

DEVELOPMENT OF AGRICULTURE AND FARM TYPOLOGY A NEW ANALYTICAL  
CONCEPTION OF THE ECONOMY

J. BROSSIER \*

It may seem strange to associate development farm typology and decision theory of the farmers in the same title. Nevertheless through this association certain failures of the agricultural development could be explained. Certain difficulties of definition may occur and I will do my best to specify the concepts I use but I would like to state at the outset that my paper will be constricted a certain proper conception of economic analysis, more than a review of present theories on the problem.

One of the essential facts in French agriculture of recent years is the part played by farm organizations in the development. One of the most outstanding French specialists, P. Houee, affirms that development can be defined as "all transformations introduced by a scientific spirit to the organization of production and living" (Houee 1972). In this somewhat ambiguous terms, the main characteristics of farm development can be found. On one hand projects and technocratic programs, scientific reasoning often comes down to this, and on the other hand the ideas of a "project of civilization" a "questioning of domination relationships" and "claims for a more democratic society." The keywords are: industrialization, spreading and adoption of technical progress well being of man all farmers and their families. These general ideas can be resumed: development should help farmers to make adequate decisions. But the key words also contain precise actions which sometimes go against these very ideas.

What is an adequate decision? Who is to judge it and how? Redoubtable questions for the economic science. Hence development conceived as the spreading of technical progress is based on the decision theory. Innovation must "go down the channels": research discovers it, extension work spreads it, the farmer applies it as though it were a simple recipe. And yet, it is well known that the different development organizations only touch a small number of farmers. It seems to me this failure is due to flaw in the decision theory. It seems in particular hardly possible to study decisions from the only point of view of "How much should be produced and how," disregarding "who produces" and rejecting here the idea of the "anonymous reactor" repressed by MACHLUP (1967). The problems which is set forth here is that of controlling individual and collective action.

---

\* INRA - Dijon, France.

Concretely, the farm typology will be used to elucidate development models. Certain insufficiencies in the understanding of the theory have led us to propose new elements to the decision theory which I refer to as my analytical conception of the economy. The theory will be illustrated by a farm classification which takes their relationships with development bodies into account. I thus hope to contribute to improve development actions.

#### -I- Farm typologies and development.

All classifications specifically reveals the finality of economic action as it discloses the implicit conceptions which command action (FOURNOUT 1972). Farm typologies are not organically connected with development but most authors refer to it both economists like BENEDICT (1944), WELSH-MOORE (1965), BUBLLOT (1969), CARLES-TERTIAN (1972), SEBILLOTE-VLADYSLAV (1974), PETRY (1974), statisticians GREINER (1970), DESELAERS (1974), Lenco (1974) and geographers like BONNAMOUR et al. (1974). There exists an abundant literature on this subject but I have no intention to make a review or to propose a more elaborate one. Indeed, I agree with GUTELMAN's statement "farm typologies are abundant, each researcher wanting to make his own classification. However, their very number shows their inability to account for the essential object they are supposed to describe and classify."

It should first be stated that no objective scientific typology can possibly be elaborated that suits every purpose. No perfect typology even based on mathematical and statistical models (factor analysis for instance) can grasp the socio-economic reality. The idea of a typology constructed without a priori, conceptions must also be dismissed. These conceptions are not always clear or even conscious but they are always present if only in the definition of variables. These underlying ideas do not always form a complete theory but they certainly make up the grounds of one.

The typologies can be classified by the purposes they are supposed to serve and by the criterions or variables they use i.e. the theories they apply.

##### (a) Purposes

BENEDICT (1944) sees a typology as "the definition of a small number of simple groups having significant differences at the level of characteristics and behavior of the farmers, in order to know and understand the problems of each group and to represent realistically the main groups of farms for the purpose of elaborating governmental plans and their legal and administrative application." For Lenco (1974)

the typology is a tool for extension and development, an instrument of projection and forecasting, a tool for supply analysis.

Whichever definitions have been used, from homogeneity to simplicity, the key word seems to be efficiency. The typologies have to be operational in order to serve the action of farm organizations or of the state, in short they should be a tool for the development of agriculture.

(b) Criteria, variables and underlying theories

The typologies are usually based on a fundamental assumption of the theory of the firm. In the intermediate run, the farmer's production decisions depend on his fixed factors, on the technical level and on the pricing system. As the last two variables are often considered as exogenous by approximation, the classification defining the structure of the firm is based on the analysis of fixed assets. This structure consists of three elements: land, labour and capital. The last one being too difficult to grasp, the first two elements and especially land are the main factors for the classifications (land use for example). Besides, this assumption according to which fixed assets are the main factors for determining individual supply leads to classifications either according to the value of sales (USA) or the composition of gross products (economical-technical-orientations of the EEC).

The use of typologies in order to improve development targets and actions meets with several difficulties. Certain variables that are to be analysed (adoption of technical progress, productivity, income level...) are often badly related to the variables supposed to explain them (fixed assets). Studies carried out in several areas (INRA-ENSSAA 1974, BROSSIER 1974) have confirmed what most specialists know: the crop system does not depend to a great extent on the size. On the other hand, there is often a great disparity between technical results and incomes. It is true that an increasing trend can be noted when the size expands, but the disparities are too great. FAUDRY (1974) has shown that "productivity evolves independently of the main characteristics of the farms."

Examples of the inadequacy of present typologies to take into account the differences in the evolution dynamics of the farms are manifold. Thus, there are three groups to classify development obtained by shrinkage: "developed," "developing" and "undeveloped," practically without economic future. It is too simple to understand the reality.

In my opinion these relative failures, whether they concern development or typologies are connected with gaps in the theory of economic behavior, i.e. the decision theory.

- II - Contribution to a renewal of the theory of economic behavior of farmers. Towards an analytical conception of the farm economic (a)

How do farmers make their decisions? The answer may seem naive, even common place; farmers make their decisions in accordance with their projects and their situation. I will develop this point by presenting my fundamental assumptions.

(a) The postulate of rationality

In order to understand, if not explain, past and present decisions and to foresee future reactions to changes in the farmer's environment, one postulate is fundamental: rationality.

Any action can be explained by reference to explicit or implicit objectives and so a situation as it is perceived consciously or unconsciously. This postulate, essential in the comprehending of human behavior does not interpret either the nature of these objectives or the means of controlling the logic it only assumes its presence. It's a postulate for analysing purposes, i.e. the economic interpretation of action. Evidently, this comprehending of behavior depends on the person who carries it out and on the purpose for which it is done.

The assumption that each individual reasons logically according to his own vision of his projects and of his environment seems more adequate and more strict than the assumption that farmers make their decisions for non economic reasons i.e. irrationally (a). The assumption demands a deeper analysis.

(b) Assumptions on the relationships between action and representation on the bases of concepts of projects and situations.

Action is always built on representations of the past and the present (situation) and of the future (projects-objectives). The knowledge of the nature and place of this project in a specific situation can explain decisions made by an individual or a group of persons. The project

(a) See also FOURNOUT (1972), BROSSIER (1973, 1974) PETIT (1975).

(a) Such a postulate is not absurd in it self. The only relevant question is their different analysing capacities. Has the so-called irrational behavior been correctly understood? Where is the limit between economic and non economic?

forms a whole, coherent but also containing internal tensions, objectives and desires, more or less classified by preference, sometimes unconscious and subject to evolution. The concept of project covers a vision where the adaptability is a set of constraints to which the farmer is submitted or believes he is. In reality, there exists an objective situation i.e. independant of the farmer's representation of it, which can hardly be perfectly known as no situation can be comprehended without representation, but the very knowledge of its existence brings about the search for it which has a positive influence on the project.

It is often difficult to separate objectives from constraints, no doubt because there is always a scale of preference for the objectives and an objective can also be a constraint (sometimes called "internal contradiction") for another objective. A farmer who wants one of his children to take over the farm sends them to University thus may be preventing their return to agriculture. The boundaries are hardly more precise between social and moral norms; they can be considered either as constraints for an objective or as objectives in themselves.

(c) Relationships between research and action: assumptions of the importance of analysis in the permanent education.

In considering his own situation, the economic agent is likely to improve his capacity to formulate and to realize his project of action. The deliberation means to push back the limits of the conscient part i.e. to consider his own long term objectives and to realize the possibilities of his project. This analytical proceeding which is similar to that of the researcher corresponds to the analytical conception of the economy.

There exists no known model, universally applicable to every situation and to every project. This assumption is based on the fact that in the field of action control, the state of knowledge is not satisfactory to support theories, models or norms of behavior.

The tools necessary for the carrying out of a project can only be investigated and interpreted by the author of the project into elf (a).

d) Analytical proceeding and framework for these assumptions.

This economic analysis requires a framework. The following diagram presents examples of production decisions on a farm. The situation is represented in three sub-groups of constraints according to the possible actions of the farmer and his family. The table can give examples both of individual and collective actions.

	Examples	Actions (examples)
a) Factors not liable to change in short or long run	<ul style="list-style-type: none"> <li>- Climate</li> <li>- farm lay-out</li> <li>- irrigation system</li> <li>- farm prices</li> <li>- supply</li> <li>- marketing</li> </ul>	Improvement of farm valley lay-out cooperatives, producers' associations, lobbying demonstrations.
b) Factors not liable to immediate change without modification of environment by farmer him-self	<ul style="list-style-type: none"> <li>- land extention</li> <li>-vocational training</li> <li>- farm buildings</li> <li>- household equipment.</li> </ul>	Collective actions as those under (a) Individual action corresponding to long term investissements.
c) Factors under the control of the farmer and easily changed	Purchase of inputs as fertilizers, seeds etc...	Individual actions, purchase of factors concerned.

- III - Towards a typology of the relationships between farmers and development institutions

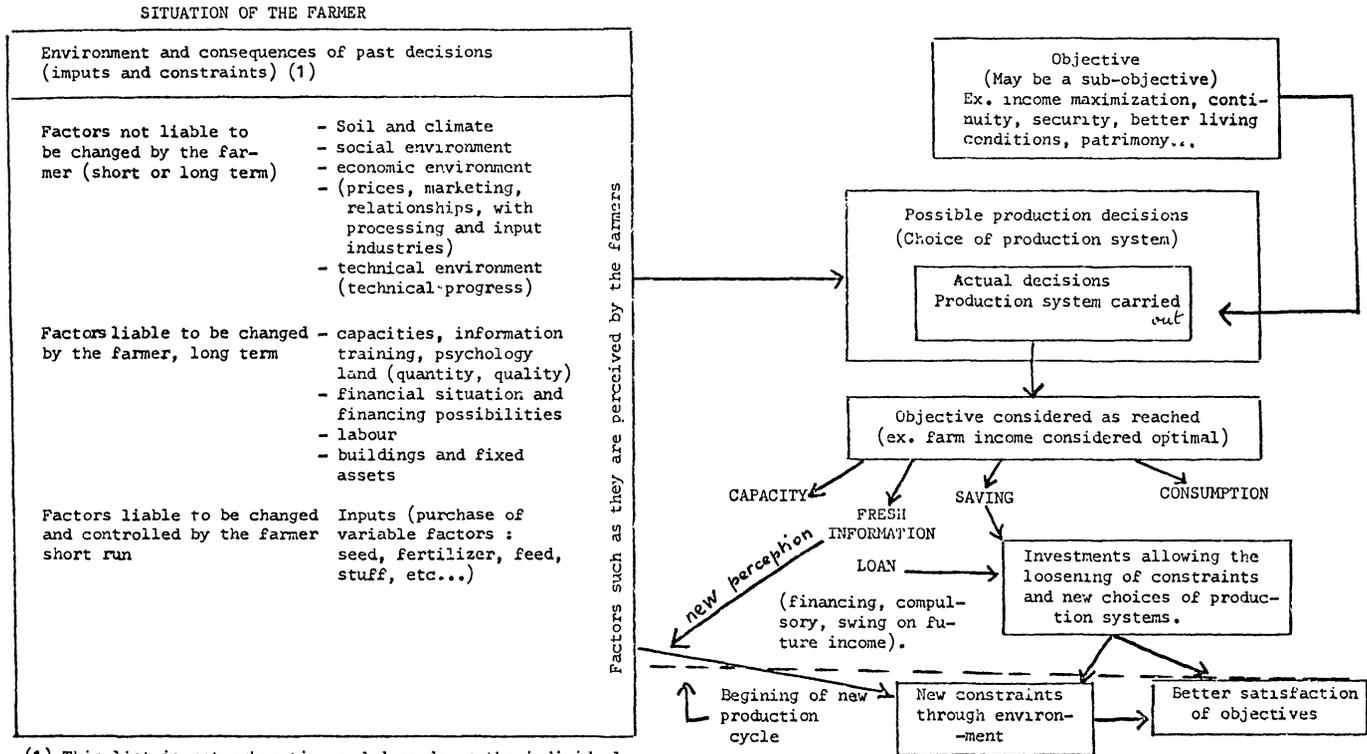
Development institutions (a) of course have precise economic functions: credit, input supply, marketing; by direct intervention, the institutions themselves can loosen certain constraints for some groups of farmers. They thus contribute to preventing other farmers to reach their objectives.

The results of two studies made in France by research teams (see references) in homogenous areas: the heterogeneity of technical results, of specialization and of incomes can be explained by the long term strategy of the farmer and his families. This strategy appears in a certain nombre of characteristics (prospects of succession, land, prospects, projects, attitudes on the labor market). In the different areas, the farms were classified according to these criterions. Other aspects were also

- (a) Development institutions are understood here in its broadest sense including farm credit institutions, cooperation, farmers' national unions and other farm organizations.

DIAGRAM I : Analytical framework for farmers' decisions.

205



(1) This list is not exhaustive and depends on the individual case. The factors are interdependent. Those of the third group depend on those of the second group.

clarified by the classification such as the situation of the farmer, his living conditions, his past decisions etc... Future decisions could thus be anticipated. At last, it puts light on the relations with development institutions. On the following table, the groups and their relations these organisms are indicated.

So young married farmers, with young children (group E 1) seem to search the carrying out of a good work tool, i.e. the control of a surface big enough rented if possible or eventually by ownership (these farmers are, thus, relations with french organism - SAFER - which bus and sales land). To improve their income, these farmers take care very well of their milk cows and join the milk control extension service.

On the contrary, for the aged farmers without successor (group F) which a diminishing work vigour, the main target is to reduce the quantity of worked days, to defend the income small already, even by a progressive liquidation of the landed estate. For these, the technical results are weak and the relations with the present supply of the development institutions almost non existent. Furthermore, these two groups of farmers (E1 et F) in the same area can be at strife.

So it is remarked that the extension services of agricultural development institution do only reach some groups; in our typologies, alone the groups B farms association and D 2 farms with land improvement (i.e.) a little bit more than 20 percent of all the farmers.

#### - IV - Conclusions to throw a light on the extension services actions (development)

If the farmer is rational, it is necessary to know "his good reasons" before giving any advice. Our proposal is an action like a permanent education. This is different of the opinion according to that all farmers are like and that it is adequate to apply to them the same model and the same spreading of technical progress, but connects the advisers' experience. If the farmers' decisions depend on their situation, specially familial, the advices cannot only attend the technical, book-keeping and financial aspects of the firm.

If "the development must reach a bigger proportion of farmers" following the desire of many instances, it is necessary to largely diversify the supplied services. We agree with Marcellin's view: "The development is not a final target for itself even it if is a need. On the contrary, the education for the mind-autonomy in the mechanical world is a good final objective" (Marcellin 1974).

The farmers' groups and their relations with  
the main development institutions.  
(Level of relations)

Number of farmers by group	Development institutions Farmers' groups	Official extension services		Land problems	Milk Control	Farm Credit	Cooperation	Private sector agri business
		Management service	agricultural advisers					
16	A - Bachelors	No	very weak	no	no	very weak	very weak	weak
10	B - Father-son association	Yes	Yes	variable	variable	variable	variable	variable
15	C - Large size exploitations (a)	weak	no	weak	no	weak	weak	strong
18	D <sub>1</sub> - Farms with land improvement (surface ≤ 25 ha)	weak	no	yes	yes	Strong	Strong	weak
19	D <sub>2</sub> - Farms with land improvement (surface > 25 ha)	Yes	Yes	Yes	yes	Strong	weak	weak
10	E <sub>1</sub> - Farms with young children (without land improvement)	No	very weak	Yes (potential)	yes	(potential)	weak	very weak
9	E <sub>2</sub> - Farms with successor (without land improvement)	weak	very weak	Yes (potential)	no	weak	weak	weak
10	F - Other farms (aged farmers without successor)	no	very weak	very weak	no	very weak	no	very weak

Source : survey among 100 farmers in 1965 and 1973 (BROSSIER 1974).

(a) In this area, large size farms correspond about to 40 ha.

Note : The boundaries between the group are not rigid. In our point of view, the exhaustivity and the permanence of the group are not important.

It will not be possible to understand the interest conflicts which are normal, desirable and inevitable if this explicitation-work of the projects is not made. Following his projects and situation, a farmer will not have the same motivations to consider a commun working for the silage, a action or regrouping of land, a valley lay-out... By the diversity of the situations in the same area, the farmers are some interests different, sometimes divergent and conflictual with regard to these actions. The acknowledgement of the conflicts are a progress. Thus, it is indispensable to take into account this diversity to adapt the actions of the extension-services.

Nothing is more dangerous and more misleading, with this respect, to present the development actions (spreading of technical progress for example) like neutral, objective, indiscutable. Indeed these actions, "objectively," are partial to such a group of farmers. Our proposal is an effort of political, economic and social transparency. But, if this transparency is a desire and even a project, it is not possible without some precautions. The collective analysis effort of the projects and situation, i.e. permanent education, is the necessary condition to have a socially efficient resolution of the conflicts and contradictions.

## REFERENCES

- BENEDICT et al. 1944 - Need for a new classification of farms, Journal of Farm Economics n° 26, 4, pp. 694-708
- BONNAMOUR (J.) GILLETTE (C.) GUERMOND (Y.)  
1971 (1) Typologie des systemes d'exploitations agricoles utilises en France. Essai methodologies - Annales de geographie n° 438 Mars-Avril, pp. 144-166.
- BROSSIER J. 1973 - Un essai de liaison entre la recherche, la formation et l'action a partir de l'analyse des decisions economiques des agriculteurs.
- BROSSIER J. 1974 - Projets et situations des agriculteurs. Evolution d'exploitations agricoles du Choletais 1965-1973 INRA-ENSSAA Dijon - Doc. de recherches n°9.
- BUBLLOT G. 1969 - Une typologie des exploitations agricoles peut-elle etre presentee - Economie politique - Mars, Avril 1969, pp. 416-463.
- CARLES, TERTIAN 1972 - A propos de la classification economique europeenne des exploitations agricoles - BTI n° 266 - Janv. 1972 pp. 59-72.
- DESELAERS (N.) 1973 - New farm classification in the Federal Republic of Germany European review of agricultural economics 1 (4) pp. 447-460.
- FAUDRY (D.) 1974 - Les differences de productivite dans l'agriculture - Elements d'une typologie des exploitations - Economie rurale n° 101, pp. 25-33.
- FOURNOUT (J.) 1972 - Vers une economie analytique: reflexions critique. Annals de Min Oct 72. pp. 63-82.
- GREINER (P.) 1970 - Classification des exploitations agricoles suivant leur chiffre d'affaire - Economie et statistique n° 17, Nov. 70, pp. 57-61.
- GUTELMAN (M.) 1971 - Description des structures agraires et formalisation des rapports sociaux en agriculture - Etudes rurales n° 41 - Janvier, Mars, pp. 15-48
- HOUÉE (P.) 1972 - Les etapes du developpement rural, Paris, Ed. ouvrieres, 2 volumes 191 + 295 p. tabl. annexes.

- LENCO (M.) 1973 - Etablissement d'une typologie objective des exploitations agricoles francaises, Statistiques agricoles, n° 116, 319 p.
- MACHLUP 1967 - Theories of the firm; marginalist behavioral, managerial American Economic Review - Mars 1967 n° 1, pp. 1-32
- MARCELLIN (M.) 1974 - Tendances de la vulgarisation dans les pays europeens Economie rurale n° 101, pp. 39-43.
- PETIT (M.) 1975 (1) Adoption des innovations techniques par les agriculteurs. Plaidoyer pour un renouvellement de la theorie economique de la decision revue POUR n° 40.
- SEBILLOTTE (J.) VLADYSLAV (G.) 1972 - L'analyse des structures des exploitations agricoles. Etat d'une recherche appliquee en vue de l'action - Economie rurale n° 31 J.M. 1972, pp. 53-78.
- WELSH (de), MOORE (D.S.) 1965 - Problems and limitations to criteria used for economic classification of farms - Journal of Farm Economics - vol. n° 47, n°5, 65 p. 1555-1564
- Equipe INRA-ENSSAA - Conditions du choix des techniques de production et evolution des exploitations agricoles, region de Rambervillers - INRA-SEI 1974.