

FRONTIERS
OF
ENTREPRENEURSHIP
RESEARCH

Proceedings of the 1981 Conference
an
Entrepreneurship
at
Babson College

Published by
Center for Entrepreneurial Studies
Babson College
Babson Park, Massachusetts 02157-0310
(617) 239-4420

ISBN #0-910897-16-6

Sponsored by the
Babson Center For Entrepreneurial Studies

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THE EMPIRICAL RESEARCH ON ENTREPRENEURSHIP
IN THE FEDERAL REPUBLIC OF GERMANY*

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ABSTRACT

The following represents a survey of empirical results of entrepreneurship of the last 5-10 years in the Federal Republic of Germany. The presented data refer to the entrepreneur, the new enterprise, and the corresponding environment. Nearly all are of descriptive nature. Emphasis in research has so far been in the field of motives and attitudes of potential entrepreneurs towards their change in self employment, of various demography, of potential and real entrepreneurs and of some structure data about new enterprises. On the whole, we must state a considerable lack of empirical research activities in this field although there has been a continuous increase of activities during the last five years.

HISTORICAL SURVEY

Even though little attention has so far been paid to the subject of founding an enterprise by German scientists of business administration and economics, there have been some waves of growing or declining interest. These interest waves in scientific research on newly founded firms are closely related to the economic and social importance of the subject.

This fact is made especially clear in the context of the developments in the period of the so-called "Gründerszeit", which followed the French-German War, 1870-71. This time was of special importance for the development of German industry. During this period as well as in the first two decades of the 20th century, main discussion points were chances and risks of founding joint stock companies. Due to the numerous misuses the interest concentrated on this kind of enterprise,¹ the commonly known investigations of that time can yet hardly be understood as empirical studies.

*Je thank Dr. Ursula Richter (BIFOA) for help in translation.

On account of the changed conditions of the economic system, the subject of founding an enterprise was not at all a subject of scientific interest in the thirties and forties. As far as the phenomenon of founding an enterprise is discussed in the scientific literature from the time after World War Two until the mid-seventies, foundation is regarded either as legal act (questions of the type of business ownership, contract of the company, business start-up-registrations, commercial registration) or as a special kind of financing. According to the subject, the investigations are more normatively and instrumentally orientated than empiric descriptive kinds of studies. The problem of the determination of the location is also of importance in the discussion about starting a new business. Most of the time these questions are examined from the point of view of big companies who want to found subsidiaries. You will find a great number of publications on some special questions, i.e. foundations in foreign countries, foundations initiated by wholesale co-operative societies or retail chains (whereby these unions show similar patterns of thinking and behaving like big companies and therefore questions of location are of special importance). There exist some empirical investigations on special problems.

It can be established that, until the mid-seventies, there were almost no empirical data about formation of new firms. In the non-scientific area however, at least some contributions in the sense of practical advice for people who want to start their own business can be found. In a similar way, there are in some fields, as for example for craftsmen, explanations in textbooks concerning the problems of founding an artisan business. These essays refer, however, mainly to the moment of the start-up and contain hardly any references from the science of business administration to the situation of founding a business.

Summing up, it must be stated, and this is valid for a more economics orientation of considerations, that general research on foundations of enterprises and empirically based research in particular was seldom done in the Federal Republic of Germany until the seventies. There are just some early investigations on the image of entrepreneurs with respect to their origin and attributes. You have to consider that the German word "Unternehmer" does not accentuate as much as the English word "entrepreneur" the person of the business founder. Only in a very limited sense can the biographies of founders, which are mainly allied to literature of the science of history, be considered as empirical research.

THE STATE OF THE ART OF EMPIRICAL RESEARCH

In the following explanations we start by differentiating between two central issues in entrepreneurship research (See figure 1).

the newly founded firm, and

- the entrepreneur.

Furthermore, the corresponding environment is of interest for entrepreneurship research. Accordingly, we present and discuss the

On af empirical research on entrepreneurship by means of these three aspects and their attributes. The results are descriptive and only occasionally are there empirical concepts for analytical **considerations**. Furthermore, we can establish that the available data of German research on entrepreneurship have been analyzed mainly in a **bivariate** manner. There are only a few multivariate investigations.

When relationships are examined, then two questions are important. These are the questions of the influencing factors which affect

- the foundation of a business, and
- the success of business foundations.

The Person of the Entrepreneur

Concerning the analysis of aspects of the person "entrepreneur" it must be considered that some persons are already of interest for research before the foundation of their business has been completed. The scientific interest extended to that group called potential entrepreneurs.

Potential Entrepreneurs

This group of potential entrepreneurs, which in a strict sense have to be considered part of the above mentioned environmental system of the entrepreneur and the founded business, can only be experimentally determined in prospect. That means that empirical research on potential founders has to start by examining actual entrepreneurs and their attributes, which might have characterized them at the time before they founded their firms. Such an investigation can be done in the form of fact variables. Since here opinion variables are of primary importance such an investigation would cause a lot of additional distortion of the survey results.

Therefore, the definition of a group of potential entrepreneurs has to be determined in a more practical way. Commonly used statistical dimensions for our purpose: whether too wide or too narrow in their scope, persons which, for example, the dimension "residents" contains their age, cannot yet or can no longer be considered as potential entrepreneurs. The dimension "working persons" however, is too narrow, because entrepreneurs come from the groups of housewives and working persons, too. Therefore, it has to be stated that a systematic, comparative and operational definition of the group in question can be made with difficulty, or perhaps not at all.

Existence of entrepreneurial activities concentrate on certain groups, which evidently have a close connection to business foundations. These are all groups with certain typical professional education and groups which have already shown their interest in business foundations. The first group includes, for example²:

- master of craftsmanship
- mercantile assistants

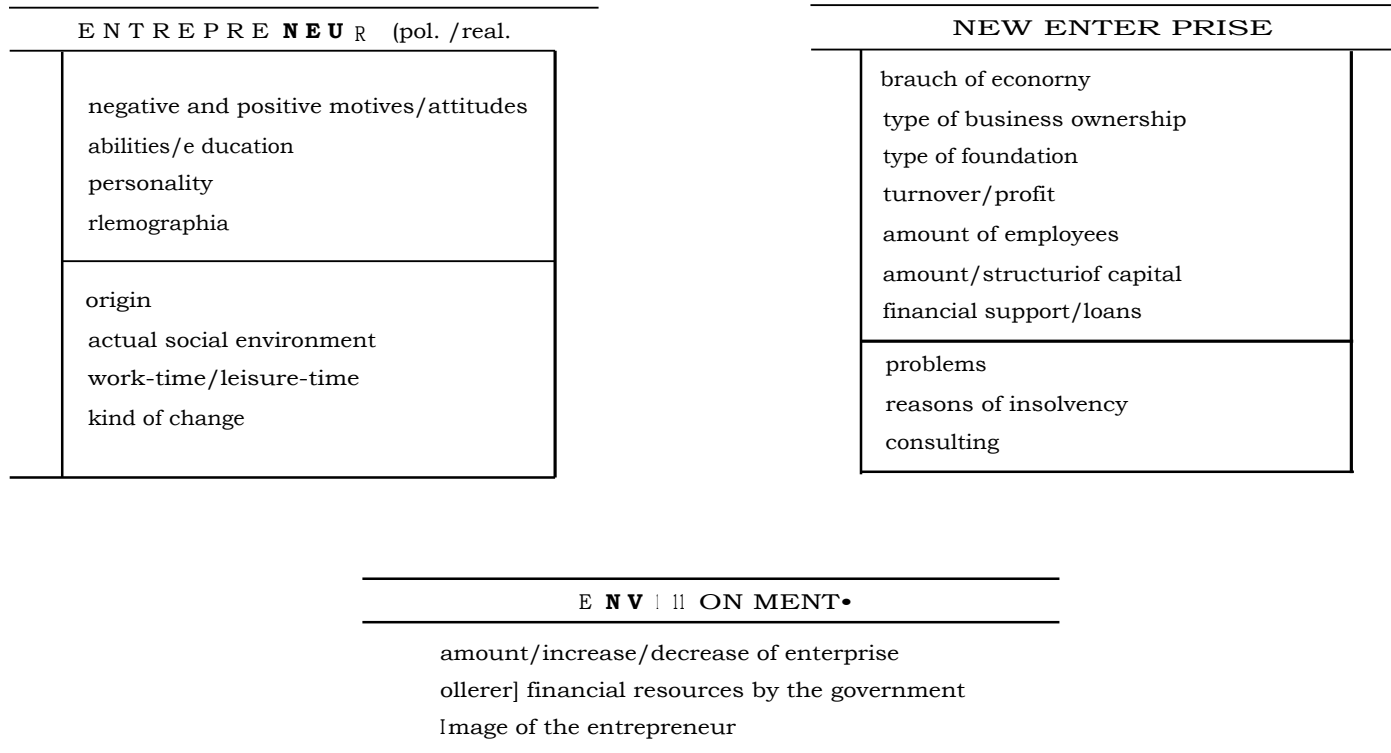


Figure : 1
 Importance of research-dimensions of Current Empirical Studies on Entrepreneurship
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- masters of the Science of Business Administration
- masters of the engineering sciences
- managers
- graduated engineers
- food retail employees

In concrete cases, there exist data about people interested in consulting booklets³, or about workers and clerks of the age 16 to 59.⁴

Determining the group of potential entrepreneurs not on a retrospective basis - disregarding those who define themselves as potential entrepreneurs by their interest - most of the fact variables, including a dynamic aspect *which* points to a possible future business foundation. To be more concrete, we refer to the attitudes towards starting one's own business (or self-employment) as well as detailed negative and positive motivations, which are mentioned in the context of regarding the professional alternative of starting a business.

This field of attitudes, negative and positive motivation towards business foundation - especially of potential entrepreneurs, can be considered as the field within German research on entrepreneurship which is best based on empirical data.⁵ Reasons for that could be seen in the appealing kind of questions, in the perhaps easy way of getting the data. Current research activities are not only done by scientific institutions but also by chambers of commerce (about three to four especially active chambers), by associations, or by commercial market or public opinion research institutions.

Recapitulating the results of investigations, we can state that by and large the attitude towards starting an own business is not very positive. But recent research shows more positive attitudes. Very often - disregarding the groups which traditionally are related to entrepreneurial self-employment (e.g. craftsmen) - self-employment is not recognized as professional alternative. If self-employment is considered, then it is more oriented towards freelance activities.⁶

The investigations in question, which examine the positive and negative motivation of starting an own business, use ad hoc generated lists for the evaluation of positive and negative motivation. Nevertheless, a general result can be established that most of the respondents mention the motive of being independent, of self-realization, as most important motive. The motive "income" is ranked lower. Lack of enough money, and the fear of taking risks, are the most important negative motivations.⁷

Comparing the results with those of investigations in English-speaking countries, it must be stated that German investigations are primarily based on ad hoc lists of single, very detailed motives - whose completeness may be doubted. This produces distortion in the interpretation of the results of the standardized response sets. Here the more

abstract motives (n-ach, n-independence, n-power, n-affiliation), which are mentioned in Anglo-American investigations. Like n-ach, n-power and n-affiliation are largely neglected.

As opposed to the Anglo-American literature, scales in the German literature of general psychology to measure the mentioned abstract motives are not easy to handle. That means that the researcher has to deal with considerable problems in getting them operational.

Therefore, **it** seems of special value to develop comprehensive, standardized and easy to handle measurement tools, which lead to comparable results.

Actual Entrepreneurs

Concerning *the* actual entrepreneur, the perspectives of the range of scientifically interesting attributes are considerably broadened. Besides the already-listed dynamic attitudes for potential entrepreneurs, negative and positive motives, the attributes of ability and personality have to be considered along with the concept of differential psychology. Also the origin and demography of the entrepreneur are of interest (in the strictest sense of elements of the environment). Furthermore, a lot of other variables seem to be interesting (e.g. the way the change into entrepreneurship was made: smooth or abrupt). They shall not be further systemized here (see figure 2).

As to the dynamic aspects, results similar to those of the potential entrepreneurs have been found even though the amount of data is not similarly big. Here the motive for independence is also ranked before the motive for income. Within the negative motivations the political development and the fiscal burden are most important.⁸ Here too, as in the case of potential entrepreneurs, methodological doubts towards these results have to be mentioned.

As to the feature "qualification", there are little data available. Beyond that the data are relatively unspecified (education, kind of activity in the branch). They are based on random samples, which are hardly representative for the entrepreneur in the Federal Republic of Germany. Results from qualification tests as developed by psychologists for many professional demands for dependent occupations are still not available for identifying entrepreneurial qualifications. There do not exist concrete data which would allow a survey by means of general tests of achievement and which could be drawn without any adaptation efforts out of general psychology.

Regarding general education, about 22% of entrepreneurs have a master degree, scarcely 9% a college degree and 36% a high-school degree⁹; 59% of entrepreneurs have a complete professional education¹⁰; 83% of them were employees before starting their own business and¹¹ 17% experienced a smooth change to self-employment¹².

The statements compiled so far about the attributes of the entrepreneur's personality are mostly of intuitive character and of speculative nature; you will find hardly any empirical data on that point.³

Relatively concrete ideas, however, exist in regard to different demographies. Random samples, comprising nearly 20,000 single cases, provide a basis for statements about the age, sex and nationality of entrepreneurs in the Federal Republic of Germany¹⁴.

The age of the entrepreneurs was found to be about 36 years; this is an approximate value which corresponds with many international research results (middle 30's). It is interesting that there are no significant differences in age when regarding different branches. Yet, the age of entrepreneurs (when starting a business) increases from single proprietorship to partnership to incorporation¹⁵.

As to the sex, the share of males starting business firms was 70%. During the years 1973-1979; however, during the later years a growing number of female entrepreneurs can be counted; a trend which shows a certain development for the year 1979¹⁶. Female activities lie chiefly in domains which are related to their activities as housewives (food, textiles, beauty), or to typical female domains in dependent occupations (bureaus of typing and translation). The share of female entrepreneurs in those areas is over 71%. The same is valid for restaurants and hotels, where their share of 44% is relatively high. Female entrepreneurs prefer single proprietorship (30% versus 18% partnership foundations)¹⁷.

Foreign entrepreneurs account for nearly 4%¹⁸. Preferred branches are wholesale and restaurants (and similar enterprises). It can be assumed that the relatively high proportion (16%) of foreigners in wholesale is due to the difficult conditions of starting retail companies. It seems astonishing that foreign entrepreneurs comprise nearly 7% of partnership foundations.¹⁹

As Anglo-American studies also show, it is of relative importance in making the decision to start a business firm to grow up in an environment of entrepreneurship, e.g. where the father is self-employed.²⁰ This is not necessarily conditioned by the fact that a firm has been inherited; it is true for self-employers too, who started a new firm themselves.

Another important variable in the environment of the entrepreneur is the support by his wife, or her husband, and by his/her whole family when starting a business. This support can be the help of the partner or of a member of the family within the firm, or it can be the financial assurance provided by another occupation of the spouse. In about half of all cases of married entrepreneurs, it was stated that the spouse was working for a different company²¹. It is surprising that there was much less help from the members of the family in cases where a firm was bought (61%) or taken over (77%), because for entrepreneurs of newly started business firms the help would be of much more importance. Apparently, the close social environment of founders is not as influenced by the idea of self-employment as those entrepreneurs who take over a business, and therefore the members are much less ready to help²².

In certain branches, the share of family members who help is remarkably higher. For example, in retail firms which are run by self-employed entrepreneurs it is about 89%.²³ Besides this promoting influence of the family, the desire to provide for the future and, therefore, a restrained ambition for independence, **plays a** role for married people.²⁴

An aspect closely related to family life **is** the question of working time versus leisure time for the entrepreneur. Data regarding the entrepreneur are not available, but self-employed people, on the average, count 66 hours per week as working time.²⁵ This means, of course, that they can spend little time with their family. One third of all self-employed people state that they have too little free time for their families.²⁰ And it was shown that entrepreneurs who started a venture often have fewer children than entrepreneurs who took over a firm (3/4 have children).

Newly Founded Firms

In the following, some structure data of newly founded enterprises in the German Federal Republic shall be presented, and the problems of newly founded business firms shall be explained.

Structure Data of Newly Founded Firms

There exists relatively extensive empirical material on different structure data. It relates to only one Federal State (Nordrhein-Westfalen) of the German Federal Republic; this is, however, the most populated state. The basis of the data material are official registrations of firms, *which* have to be done when a business is starting up or ending. These data exclude the agricultural sector as well as the free-lance part of self-employed activities. On the other hand the data contain the founding of subsidiaries (dependent foundations) as well as the taking over of existing firms (derivative foundations). Principally dependent and derivative foundations can be filtered out of the data. In the following data we omitted this because corresponding percentages have not been available. Therefore; the following statements refer to newly founded firms in a broader sense of the word.²⁸

The greatest share of all newly founded firms is retail, nearly 20%, followed by restaurants, nearly 16%. A relatively strong group is the construction branch with about 10%, followed by the production branch and finally the trade agents. The banking and insurance trade have a share of about 5% whereas the wholesale has 3 to 4%. Overall, the service business is dominant. Compared with construction and production firms, 80% of all newly founded business firms are service firms.²⁹

Regarding the legal forms of enterprises, it is obvious that the overwhelming part (nearly 85%) are single proprietorships, almost 8% are partnership, and 7% are joint stock companies. There can be seen, however, a growing trend towards partnership foundations, *which* result probably from the desire for limitation of responsibility, and also by the announcement of new aggravations for founding stock corporations for the year 1981.³⁰

About 90% of the investigated enterprises are foundations which can be considered as independent economic units. The remaining 10% are foundations of subsidiaries or dependent branches.³¹

Two thirds of all newly-founded enterprises are foundations in the stritt sense of newly founded firms, whereas approximately 30% represent the taking over of existing enterprises. Additionally, there is a low percentage of relocations of enterprises (changes of legal form, for example a change from joint venture into a general partnership).³²

Some other structure data shall be presented, but most of them cannot be regarded as representative data. We have no concrete numbers about the situation of turnover and returns of newly founded business firms. An investigation of government-sponsored foundations proved only that the development of turnover and profit was classified by 58% of the inquired entrepreneurs as "by and large satisfying".³³ An Austrian study shows that during the first three years; despite a growing turnover, losses are noted.³⁴ Another investigation, in which 90% of the registered enterprises existed not longer than five years, proved that the entrepreneur disposes of a monthly net income of about DM 2.200,--; this includes, however, other eventual occupation.³⁵ Such a figure is low, especially if you consider the already mentioned high mean weekly working hours compared with the income of dependent workers.

Regarding the size of newly started business firms, there are various investigations. The size is usually determined by the number of employees. One investigation states that at the time of the enterprise foundation in about 70% of the cases there are no employees,³⁶ and in 18% only one person is employed. Two years after the foundation of the enterprise the situation has changed as follows: slightly less than 50% of the enterprises still do not have an employee, approximately 20% have one employee, 15% have two, about 7% have three, and 13% employ more than three people.³⁷ Another investigation shows for a regional limited area for handicraft firms a mean size of 4.75 employees, in new firms at the time of formation.³⁸ Several other investigations concentrate on the number of employees in newly founded business firms, too; however, the time period since the foundation is not homogeneous.

Another measurement of the size of an enterprise is the amount of the necessary start-up capital. It is under DM 100.000, in slightly less than two thirds of newly founded business firms, as is shown by a recent investigation.³⁹ Newly founded firms supported by the government seem to have a considerable greater amount, namely DM 175.000, in 1979.⁴⁰

Considering the risk of insolvency, especially the amount of the proprietor's own capital, borrowed capital is important. There are several investigations of this subject. Two investigations show that respectively 72% and 70% of the respondents have founded their companies mainly with their own financial resources.⁴¹ A recent investigation, which seems to be somewhat in conflict with the former ones, states an average of proprietor capital of 22%. Considering

handicraft business⁴³, another investigation found out that one fourth of the Sample of new founders and of those who have taken over a business could do it without any borrowed capital. For example, painter firms are founded with an especially high proportion of proprietor capital whereas other branches of handicraft, especially hair stylists, have a proportion of proprietor capital which is only slightly above 10%.

Along with considerations of the volume of the start-up capital is the question of financial support by the government and its usage by newly founded firms. Here we must state that a surprisingly high percentage, namely 90%, does not use any financial support from the government. Other investigations confirm that most founders realize their projects without financial support either from the government or the banks.⁴⁵ The number of calls for support, however, grows with higher start-up capital availability. Asking for reasons why the founders have not called on governmental financial support the most frequent answer given is that there was no demand. In second place, the respondents answer that they had no information about the program and were unaware that this possibility existed.⁴⁴

Problems - Insolvencies - Consultations

In more than 10 empirical investigations, problems which arise when founding a business are discussed. There is a variety of information on this subject, and a variety of approaches. Despite all this variety, when persons were asked for their judgement about perceived problem areas, two aspects crystallized and could be observed throughout different investigations.

First is the problem of financing.⁴⁷ This contrasts with the above statements about the relatively high proportion of proprietor capital and the overlooked possibilities of governmental financial support. Besides - and some hints were already given in this direction - the attractiveness of calls on government financial support is unknown since the conditions of the distribution are such that the founder may prefer other inconvenient alternatives.

Often the founders mention the tax burden and problems with the Internal Revenue.⁴⁸ This makes clear that new ways to defer the fiscal burdens for the new founder are of a great importance. The fiscal problem and the financing problems during the first years of foundation are closely connected to each other, because the new proprietor's usually scant capital is partly taken away through taxes.

Looking at the results of one investigation, one notices that, among the many difficulties which arise while founding a new firm, the problem of marketing, which proved to be the most striking economic problem in this study, is ranked in fourth place after financial and fiscal problems and legal regulations.⁴⁹ It is also surprising that the kind of difficulties are not differentiated by the degree of education of founders.

Important in the investigation of problems of newly founded firms seems to be the question of insolvencies of young enterprises. Investigations of insolvencies are, however, not without problems. There are many reasons for this. First, it is relatively difficult

to keep a logical and consistent level of analysis of the reasons for insolvencies. The consideration level can move between the formal statement that there was no liquidity any longer and the statement that the person of the founder is the cause for the insolvency, because he is responsible for all decisions and consequently for all misdevelopments from the beginning on.

A second and more serious problem is that it is not possible logically to form conclusions about success and failure of startups by looking at failed startups alone. Ideally a random sample of unsuccessful firms should be compared to a random sample of successful ones.

In this context it seems to be of interest to compare the reasons for insolvency of younger and older enterprises.⁵⁰ Young enterprises show a lack or incompleteness of knowledge of accounting, and cash flow projections, a shortage of capital and inexperienced employees. While the main problems of young enterprises lie in input factors, those of older enterprises are marketing factors (competition pressures, difficulties in liquidity).

A variety of problems and difficulties of newly founded firms could certainly be avoided by qualified external consultation. On the founder's attitude toward consultation as defined by the sources of information he chooses, and similar questions, there are a lot of empirical investigations. One study notes that about 55% of the founders call on a consultant before their foundation.⁵¹ Credit institutes, tax consultants for fiscal questions, and chambers of commerce serve primarily as source of information. The contact of another self-employed person seems to be of considerable importance.⁵² Those who have a higher education level rely far more on consultation.⁵³ The received consultation is considered as satisfactory by 50%, and a further 40% are partly satisfied.⁵⁴

Consultations with emphasis on foundation and ending a business, by the way, comprise the largest category of business consultation services in Nordrhein-Westfalen. They represent about 27% of the consultations, even though newly founded companies represent, with 8%, only a small part of all consulted companies.⁵⁵

With consultation is also linked the question of how extensive the planning activities have been before founding the enterprise. Financial planning seems to be essential. Financial planning can be assumed to have been done when loans and financial support from the government are granted. But there are little empirical data regarding the planning activities of the founders. One of the few was an investigation of handicraft businesses within a certain region.⁵⁶ In this investigation a very high percentage, 56% of the founders, declared that they had made no financing plan before the foundation. Asked for the reason, they answered that it was just forgotten. Twenty percent of the respondents thought that a financing plan was not necessary.

The Environment of the Founder-Persons and the Newly
Founded Business Firms

As an economic aspect, the number of enterprises is interesting in this context. According to a statistic of the DIHT, Deutscher Industrie - und Handelstag (German Industry and Chamber of Commerce), there exist about 1.6 million enterprises in the Federal Republic of Germany.⁵⁷ The underlying term of enterprise corresponds with the term of business registrations which was chosen in context with the structure data mentioned under 2.2.1. These include, as already mentioned, subsidiaries and dependent branches, i.e., dependent economic units. For the Federal Republic of Germany, however, there are no statistics on the total number of self-employed economic units nor the corresponding numbers of increase or decrease of independent firms. Based on an investigation of the business registrations in Nordrhein-Westfalen for the years 1973-19'9, the total number of economic units can only be estimated.⁵⁸ One can expect about 150.000 foundations of independent enterprises per year in the Federal Republic of Germany. The number of quits is actually nearly 144.000.

In this context, it seems important to mention that the deficit of foundations, which appeared in the first half of the seventies, has shifted to a certain surplus of foundations. It must be noticed that, for example, numbers of insolvencies are not alternative for the changing rate of the number of independent enterprises because these insolvencies present only a small part of quits. Mostly they take place as still liquidations.

To the dimensions characterizing the economic environment of newly founded firms belongs the amount of financial support given by the government. For the year 1979, DM 624.4 millions were allocated by the important ERP program of foundations. Within another program which was started in the middle of the year 1979 and which was intended to give support in proprietor capital, DM28.8 millions were made available. Ninety-five percent of this amount were given to business founders.⁵⁹ Besides these two important programs, there are many other programs which can be called an by business founders, among others. But this shall not be a consideration here.

For the entrepreneur there are not only economic dimensions of considerable importance for the development of his activity and its success. In addition, there are problems of acceptance by the society, reflected especially in analyses of the image of entrepreneurs. In this context, ideological discussions and the presentation of founders and entrepreneurs by the mass media are equally important. Even if many authors notice in general a more negative image of entrepreneurs,⁶⁰ it seems just recently that the image of the entrepreneur has improved and younger people especially are gaining a more positive attitude towards self-employment as an entrepreneur.⁶¹

Besides, the general image of the business founder by single relevant groups of his direct environment, as for example employees of banks, official offices, clients, suppliers and potential employees, is likewise important. Besides these, immediate environment, the attitude in the private sphere, i.e. friends, acquaintances, the old

colleagues, and finally the family, are of great importance. On this subject, we do not know of any empirical investigations in the German-speaking area. There exists only an investigation of one special group, personal managers of middle-sized and big enterprises. This group seems to be of importance, since everyone who is willing to found a business firm has to examine carefully how far he has to cope with additional difficulties in case of failure when he wants to return to dependent employment. We can state that actually the personal manager meets the former entrepreneur with considerable reservations even in the case of a liquidation.⁶²

Some Special Questions: Innovative Foundations

Though in the field of innovation there is plentiful German literature, there is little empirical research on the transition of research on innovation to research on newly founded firms. The available investigations deal mainly with the catalysts of innovative foundations of enterprises.⁶³

First of all, we must state that the number of innovative technologically based foundations (i.e. foundations with the purpose of distributing new technologies) is very low in the Federal Republic of Germany compared with the United States.⁶⁴ For this reason, we have to explore the factors which cause such foundations.⁶⁵ In one study the following environmental factors were investigated:

- systems of research and development in the Federal Republic of Germany
- disposition and availability of capital for risky enterprises
- systems of tax laws, society laws, and patent laws

According to those factors, an attempt was made to satisfy the approach of an empirical study by referring to international comparative data.

Another study presented as a central factor for such foundations scientific-technical employees of research institutes who were regarded as potential founders of innovative enterprises.⁶⁶ It was proved that this group - compared with potential founders of a more general kind - showed much less desire for self-employment. So far as self-employment is considered as an alternative to a professional career, a free-lance activity is preferred to an entrepreneurial existence.

CONCLUSION

Summing up, we can state that much empirical research has been undertaken in the last years, but only a very small part has been done within the science of business administration. A great part of the research in this field has been left to the initiative of chambers of

commerce and corporations; consequently, there is a much less systematic and comprehensive design of research activities. It may be desirable for the future to enforce scientific research activities.

Some steps in this direction can be noticed. Especially, we can point to panel-surveys, analysis of the Person of the founder, the empirical validation of instrumental support for founders, empirically based analysis of the market, and finally the intensified discussion of the success factors of business foundations.

SOURCE FOOTNOTES

- 1) Klaus Nathusius: /Venture Management/ P. 40 - 45
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