1. Family Ownership of the Firm	Yes	599	<b>40</b>	639
	No	47	192	239
Total		646	232	878

**Table 4** Cross tabulations between Family proportion in management team and Plans to transfer to family

	V5. Plans to transfer to family		Total	
	Yes	No or Not Sure		
V3. Family Proportion in Management Team	50% or more	185	<b>404</b>	589
	Less than 50%	29	208	237

Total		214	612	826
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For the purpose of Guttman scale development, key attention is paid to the diagonal cells shown in italics. In particular, in order to conclude that meeting the criterion in the column heading (V2 or V5) is **more** difficult than is meeting the criterion in the row heading (i.e. V1 or V3), the count in the upper right cell (shown in bold) should be clearly **greater** than the count for the lower left cell. In Table 3, we see that the count for these two cells is about the same size, ruling out the conclusion that one criterion is particularly more or less difficult than the other. As a counterexample, Table 4 presents an example of ordering where clearly variable 5 is a more difficult criterion to meet than is V3, with a very small number of counter-exceptions (n=29 cases).

The clearest ordering of items using cross tabulations is as follows: V2: Family Representation in Management (at least one member); V3: Family Proportion of Management Team (50% or more), V4: Family Determines Strategy (to at least a certain degree) and V5: Plans to transfer to family (yes answer). Table 5 provides a summary of the inconsistent cells. Above and to the right of the diagonal are the items for which the variable in the column is no but in the row is yes. These present no problem and confirm the ordering of the criteria. The frequency below and to the left of the diagonal represents the number of inconsistencies (where the criterion fails for the less difficult variable in the column but not the more difficult item in the row). As a rule of thumb, the inconsistencies should be less than 10% of the total sample (which is about 855, depending on missing data). Most of the cells are within this limit.

The least difficult criterion, V2: Family Representation in Management is met by 77.6% of the responding firms. V3: Family Proportion of Management Team is the second least difficult, met by 71.4% of the sample. The third criterion, V4: Family Determines Strategy, is met by 61% of the firms. Finally, the most difficult of the criteria, V5: Plans to transfer to family, is met by only 26% of the firms. 85% of the sample can be classified properly according to this Guttman scale representing the following subgroups: none of the criteria met, V2 met, V2 and V3 met, V2, V3, and V4 met, and all four criteria met. The other fifteen percent of cases meet one or more of the criteria but out of the specified order. Loevingers H, a statistic used to test the probability that the data represent a 'true' Guttman scale, based on this particular distribution, is equal to .63. Generally values above .50 are considered sufficient to support the assumption that the criterion can be ordered according to a Guttman Scale. Thus we can conclude that a Guttman scale is a reasonable choice for combining this data. To use the Guttman scale in further analyses, a decision had to be made regarding those 15% of the sample not conforming to the order of the scale. It was decided to use the option of counting each criteria met as equal to one point on the scale. Thus, a firm meeting the criteria for Variables 2 and 4 would be given two points, similarly to a case meeting criteria 2 and 3 only.



Table 5 Summary of frequencies for cross-tabulations among items of the Guttman scale

	2	3	4	5
2. Representation of Family in Management	--	<b>86</b>	<b>297</b>	<b>440</b>
3. Family Proportion of Management team	<i>6</i>	--	<b>240</b>	<b>381</b>
4. Family determines strategy	<i>23</i>	<i>42</i>	--	<b>238</b>
5. Plans to transfer to family	<i>16</i>	<i>34</i>	<i>89</i>	--

*N=855. Items to the left of the diagonal, in italics run counter to predictions, where a case fails a less difficult criterion but passes a more difficult one. The frequencies to the right of the diagonal, in bold, are consistent with the predicted ordering of the Guttman scale.*

## 4.2 Part II: Use of the Guttman Scale to predict self-perceptions of family business

In the second part of the analyses, the Guttman Scale is compared with the individual criteria making up the scale as well as other family business variables to predict self-perceptions of family business. First, the overall scale is correlated with the outcome of the question, 'Would you consider your firm a family business?' This was done in one of four ways, the '85% scale', i.e. for only the subsample (85%) that fits the Guttman scale perfectly (with no reversals in difficulty, ( $r=-.552$ ;  $p<.001$ ;  $n=698$ ); a 'Likert scale', which simply adds up the number of criteria met plus one, (starting with 1 point with no criteria met to distinguish those cases from missing data) ( $r=-.508$ ;  $p<.001$ ;  $n=817$ ), 'Easiest criterion met', counting the mostly easily met criterion met until a break, a number generally smaller than the Likert scale ( $r=-.473$ ;  $p<.001$ ,  $n=817$ ); and finally, 'most difficult criterion met', counting backward from the most difficult criterion met, regardless of breaks ( $r=-.482$ ;  $p<.001$ ;  $n=817$ ). Note that of the three replacement choices for the other 15% of the sample, the Likert scale has a slightly higher correlation with the chosen criterion though differences are minor.

Second, a multiple regression of the individual criteria on the dependent variable is compared with the use of the index. Table 6 shows the results of the multiple regression, where initially all five of the original variables are included in a stepwise forward regression. The variation explained by the Guttman scale compares favorably with that of the multiple regression, suggesting that it can be substituted as a simpler measure (one scale versus five separate items) while leading to comparable predictive results.

Table 6 Regression of individual family business items on self-perceptions of family business

	<i>Beta (standardized)</i>	<i>t-value</i>	<i>Beta (standardized)</i>	<i>t-value</i>
V1. Family ownership of firm	.212	4.68**		
V2=: Representation of family in Management	-.046	-.871	.055	1.12
V3. Family Proportion of Management team	.066	1.33	.116	2.39*
V4. Family de-	.259	7.54**	.284	8.25**

termines strategy				
V5. Plans to transfer to family	.245	7.77**	.255	7.98**
R <sup>2</sup> -adjusted (R)	.301 (.552)		.283 (.535)	
Df	5,809		4,810	
F	71.04**		81.24**	

\*:p<.05; \*\*:p<.001.

## 5 Discussion

The results presented in the previous section are meant to illustrate the manner in which data about small and medium-sized firms can be combined to form a cumulative index, referred to as a Guttman Scale. The fact that most of these variables could be ordered in difficulty supports the notions by other researchers that the more narrow definitions of family business define subsamples imbedded within larger firm samples (see Shanker and Astrachan, 1996). The choice of variables was constrained by availability for a particular data set. Thus, the items selected may or may not prove to be the definitive items for defining family business in the future. However, the fact that these items could be ordered is a promising outcome with respect to the potential of the Guttman scale for future research in family business.

With respect to the F-PEC scale, the items available from this study focus primarily on aspects of power and experience. Thus, items sampled the number of family members involved in ownership and management but not separately for the board of directors. This is partly due to the fact that for smaller companies in the Netherlands; it is difficult to distinguish the two groups. However, future research that includes samples of larger companies should include this aspect. The criterion measuring the extent to which family determines strategy may also be seen as an aspect of this power dimension. Missing from the items is clarification of whether at least two people in the business are both owners and managers. In very small firms, it is quite possible that one person is 100% owner and represents 100% of the management team. This oversight will be corrected in further data collection.

Second, the experience dimension of the F-PEC scale is tapped in part by the criterion relating to the owner's intention to pass the company to the next generation. Missing is whether or not transfer took place, a shortcoming that the researcher also plans to correct in further data collection.

The F-PEC scale also measures the degree to which family values influence the business. One might argue that the criterion regarding the degree to which the family determines strategy might also be viewed as a component of this dimension. However, future research might tap more explicitly the perceptions regarding the degree to which the family and the business share the same perspectives, not only regarding overall mission and objectives, but underlying values, and also to what degree family owners are unified about their views of the business.<sup>1</sup>

The material presented in this paper is intended only as an illustration of how items can be combined into a single ordinal scale of family influence on the small and medium sized firm. It allows for differentiation along the same scale from companies without any family influence to those with much more extensive family influence. As a methodology, it paves the way for testing the importance and relevance of various dimensions as they relate to this overall index. One of the four items is more one of intentions (to pass the firm along to the next generation) rather than of current structure. It may be that these two aspects, structure and intentions, need to be more completely delineated or even separated eventually into two separate scales, as originally proposed by Litz (1995). Further, as pointed out by Klein (2000) and Astrachan, Klein and Smyrniotis (2001), many current approaches to family business measurement do not adequately take into account companies with a small number of families (e.g. perhaps the descendants of two partners) which for many purposes may still behave like other family firms.

In sum, much is still left to explore regarding the appropriate measurement of family business. But hopefully the Guttman scale example here provides one methodology with which to integrate these disparate measures.

<sup>1</sup> The author is grateful for the suggestions provided for augmenting data collection received from Joe Astrachan and Albert Jan Thomassen at the 2002 meeting of the International Family Enterprise Research Academy in Trier, Germany.

## 6 Conclusion

The purpose of this paper was to introduce a new approach for operationalizing family business variables. For this reason, several researchers have proposed more narrow definitions or those with multiple criteria. However, past research has not generally validated the assumptions underlying these definitions. Guttman scaling procedures may be useful in this regard in that a defined statistical procedure can be used to test the validity of ordering criteria from 'more' to 'less' difficult. This paper is an effort to demonstrate the use of the scaling procedure, on a random sample of 885 Dutch SMEs. More specifically, the research question for this paper was as follows: Can various indicators of family business be validly combined using a Guttman scale?

In conclusion, results of the research presented in this paper suggest that it is possible to incorporate items sampling different aspects of family business into one ordinal scale. This scale also appears to provide predictive ability at least as good as using each of the items separately. In answer, thus, to the question, 'Can various indicators of family business be validly combined using a Guttman scale?' the answer is a definitive 'yes'. This having been said, much additional work is needed to explore the different items that should be used for future research. The items included in this study were limited to a few available from an existing data set. Future research should include additional items to more fully sample the F-PEC scale proposed by Astrachan, Klein and Smyrnios, 2001). In particular, whether or not the firm passes to the next generation, and the degree to which family values influence the business need to be more explicitly examined, as does the special case of very small companies with only one owner-manager-family member involved with the business. However, the methodology itself appears applicable to the family business literature and will hopefully provide a new tool for solving the dilemma of creating a single family-influence scale.



## 7 References

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