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Agenda Item 6 :

Business registers and SMEs

A qualitative definition of SME

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*The paper reflects the opinion of the author, which is not necessarily identical with that of the
Institut für Mittelstandsforschung Bonn.*

The qualitative Definition of SMEs

1. The current SME Definition

Currently small and medium sized enterprises are defined by their size. In the European Union SMEs are defined in the Commission Recommendation of May 6, 2003. Concerning to this recommendation an enterprise is regarded as small or medium sized if it has

- not more than 250 employees and
- not more than 50 Million Euro turnover resp. a balance sheet total of less than 43 Million Euro
- and if not more than 25% of the shares of such an enterprise are in the ownership of another enterprise.

However in many Business Registers enterprise groups links are still not fully implemented and thus

- when a legal unit is part of an enterprise or
- when an enterprise is controlled by another enterprise

and has for e.g. less than 250 employees European SME statistics assigns such units to the group of small and medium sized enterprises.¹ Main problem of such a politics is not only that legal units are counted as enterprises but also that enterprises are treated equal even if they have completely different types of ownership and arising from that are of completely different character.

Main difference between independent enterprises and enterprises belonging to an enterprise group is the way of decision making, in particular when strategic issues are decided. Therefore the population of enterprises can be divided into three groups:

- Enterprises where the manager is also the owner or a member of the owner family and decides short and long-term issues in the interest of his enterprise. (Type 1 Enterprise, in Germany called Mittelstands or Family enterprises)²³
- Small or medium sized enterprises where the manager decides the short-term strategic decisions and prepares the long-term decisions, which he

¹ In many European Business Registers enterprise groups links are still not fully implemented and the groups are not profiled. Thus it is not possible to find out, which legal units form together an enterprise.

² An extensive description of the qualitative Definition can be found in (Günterberg; Kayser 2004, p. 1-3) "SMEs in Germany - Facts & Figures 2004" which can be downloaded from <http://www.ifm-bonn.org> and there from the site "Dienste"

³ Such Family-enterprises may also have foreign managers on top, however at least one owner family member should be actively involved in the top-management. In the following the terms Mittelstands- and Family enterprise will be used for type 1 enterprises.

puts to the board of owners. If the board of owners consists of private investors they decide in their interest, which usually is the maximisation of their profit and thus the profit of the enterprise. (Type 2 Enterprise)

- Enterprises belonging to enterprise groups. In this case strategic issues are decided in the interest of the group and in the head quarters of the group. Thus it is possible that profits are not maximised within that enterprise but elsewhere, e.g. by setting internal prices deviating from market prices. (Type 3 Enterprise)

As an SME is limited to a certain size, it is easy to get an overall view of it. Thus it can be assumed that the owners in Type 2 enterprises of a certain size are well informed about the inside of their enterprise and the principal agent problem is small. Opposite to that the owners of big enterprises do not have such a good knowledge and inside view of their enterprise and thus they have to rely in their decisions more on the information of the management. Moreover the shares held by private persons become relatively smaller the bigger an enterprise is. The weight of the decision of each owner becomes smaller and therefore the incentive of such owners to be informed about their enterprise decreases. In the extreme case of a company quoted at the stock exchange the relations between the owners of the shares and the enterprise can be completely anonymous.

So another very important difference is that owners of small and medium sized enterprises on average have a stronger link to their enterprise than owners of big enterprises.

Since an SME is limited to a certain size where it is easier to get an overview over it, it is easier to manage and more flexible. Of course the type 1 enterprises are the most flexible: The manager is also the owner and therefore he does not need to co-ordinate his decisions with others. In this case the size of the enterprise does not play the same role as for type 2 and type 3 enterprises. For type 1 enterprises the principal agent problem appears not between management and owner but only between the different management levels in case the enterprise has a size that necessitates different management levels.

On the other hand type 3 enterprises have access to the resources of the enterprise group, which puts them in a better position concerning investments than the other two types.

From this it can be concluded that the main differences between small and medium sized enterprises and enterprises belonging to enterprise groups are to be found in qualitative features and not primarily in their size. These features of SMEs might become weaker the bigger SMEs are and in particular the more management levels they need.

It can be summarised that the biggest principal agent problems occur in big enterprises, SME have smaller principal agent problems⁴ and the smallest they

⁴ Principal agent problems occur when a person carries out a service in the interest of another person. The latter person shall regard only the interests of his or her client, but might have own interests contrary to that of the

are in family or owner owned enterprises. Together with the size also the principal agent problems grow in every of these organisational forms. However the character of an SME gets lost at a much bigger size for family or owner owned enterprises than for the other SMEs.

2. The current application of the definition and distortions arising from it

Main purpose for an extra definition of Small and Middle enterprises is to describe the enterprises of type 1 and enterprises of type 2 up to a certain size and to distinguish them from the rest of the enterprise population because their character is completely different. As the quality features Unity of ownership and management or Independence are difficult to obtain and to measure the quantitative features were developed. It can be assumed that they correlate with the qualitative features in the sense that independent enterprises on average are more frequently to be found in the smaller size classes and that principal agent problems are easier to handle in smaller enterprises.

This leads to the fact that often the quantitative definition is taken as an end in itself and the main features of small and medium sized enterprises are forgotten. Additionally the group of these enterprises is called "small and medium sized" which puts the main qualitative features into the background.

Such a politics can lead to serious distortions:

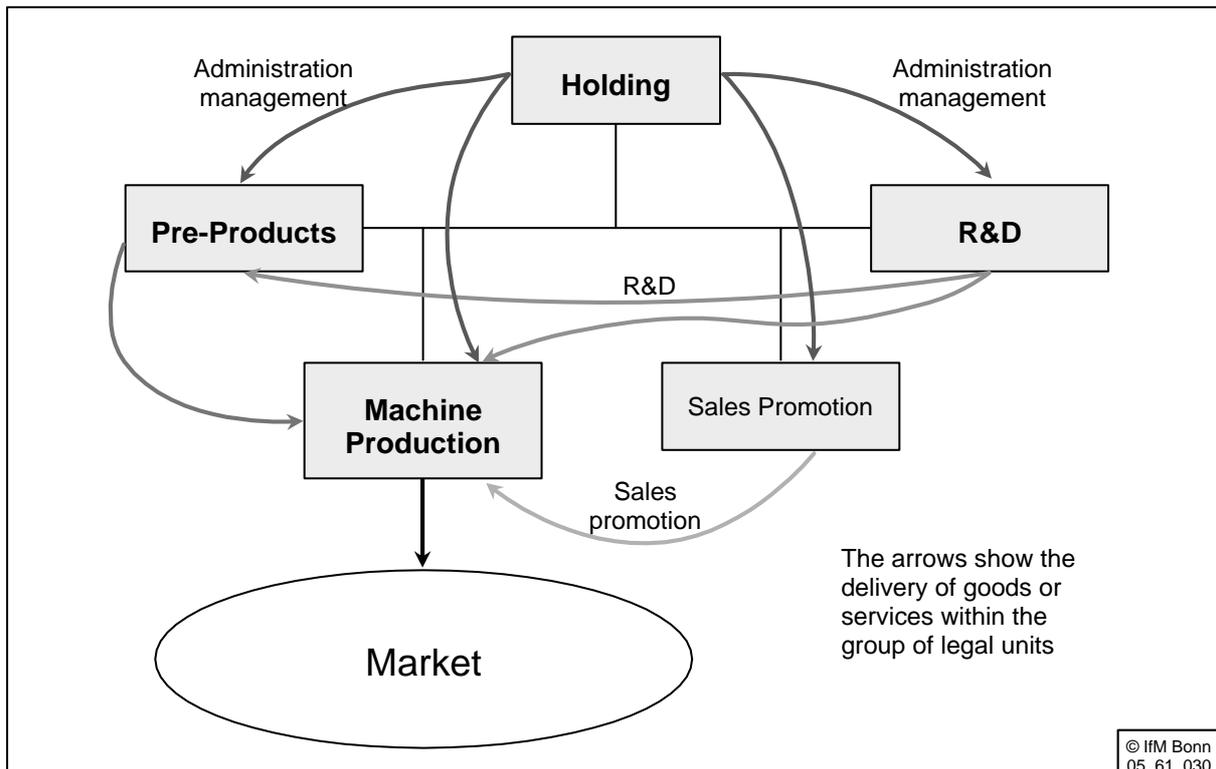
According to Council Regulation 696/93 the enterprise is defined as

an economic entity which can therefore, under certain circumstances, correspond to a grouping of several legal units. Some legal units, in fact, perform activities exclusively for other legal units and their existence can only be explained by administrative factors (e. g. tax reasons), without them being of any economic significance.

E.g. a producer of machines may have organised his research and development in an independent legal unit. The reason for that may be found in tariff agreements or in the tax law. Further he has bought a legal unit, which produces pre-products for him and did not integrate this unit legally. This unit delivers its complete output to the machine producing unit. For sales promotion he may have founded an office in a big city outside his plants, which also may be legally independent. All these legal units are owned by a holding. The latter is the employer of the management.

client. The client might have problems to control the person, as he has not a good inside in the activity. Such problems may occur between owner and management of an enterprise but also between different management levels or management and employees. (Picot 1991, p. 150)

Diagram 2: Organization of a machine producer in different legal units



Source: Hauser (2005), p. 58

Official statistics in many European countries would now register five legal units since all these units have employees. If the equation legal unit = enterprise is assumed (which is the case in most European Countries) five enterprises are recorded. In the example only the machine producing unit has market output.

What would be the interpretation of this in statistics?

1. There are three enterprises in the service sector (Research and Development, Holding, Sales Promotion).
2. There are two enterprises in the producing sector (Machine Production and Production of Pre-Products).
3. One of the enterprises in the producing sector has a very high turnover per employee.⁵

An inexperienced observer would conclude from this the high importance of the service sector, the high productivity of the machine producers and the lower productivity of the producers of pre-products for machines.⁶

⁵ As only one of the units has market output the use of internal prices or the none existence of internal turnovers does not make any difference. The sales of the machine producing unit have to cover the costs of all the five legal units.

⁶ The only reason why it makes sense to use turnover in the definition is that it is easily available. The gross value added would be much more suitable as it is not increased by pre-products. The gross value added would also make it possible to measure productivity and compare it also for enterprises of different economic activities. However enterprises are not used to the concept of the gross value added and cannot easily obtain this value from their accounts.

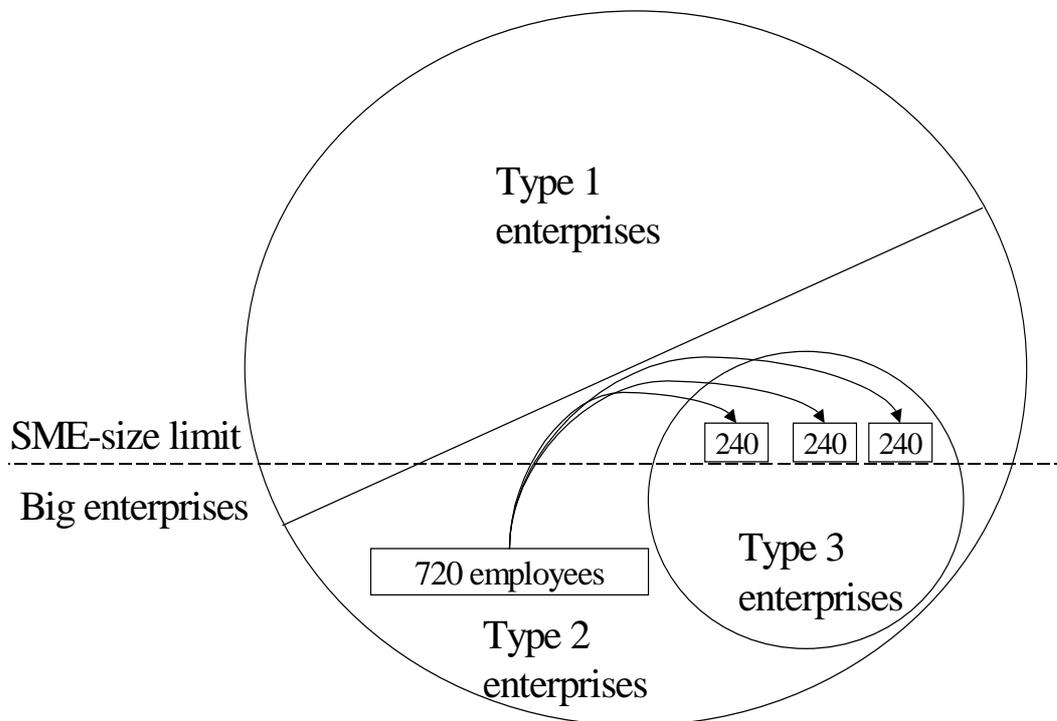
If the machine producing unit has less than 250 employees a further conclusion may be that SMEs have a very high turnover per employee.

From this background it becomes clear that observing structural changes and the small and middle enterprise population is problematic with the help of the current statistics.

3. Quantitative differences between a size based definition and a kind of ownership definition

The impact of not regarding the independence of Small and medium enterprises becomes visible in Diagram 1. The big circle shows the population of all enterprises divided into small and medium sized enterprises and big enterprises. The area above the diagonal line represents the type 1 enterprises, the area below this line the foreign managed. Most of the latter maybe type two enterprises, but part of them belong to enterprise groups and therefore they are type three enterprises. These are to be found in the circle. The two circles, the one showing the whole enterprise population and the one showing the enterprise group enterprises (type 3) are divided by the line that distinguishes the enterprises by employment. Below this line in the type 3 enterprise circle enterprises are to be found, which are SMEs according to the number of employees but may belong to big enterprises or enterprise groups. The Diagram contains an example of an enterprise, which consists of three legal units each of them having 240 employees. Though the enterprise is from its size clearly a big enterprise SME statistics would count three SMEs.

Diagram 1: Population of enterprises by qualitative and quantitative criteria



In 2001 the number of type 1 enterprises were investigated on the basis of the more restrictive definition of the German Mittelstand, the unity of ownership and management. Further the share of type 1 enterprises was compared to the share of SME resulting from a pure size oriented (Wolter/Hauser 2001). The definition assumes only type 1 enterprises as SME and excluded also type 2 enterprises. Thus it does not exactly show the impacts of not regarding enterprise group links.

The German population of enterprises was divided into enterprises managed by their owners and enterprises managed by foreign managers. For this purpose random samples for each legal form were drawn⁷ and checked with the help of a database. The database had received its information about the ownership and the management of the firms from the German trade register.

If a firm was owned by 50 percent or more by its manager or by family members of its manager, it was regarded as type 1 enterprise. In some cases there existed chains of legal units, where the group head was owned by a natural person and he or she or the family members were found as managers in several of that units. Then these chains of legal units were regarded as one

⁷ For every legal form except for the companies limited by shares a sample was drawn that made it possible to keep the standard error for the 95% confidence interval below one point. For the whole investigation 11.400 units were drawn.

type one enterprise. Other enterprise groups were regarded as foreign managed and thus not as small or medium sized enterprises.

According to the study 99,8% of the legal units are regarded as small or medium sized enterprises if only the German quantitative definition of 500 employees turnover is applied.⁸ If only the qualitative definition is applied only 94,8% of the enterprises are SME which is a difference of 5 %.

The distribution of size correlates negatively with the distribution of SMEs over the legal forms. Most of the type 1 enterprises are to be found in the unlimited legal forms. In limited legal forms the number of type 1 enterprises decreases with the necessary initial capital. Thus it can be concluded that the difference between applying the qualitative and the quantitative definition has an even bigger impact on persons employed, own capital and value added than on the number of SME.

4. Validity of the EU-Commission recommendation of SME shown on the German industry

Table 3: Average turnover and the average number of employees per enterprise broken down to size classes – all industrial enterprises in Germany

	20-49	50-99	100-249	250-500	500-1000	1000+	Average
Turnover(mill. €/enterprise)	3.7	9.1	24.2	65.2	138.8	956.1	31.2
Employees/enterprise	33	70	154	343	679	3 284	148

Source: Calculations of Institut für Mittelstandsforschung Bonn from Statistisches Landesamt Baden-Württemberg 2004 Annex table 23

Table 3 shows the average turnover and the average number of employees per enterprise broken down to size classes in the German industry⁹. The result leads to the conclusion that the size limits of SMEs as defined in the Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises correspond to the relations in reality. The average enterprise of the class 100 to 249 employees has an average turnover of 26 mill. € and on average 155 employees. The corresponding values for the class 250 to 500 employees are 65 mill. € and 343 employees. An interpolation of these values shows that a unit with 250 employees would have on average 45 mill. € turnover, or vv. the average industrial enterprise with 50 mill. € turnover has 272 employees. This value deviates about ten per cent from the size limit set by the European Commission.

⁸ On average industrial enterprises in Germany are bigger than in the whole European Union. The average for EU 15 was 15 employees per enterprise, the German average of 25.7 was only exceeded by Luxembourg, with 36.8 (European Commission 2001, p.12). Data after 1997 cannot be compared anymore, because for Germany only enterprises with more than 20 employees are published. Also for the other countries small enterprises are covered to a different not harmonised extent (European Commission 2000, p.9).

⁹ Manufacturing enterprises with 20 and more employees

As shown in the example of the machine-producer above industry statistics might cover turnover without covering the employees who produced it. Thus for obtaining an objective picture only legal units should be regarded, which are neither controlled by nor control any other legal unit, because only in this case it is sure that no employment is externalised and no turnovers are generated outside the economic sector in which the enterprise is recorded. Moreover in this case only SMEs are covered and no affiliates¹⁰.

Such data exists in Germany only for the industry and only for the year 2001. For this year Statistisches Landesamt Baden-Württemberg carried out a study in that legal units belonging to enterprise groups were identified by linking data of the Business Register to a database on enterprise group links provided by the German Monopolkommission (Statistisches Landesamt Baden-Württemberg, 2004, annex table 23). If the Number of legal units, the turnover and the number of employees of the legal units, which belong to enterprise groups, are subtracted from the overall population, the figures for independent legal units can be obtained. The latter make it possible to calculate data in Table 3 exclusively for independent legal units. As these legal units have no links of control with any other unit the equation legal unit = enterprise really holds.¹¹

Table 4: Average turnover and the average number of employees per enterprise broken down to size classes – industrial type 1 (Mittelstands) enterprises in Germany

	20-49	50-99	100-249	250-500	500-1000	1000+	Average
Turnover(mill. €/enterprise	3.3	7.9	20.3	53,6	121.0	1 540.7	50.4
Employees/enterprise	32	69	150	333	662	6 518	210

Source: Calculations of Institut für Mittelstandsforschung Bonn from Statistisches Landesamt Baden-Württemberg 2004 Annex table 23

Table 4 shows the number of employees and the turnover per independent legal unit. From the data it can be concluded that the average turnover per enterprise is far lower for the same number of employees compared to the data in table 3, which also contains enterprise group legal units. Interpolation between the values of the size classes 100 to 249 and 250 to 499 shows for a unit with 250 employees now a turnover of 38 mill, or vv. the average industrial enterprise with 50 mill. € turnover has 313 employees. Independent

¹⁰ Of course small enterprises, which are divided into several legal units are excluded in such an investigation. However this kind of organisation becomes less frequent, the smaller enterprises are.

¹¹ However international groups that control only one single unit in Germany according to the Monopolkommission could not be excluded. As in international groups the turnover per employee is higher the values in table 4 are upper limits and might be even lower.

enterprises seem to need more employees to produce the same amount of turnover than legal units, which belong to enterprise groups.

For further examination of the relation turnover and employees, and in particular of turnover and employees in family and none family enterprises, none-aggregated data of every enterprise would be needed. From official statistics only legal units – not enterprises - aggregated by size classes could be obtained. Fortunately the Institut für Mittelstandsforschung Bonn carried out a survey among 957 industrial enterprises¹². The data set contains 141 enterprises of the size class 100 to 500 employees, of which 110 are family enterprises. Table 3 shows the coefficients of relation of the number of employees and turnover resp. turnover per capita.

Table 5: Coefficient of relation of number of employees and turnover resp. turnover per capita

	Family-enterprises	None-Family enterprises	All enterprises
Number of employees - turnover	0,58	0,60	0,53
Number of employees – turnover/capita	0,03	0,16	0,05

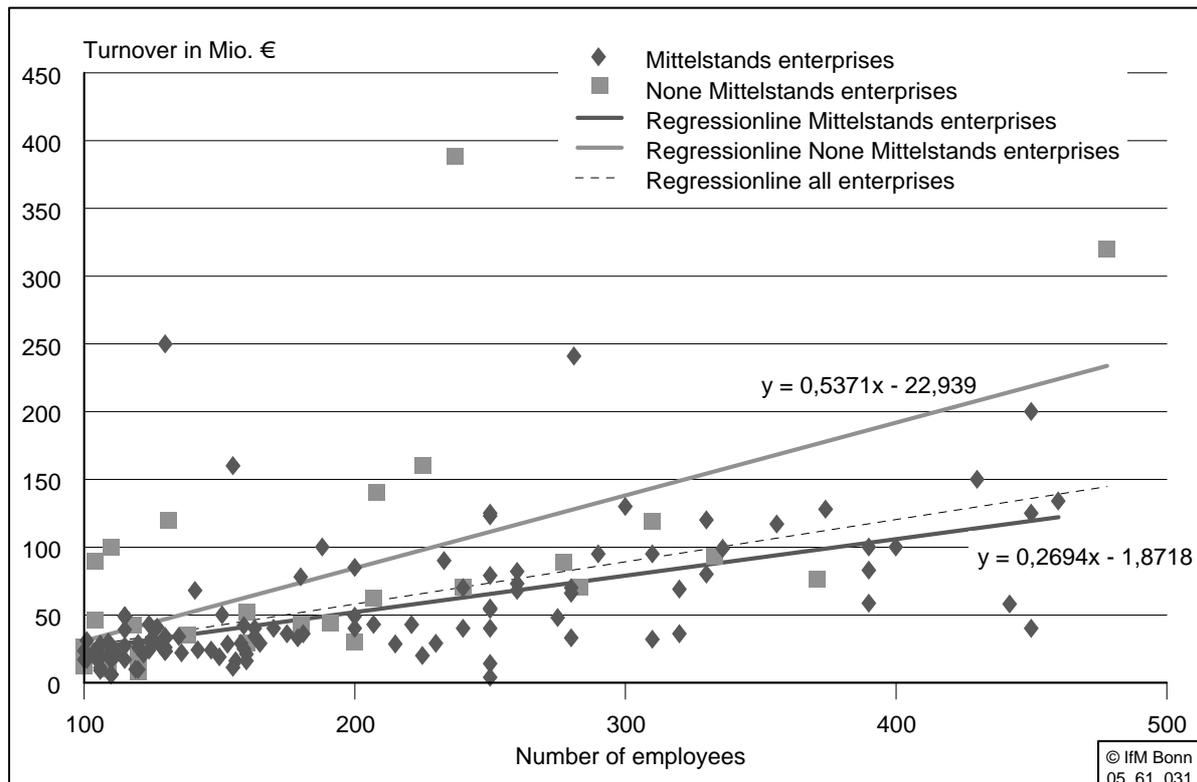
Source: Institut für Mittelstandsforschung Bonn

As to be expected there is a statistical relation between the size of an enterprise measured in number of employees and the amount of its turnover. However the correlation coefficient increases if family enterprises and none family enterprises are distinguished. Indeed an influence of the feature Mittelstand resp. none Mittelstand can be assumed.

On the other hand side there seems to be no or a neglectible influence of the size on the turnover per employee. The average turnover per size does not vary very much or expressed vv. the number of enterprises with a very high turnover per capita is neutralised by the enterprises with a very low turnover per capita. From this it can be concluded that the relation between number of employees per enterprise and turnover per enterprise is linear.

¹² The survey was carried out for a study for the Bundesverband der Deutschen Industrie and Ernst&Young Deutsche Allgemeine Treuhand AG (Bundesverband der Deutschen Industrie 2001) by the Institut für Mittelstandsforschung Bonn.

Diagram 3: Interconnection of turnover and number of employees for Mittelstands enterprises and none Mittelstands enterprises



Source: Institut für Mittelstandsforschung Bonn

Diagram 3 shows the regression lines elaborated for Family enterprises and none family enterprises. Turnover of Mittelstands enterprises has on average a lower level and increases only half of the rate of none Mittelstands enterprises with the number of employees. Again this makes the higher staff intensity of type 1 enterprises visible.

The higher turnover per employee in the overall economy has different reasons:

- Many German Mittelstands enterprises have found their place in a local market niche from where they react quickly to the demand of their customers, e.g. by delivering and implementing spare parts in plants of highly automated enterprises (Wimmers, Wolter 1997, p. 99f). These SMEs are very personnel intensive and thus have a low turnover but a high risk of over capacities.
- Mittelstands-enterprises on average employ a higher share of trainees¹³. These have a very low productivity in the first two years of their traineeship and a productivity below the average in their third year. Thus the number of employees is increased but not turnover.

¹³ Bundesverband der Deutschen Industrie 2001, p. 88: in the size-class 100 to 199 79.1 %, in the size class 200 to 499 79.6% and in the size-class 500 and more employees 86,4% of the family or owner enterprises trained young people in the German Dual system (part of the working time training on the job and part of it going to school). The corresponding values for none family or owner enterprises were 61.1%, 75.0% and 66.7%.

5. Conclusions for an SME Definition

Apparently the definition of the European Commission discriminates enterprises, which have an SME character, if they have more than 250 employees. However this size-class is only an example, as different size classes would discriminate different enterprises. Anyway an enterprise of 245 employees does not change its character if it employs another 10 or 20 persons.

In the definition of small and medium enterprises qualitative features should be emphasised. Quantitative definitions of Small and middle enterprises should only be used as a measure to approximate their number, since qualitative criteria are problematic to be observed by statistics. However before defining such approximation features, small and medium enterprises should be defined clearly and it should be clear, why they need a special treatment. Size cannot be a pure value in itself.

Quantitative features should regard the organisational aspects of an enterprise. As shown in Paragraph 1 the character of an SME gets lost at a much bigger size for family or owner owned enterprises than for the other SMEs.

Quantitative features should also regard the particularities of the economic activities, which the enterprises carry out. E.g. a retail trader needs a bigger amount of pre-products than a service enterprise and thus has of course a much higher turnover. Vv. the service enterprise needs much more staff to gain the same turnover as the retail trader. The Balance sheet total is not really a better measurement, as also balance sheets can be increased for reasons, which are not really connected to the size of an enterprise.

The limits set by a quantitative feature should therefore not be too strict. An enterprise with more than 500 employees may have the character of a small or medium sized enterprise and it is also possible, that an enterprise with 200 employees is managed like a big enterprise and also has the character of it.

For the observation of SME-statistics the possibility of distinguishing between controlled and independent enterprises is very important, this is only possible when the business registers contain information about enterprise groups. Moreover official statistics should publish enterprise data and not data of legal units.

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