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Entrepreneurial Behaviour Pattern and Economic Success in Farming

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Important as the interplay between natural and economic factors may be they are, even so, no more than the instruments of production. It is the farm entrepreneur who, with varying success, coordinates the means of production. When all is said and done, it is his personal influence that is decisive in the economic results, though of course the amount and quality of the apparatus he uses must also be taken into consideration. It can always be said that *it is the farmer-operator who plies the bow,* while the farm is merely the instrument he plays on.

A study of the literature of agricultural economics often leaves me with the impression that the farm entrepreneur as a human being is not being taken into account sufficently. We agricultural economists are certainly aware of his significance, but he is often neglected in general economic discussions, if not completely forgotten.

Farm management is a young science of great scope. It is therefore easy to understand why attention has been paid in the first place chiefly to investigations that offer tangible results, such as can fairly easily be expressed in figures; easily, anyway, so far as they can be by the human being in charge of production. Here farm management enters the fields of sociology and psychology. Scientific psychology has but a short history behind it. There is nothing to be astonish at if, despite all its progress, the quanity and certainty of its results cannot be compared with those of the older science—to quote the well-known Swedih psychologist Katz.

Modern psychology does not accept the classical doctrine of *the economic man* but considers the motives lying behind human behaviour to be usually irrational. The classical national-economist's economic man is therefore regarded as an abstraction which does not correspond with reality. But it cannot be denied that income plays a very important part as the main-spring of human actions, though alone it is not decisive. Aereboe is on of the clasical agricultural economists who have laid the

greatest possible stress on the farmers's personal contribution to the farm business he is engaged in. Aereboe maintains among other things that an intensification of production places increased demands upon the farmer's qualifications. A rise in the cultural level implies an increase in the significance of the farmer in the final economic results. The more agriculture develops, the greater the risks to the farm business that come from unqualified management.

Logically, there would seem to be a connection between the mental ability of the farmer and the economic results. And if, furthermore, one cannot regard the farmer as simply an economic man in the classical sense of the phrase, then one is justified in taking into account and basing one's calculations upon the fact that the farmer's natural gifts, alertness, interest, energy and knowledge, book-learning, etc. will be reflected in the output of his farm. Above all it is mental characteristics and equipment that are important. Obviously too his physical capacities play a significant part.

Unquestionably it is a very subtle problem of research to determine how far such relationships can be discovered and established. But it is just here that certain special difficulties arise, not least in connexion with the methodology of such research. One asks oneself, for instance, in what way mental and physical capacities can be measured as between one farmer and another. What measuring stick can be used to make the comparisons? A similar problem arises when it is a question of determining the economic results as a function of the entrepreneurship. It is of paramount importance that there should be some way of *measuring the mental ability* of a farmer, or at least some means of expressing it.

It is only during the past few years that increased attention has been given to the direct application of the concepts and principles of economic theory to the practical management of the business. Reid [6] says pointedly in fact that "it is not so long ago that most people considered the ability to manage as an entirely innate art which could not be formulated into teachable precepts". And, he continues, "one of the main advances of thought in farm management has been that of thinking of the farm as a whole rather than as a series of isolated technical and husbandry problems".

So long as the farmer has no difficulties in marketing his products, farm-unit thinking to him is not as important as it is in a period of surplus production such as prevails at present in many developed countries. As agriculture becomes more complex and problems of adjustment more acute, it becomes increasingly important to adopt the concept that the farm business is a totality and an integrated unit.

In a study carried out in Great Britain by Daw together with Gwyn Jones [4] each farmer's actual results for a given period were compared

with what he could have earned if he had selected, combined and organized his farm business according to what was physically possible and economically most desirable. The extent to which a farm's actual results varied from its *possible maximum* indicated a farmer's financial success as a manager.

An investigation that greatly resembles that of Daw. in character was made by Hesselbach [2] in West Germany. He staded that economic results depend upon natural, economic and personal factors. In carrying out, on 24 farms keeping accounts, each with from 7 to 20 ha. of arable land, a farm by farm comparison between the actual economic results and the calculated realistically optimal results, he found that farm size and soil quality played a less important role than the entrepreneur's input as expressed by age, education and level of farm mechanization. The size and composition of the family also had a notable influence.

In a sample of 161 book-keeping farms the German investigators Schneppe and Walter [7] studied the entrepreneur's personal influence on farm profitability. The results showed that about half of the divergence from the average net return resulted from the entrepreneur's managerial ability. In this same study the size of farm was found, surprisingly, to have no influence, and even the quality of the soil played only a minor role in the amount of the net return.

Rasmussen and Sandilands [5] carried out a comprehensive econometric study with results obtained from 1646 British farms keeping accounts for 4 years. His conclusions as regards the management factor reads as follows: "This analysis emphasizes the great importance of the *managerial variance*, in other words the great importance of the many detailed husbandry decisions in comparison with the *allocation of resources*, about which the production function as such can give information".

Let me now present the findings of three relevant studies which I have made, the first in Sweden, the other two in Finland.

To indicate entrepreneurial ability, in my first approach I used partly the farmer's *theoretical vocational education*, and partly his professional *practice*, especially his *work away from his own farm*. The empirical material consisted altogether of 227 farmers on account-keeping farms located in the middle of Sweden. The study embraced the fiscal years 1943-1948.

The exponents mentioned do not necessarily express any inherent human abilities, of course, for an opportunity to obtain higher education may very well depend simply on, e.g. the existence of some private fortune, or be insisted on by parents or other close associate., etc. On the other hand, there are many gifted and capable youths who for various reasons have not been able to receive any education apart from work on their parents' farms. Nevertheless one can accept the hypothesis that both

theoretical vocational education and practice on other farms enrich a farmer's knowledge and ability, provide new impulses, widen his views, and therefore provide a stimulus from an early age towards creating higher potential capacities in him as an entrepreneur.

The results briefly stated were that in all, size-groups the total net incomes as well as the net farm incomes of the sub-group of farmers with at least rural secondary school education, viz. theoretical vocational training, were higher than those of farmers with only elementary schooling. The differences were statistically significant. No systematic difference as to average area in different size-groups was noted. A certain relationship between outside practice and theoretical vocational education existed more commonly among farmers with rural secondary school education than among farmers with only elementary education.

It also appeared that in all size-groups the sub-group of farmers with outside practice reported higher total net incomes (agriculture + forestry + extras) than the sub-group of farmers lacking outside practice. The same tendency was found also as to net farm income from agriculture only. At the same time it was noted that farmers with outside practice had, throughout, a better theoretical vocational education.

The variance quotients showed, however, that practice off the farm had no statistically significant influence on success in farming. On the other hand, there was a very high degree of probability that size of farm had such an influence.

In 1954 a programme of work was commenced with the aim of elucidating the influence of intensified individual advisory services on management and success on Finnish family farms. The activity lasted 5 fiscal years, embracing the period 1 April 1954-31 march 1959. Very briefly stated, the results showed that the farms that had been objects of the intensified advisory services had made more apparent progress than farms in the same size category that were situated in the same geographic regions but whose enterpreneurs had not shared in these services.

This investigation was followed up by another, carried out in 1961-1966 as a continuation of the earlier study. In consideration of the fact that the planner's arsenal of plannig tools had in the meantime been very substantially improved and augmented possibilities were considered to exist for the working out of long-term plans according to a given method and system (the MEL method). The method may be described briefly as a simplified application of the principles in linear programming based to a large extent on the Swedish HUV method (Johnsson, Renborg, Säfvestad [3]). Long term plans were construed to mean plans for mainly a period of five years.

Since one of the objects of the investigation was to study the existence of a possible connexion between the mental entrepreneurial ability of

farmers and their attitudes towards planning and other individual advisory activity, the entrepreneurial variables were mapped out according to three characteristics: the *age of* the entrepreneur at the commencement of the investigation in 1961, his *theoretical vocational education* and his *mental ability*. Obviously, other variables could also have been considered, such as training outside the home farm, his wife's collaboration, his formal education, the number of years he had operated his farm, and so on. However, the inclusion of so many explanatory variables could easily have reduced the surveyability of the material, and their number was therefore limited to the three variables stated.

In order to map such mental characteristics as may be thought to be connected with the ability of the entreprenur *viz-à-viz* progressive measures, a schedule with ten qualities similar, in the main, to the one used for vocational guidance in Switzerland (Table) was employed after certain alterations. This schedule was chosen after consultation with the late Dr. Aarre Tuompo, Professor of Psychology at the Finnish School of Social Sciences.

As appears from the schedule in the table, the evaluation of every quality was given five points of excellence in accordance with a graduated scale, depending on how strongly, in a positive sense, the quality in question manifested itself. In the final treatment of the material the point evaluation was carried out in such a way when the quality in question manifested itself strongest in a positive sense, the number of points given was 5; in the next grade, 4, and so forth, and in the last grade, 1. The highest number of points for a person evaluated came to 50 and the minimum to 10. Ability was thus expressed as a sum of mental points.

The evaluation of the mental ability was performed by the respective adviser in farm management, who can be considered to be best qualified to do so. It cannot be denied, however, that a certain bias may influence such a score-rating of mental abilities. The evaluater may be misled into gauging them on the basis of the results attained. To eliminate such a bias so far as possible, the evaluation was made before completion of the investigation and the advisers were expressly cautioned not to allow themselves to be influenced by the progress made or not made. Another bias may have arisen from the fact that the evaluation was performed by two different persons as there were two farm management advisers.

When one aim was to evaluated the effect of farm planning and the other the individual advisory services, it was not enough merely to note the possible technical and economic changes on those farms for which plans were carried out, since it could be argued that the development on farms in general might have been similar; the changes could have indicated development in general rather than an effect of planning. In order that a clearer idea might be obtained of the significance of planning and indi-

Power of comprehension (comprehension of observations and instructions)	Understands new matters quickly and surely	Understands well what is explained do him	Matters must be clearly explained to him	Often understands explanations only partially or wrongly	Difficulties in understanding matters
Thinking ability (ability to place images, ideas, observations and matters in logical sequence)	Thinks quickly and logically in all his activities, thinks for himself, resourceful	Thinks practically and purposefully	Thinks calmly in all situations; sound peasant sense	Thinks along old customary lines, not independently	Often thoughtless, superficial, careless
Memory (remembering and recalling what has been learned and experienced)	Exceptionally good memory, is glad to study and interested in it	Remembers important matters well	Matters must be thoroughly committed to memory	Efforts in trying to remember matters	Forgetful
Attentiveness (exact remembrance of occurrences and matters and guidance thereby)	Permits nothing to pass him by, does everything concentratedly	Confines himself to matter in hand	Potters	Unable to concentrate for long time	Absent minded, is quickly sated
Self-esteem	Self-assured, has power of self-criticism	Assured and upright	Loyal, composed	Uncritical, uncertain, inferiority complex	Cannot restrain himself, unreliable, arrogant
Will	Determined, effort to overcome difficulties	Diligent and persevering also in lengthy efforts	Willing and obedient	Is easily satisfied, longs for change	Vacillating character, ease-loving, easily influenced
Initiative	Independent and resourceful at all times	Often suggests good ideas	Emulates rather than present own ideas	In need of encouragement	Never makes suggestions, not independent
Reliability	Aware of his responsibility	Thorough	Must now and then be kept under observation	Not always conscientious	Superficial, unreliable
Work pace	Quick and flexible	Good	Dutiful	Rather slow	Slow and apathetic
Attitude towards mistakes made	Corrects and independently learns from his mistakes	Admits and learns from mistakes pointed out to him	Takes care not to repeat mistakes pointed out in to him	Makes excuses for his mistakes	Indifferent, repetition of same mistakes

vidual advisory services, the technical and economic changes on the study farms were compared with corresponding changes on account-keeping farms in the same size category and the same region but on which a systematic planning activity was not implemented. They were called control farms.

The investigation comprised, as already mentioned, 5 fiscal years. The study farms were regionally divided into two sub-groups, comprising 41 farms in south Finland and 16 farms in Ostrobothnia in the west central region of Finland.

The number of control farms in south Finland was 75 and in Ostrobothnia 29.

An examination of the economic progress, whether on a basis of the total net income, the net farm income or the coefficient of profitableness,

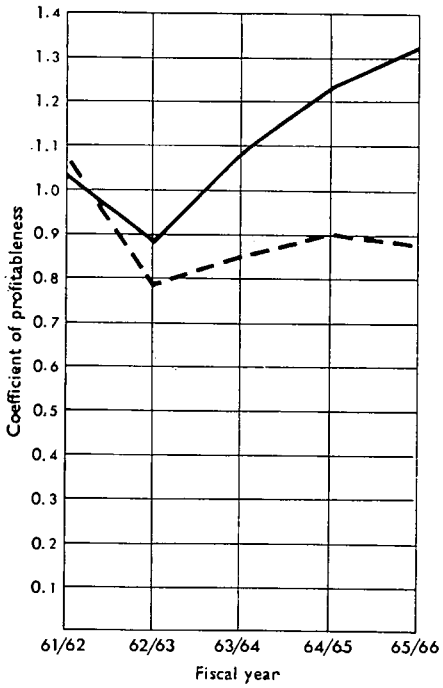

Fig. 1. The economic development on average on study farms vs. control farms in the south Finland region. ———— Study farm group, — — — — control farm group.

revealed that a marked successive improvement of profitability had taken place in the study farm groups but no corresponding development was seen in the control farm groups (see also Figs. 1 and 2). The last years of the investigation period were characterized by a highly significant difference between the study and control of farm groups in south Finland.

Net farm income is defined as gross receipts plus any increase in

inventory and the value of farm products used in the home and for hired labour, less the cash expanses, any decrease in inventory, and depreciation but not interest, rent and family labour. Net farm income therefore consists of the results from the input of capital and the entrepreneur's and his family's labour. Only agriculture is taken into account. The net farm income therefore shows how great a sum remains as remuneration for the labour input in agriculture of the farm entrepreneur and his family, and for agriculture of the farm entrepreneur and his family, and for interest on capital.

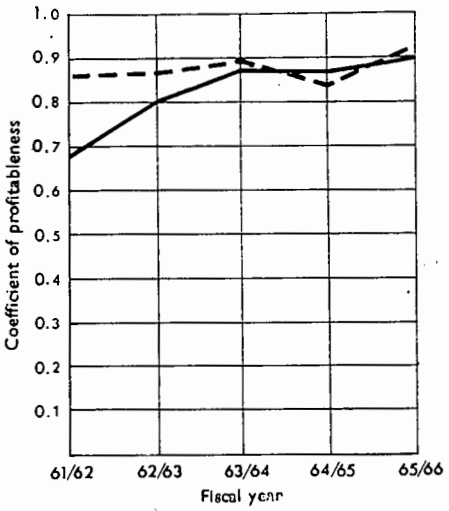

Fig. 2. The development an average on study farms vs. control farms in the Ostrobothnia region. ——— Study farm group, — — — — control farm group.

When the net farm income is divided by an amount which is made up of the interest calculated according to a normal interest rate for invested capital and of the value of the labour input of the entrepreneur and his family calculated at the normal rate for hired labour, the coefficient obtained shows whether the actual remuneration exceeds or falls below that which is considered normal.

This concept expressed in index figures, called the *coefficient of profitableness* is accordingly obtained from the following expression:

$$\text{Coefficient of profitableness} = \frac{\text{Net farm income}}{\text{Imputed interest} + \text{imputed value of entrepreneur's and family's labour}}$$

The development of the coefficient of profitableness during the period of investigation thus shows the development of economic progress.

Both net farm income and the coefficient of profitableness refer to agriculture proper.

Since it becomes increasingly evident that the economic goal-setting of the farm entrepreneur should not be limited to agriculture alone but should also include forestry and extras, a third expression for profitableness was used, i.e. the *total net income.*

This total net income was calculated by adding to the net farm income the similarly calculated net forest income plus net income from off-farm work.

The pattern of evaluation of the importance of farm planning by the farmers is to a large degree allied with their individual manner of reasoning, deliberation and decision-making as entrepreneurs. The mental ability of the entrepreneurs plays a conclusive role in this respect.

The x^2-values indicated that in seeking to improve the economic result the farmers in the lower mental ability group as well as the farmers without theoretical vocational education aimed in the first place at an increased yield per hectare and/or per livestock unit, while farmers with a theoretical vocational education and those in the higher mental ability group had as their immediate guiding line the financial net result. The differences were closest to the criterion of a significance level of $P = 0.10$. With respect to the influence of age on the goal-setting the picture was indefinite.

When interpreting the influence of the three entrepreneurial variables on the evaluation pattern the following hypotheses were formulated.

Hypothesis 1

Since planning done with the object of forming a functional unit out of separate elemental parts is abstract in nature and consists of synthetizations, entrepreneurs with an aptitude for deducation and abstract deliberation find it relatively easy to associate themselves with business planning procedures. This would indicate that it is chiefly the younger entrepreneurs, and entrepreneurs with theoretical vocational education, as well as superior managers, who are better able to comprehend the business planning procedure.

When the x^2-values were calculated by assembling into one group all the respondents who had reported difficulties (either considerable or slight), the difference between the group reporting difficulties and the group which experienced none was not found to be significant with respect to any of the entrepreneurial variables.

Hypothesis 2

The benefit obtained from farm planning becomes evident in that deficiences are discovered in the operation of the farm firm and new

ideas are formulated for future managerial operations, at the same time as the planning procedure stimulates and strengthens the ability for logical thinking in economic matters. The items first mentioned, viz. deficiencies, were given greater importance by the more inductively minded entrepreneurs, while ideas and logical thinking played a relatively greater role for the more deductively minded entrepreneurs. Consequently the younger entrepreneurs, entrepreneur with theoretical vocational education, and entrepreneurs of higher mental ability placed less importance upon items of mainly analytical nature in the individual advisory services and farm planning, and greater importance upon items of mainly synthetic nature, than did the older entrepreneurs and those without such training, and those of lower mental ability.

The formulated hypothesis was consistent with the data used.

Hypothesis 3

Ceteris paribus the entrepreneurs of higher mental ability and better theoretical vocational education are better able than are those of lower mental ability and poorer vocational education to adjust their production to possible risks which can be predicted with a certain degree of probability. Concequently they consider risk factors less important than uncertainty factors.

A x^2-test of the correctness of the hypothesis, however, revealed no significant differences in the influence of the three entrepreneurial variables on the evaluation pattern. It therefore did not prove possible within the scope of the investigation to verify empirically the correctness of this hypothesis.

Hypothesis 4

As is well known, one of the most important rationalization measures in agriculture today aims at an increase of the farm size. Obviously the possibilities for such an increase depend to an extent on the local availability of land and are therefore, from the farm entrepreneur's point of view, governed in part by chance. An hypothesis can of course be formulated that *ceteris paribus* the younger entrepreneurs, superior entrepreneurs and entrepreneurs with better vocational education are more alert and possess a great comprehension of, and a more consistent striving towards, area increase than do entrepreneurs of the opposite categories. The same would apply also to the tendency to reduce the labour input, which stands out an important rationalization measure provided alternative employment is available.

The research revealed a statistically significant difference with respect

to mental ability. Entrepreneurs with higher mental ability had clearly increased their land property more than had those of lower mental ability.

Hypothesis 5

As mentioned previously the hypothesis was formulated that entrepreneurs with an aptitude for deduction and abstract deliberation find it easier to associate themselves with business planning procedure. This implies that in the main younger entrepreneurs with theoretical vocational education as well as superior entrepreneurs are better able to comprehend the business planning procedure. Consequently the effect of farm planning, *ceteris paribus*, should be more clearly evident in these categories than in the others.

The calculated trend values gave no definite evidence in support of the supposition that farm planning would have brought a more clearly apparent improvement in profitableness in the case of younger entrepreneurs than of older ones, although there was some indication that this was so. Nor was it found that the influence of farm planning in the differents sub-groups of mental ability or vocational education would have shown differences of such extent as to be statistically significant.

It is hazardous to postulate the reasons why the empirical data did not appear to verify the hypothesis formulated hereabove. More detailed investigations into the subject are evidently called for. One reason may possibly lie in the fact that profitableness at the initial stage was lower in the sub-groups with low entrepreneurial variables. The results within the framework of the same investigation indicated that the effect of individual advisory services on economic progress appeared to be more marked when the profitableness at the initial stage was comparatively low.

On the other hand, when examining the impact of the entrepreneurial variables in the south Finland study vs. the control farm group, there was a certain indication that the younger entrepreneurs, entrepreneurs in the better ability sub-group as well as entrepreneur with theoretical vocational education profited more from farm planning than did the opposite sub-groups.

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