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Impacts of the social-economic change of regime on the production management of the forest management unit and of the forest range

The main points of the theses

Objective

Organizations appropriate to the given social age are managing the goods and services of forest. The different economic organizations perform their activities by means of various leading forms. Therefore it is necessary to analyse the activity of production management of the organizations managing forests and to draw forwarding conclusion from the analysis, that in accordance with social demands a more rational management can be realized with the available narrow resources.

The economic units execute their tasks of production management always with some kind of methods.

After the 1990 change of regime, important transformations took place on the result of the social-economic changes. These transformations have made a radical alteration in the former state forest organization. The owner of the state forests is the Prime Ministerial Office /MEH/, on the basis of which the Treasury Property Holding Office **gave** the state forests **for temporary property treatment** to the state joint-stock companies formed from the state forest and wood processing companies.

The forest management units and forest ranges of the joint-stock companies, as organizations executing production, underwent a considerable change too. A part of their existent contractual workers became entrepreneur and their other part looked for work elsewhere. The mentioned organizations have gradually sold their means of production. **They got entrepreneurs to carry out their tasks.**

The former forest management unit as organization composed of four or three plus one persons is continuously changed **into an organization of two or one plus one persons.**

In my work I have set myself a target to examine impacts of the social-economic change of regime on the production management of forest management unit and of forest range in order to outline the forwarding image.

In the established new guying form the state as owner is able to enforce the special demands of society /e.g. recreation, relaxation, tourism, aesthetic and nature conservation, education, sports, landscape protection, etc./ in the forest land areas owned by it.

The research and applied methods

During the research work I have turned increased attention to the structure, functions of the organization and to the conduct of persons operating the organization. In the course of the

examinations I have emphasized the empirical, well applicable methods of several directions.

In terms of the branches of silviculture and of tree harvesting work I have carried out the task in nine forest management units and twenty six forest range of three joint-stock companies. In a forest joint-stock company pertaining to the Ministry of Defence /HM/ also I have obtained data on the level of deputy director general responsible for production. The method of production management founded there was the reason for that. The basis joint-stock companies of the researches were constituted by the Forest and Wood Processing Joint-Stock Company of Balatonfelvidék, the Forest and Wood Processing Joint-Stock Company of Kiskunság and the Park Forest Joint-Stock Company of Pilis with the previous consent of the Hungarian Privatisation and State Holding Company, of the governing boards of affected forest joint-stock companies or of the directors general. My examinations were extended also to the privately owned forest management.

In the interest of general determinations I have explored and collected to the analysis numerous, in fact disposable and practically accessible information, typical of the organization.

In consequence of the nature for research tasks, in order to explore and weight the effect produced by the change of regime on the production management of forest management unit and forest range /analysing the activity of organization, exploring and weighting the factors influencing the production management/ also the group methods of the decision-preparing of several factors /Kindler-Tibay 1979, Tibay 1980, Papp-Tibay 1981/ have been adopted.

With their help I have explored and weighted - by the assistance of experts - the factors /reasons/ promoting the solution. From point of view of scale theory the explored factors have been weighted on scale of five degrees. Choosing the scale of five degrees is based on the Miller principles /Miller 1956/.

These methods prove to be efficient in the cases demanding creative decision preparing. When there is not agreement among the members of team in respect of problem nature and of components of the successful resolution, moreover also the knowledge of this sort of the team members are insufficient or partial, proper results can be obtained by means of these methodologies /Tibay 1980/. Adopting the methods doesn't guarantee obtaining the optimum result, but it provides always sufficient result to solving the problem. I call the attention that mistaking for causes and effects can result in drawing serious and inaccurate conclusions. Therefore on preparing the task, it is necessary to work out several prudent alternatives to structuring the problem.

In examining the impact produced by the change of regime on the production management, the effective or potential decision-makers play an indispensable role. For this reason I have deviated from the normative approaching mode. Since this prescribes, that what kind of factors must be analysed. Instead of this, involving the effective decisions-makers I have explored the factors hindering the successful activity of the branches and I have determined their weight, as well as the possibilities eliminating the factors of biggest weight.

Different methodologies of several variables are at our disposal. Among these **the factor analysis and the cluster analysis** merit attention from point of view of the objective.

In addition to analysing the data and the more simple statistical characteristics, the most important aim of organization analysis is bringing to light the relations between different factors and causal connections, as well as determining the influencing factors.

We can more profoundly explore the relations hiding behind the incidents by means of the factor analysis. Otherwise expressing, it is recognizable with their help, what kind of essential variables influence the observed incident or activity.

With regard to individuals included into analysis /in our case the objects = forest management units/, **the cluster analysis** is capable of counting **the units of basic multitude among relatively homogeneous groups** or of ranking them.

I wanted to increase the authenticity of conclusions with combining the applied quantitative and qualitative methods. On the basis of factors represented by quantitative criteria, using the quantitative methods I make an effort to explore the reasons evoking the incidents and to construe the for a long time prevailing, more profound relations.

Theses:

1. Conclusions done on the basis of the literature and of the documentation connected with the forest management unit and forest ranges

In order to use the goods of forest the prevailing social-economic configuration has established the forest organization, which has ensured meeting these demands on the technical and technological level of the given age.

The regime being in power of the given age, basing on scientific results of period has regulated the efficient working of the forest organization.

Through past centuries these units and their specialized staff came up fully to the social expectations.

The efficient, heavy duty techniques and technologies thought as up-to-date appeared in the forest production at the end of the 1960's, and this fact - *as one of the ways* -, after initial attempts, enforced the introduce of specialized production management of work place.

The specialized production management of work place stopped gradually by first half of the 1980's in consequence of the human factors, but mainly of the deficiency of material and real conditions.

The forest management units and the forest ranges, as fundamental units of the production, in addition to their fusion and modification of their names happened meanwhile, were working with unchanged scope of duties - *as another way* - to the change of regime followed in 1990.

It is imputable to the degree of supply with professionals of the state joint-stock companies, to their level for knowledge, to their guiding practices, as well as to nature regulated and structure of the organization, that the cessation of specialization has not caused more important regression in the forestry production.

2. The impact of the change of regime on the production management of forest management unit and of forest range in the silvicultural and tree harvesting branches

2/1 On joint stock company level

The change of regime happened in 1990 has radically altered the former production management. The permanent labour force has been gradually reduced. The silvicultural organization of work on forestry level has been essentially put to forest management unit level. The execution of work with entrepreneurs has considerably become cheaper. It is not necessary to provide for different allowances, such as safety means, tools, warm dinner, workers' transport etc.

The attitude oriented to profit has become primary at the forest joint-stock companies.

2/2 On forest management unit level

The greater part of workers before contracted to the forest management unit has become entrepreneur voluntarily or under constraint. The forest machines have been sold.

After the change of regime the labour organizing has been removed from forest company level to forest management unit one.

In the area of forest management units - mainly where possibilities of work are not to be found - the entrepreneurs can ensure a due number of labour forces in consequence of greater unemployment.

The environmental conditions of production have been tightened up.

2/3 On forest ranger level

The work of forest rangers has become lighter after the appearance of entrepreneurs. They don't have to recruit workers, to prepare the monthly wage accounting, to ensure different materials, protective clothing, warm food etc.

The works performed by entrepreneurs are being surveyed by the forest ranger regularly and by the technical managers from time to time. The forest rangers justify the quantity of performed work regularly and its quality occasionally.

3. Aspects of production management of the public-welfare forestry

Forest management units and forest ranges of the state forest joint-stock companies, using the available resources, make an effort to meet claims becoming evident on the part of society towards the public-welfare forestry. They ensure widely the possibilities given by the forest for the people.

The society doesn't acknowledge the value of services given by the forest or does it not in proportion to value.

In the public-welfare forestry of several owners this claim enforces the increasingly vigorous taking in consideration of the ecological points of view instead of the economic results.

4. Impacts of production management of the state forestry being aimed above all at the undertaking and proceeds

Due to tasks of the joint-stock companies a new marketing approach has taken on in the forest management units, which is cost-efficient and oriented to proceeds.

In the forest ranges the responsibility of forest rangers has been on the increase towards the planned forest management.

5. Organization development in order to carry out the aim of public-welfare forestry

The existent constitutional form of forest management unit and of forest range - among the present burdens - is equal to the public-welfare forestry.

The opening up till now towards the public has achieved its aim not in all, because the level of the PR activity left much to be desired.

6. The impact of the forest area increase occurring in private land area on the production management of state joint-stock companies

The state joint-stock companies and so the forest management units don't possess land areas being suited to forestation. For this purpose only the private land areas can have to be taken into account.

Forestry the private land areas depends on the degree of state subsidies.

7. Situation of the forest resource protection after the social-economic change of regime

The monitoring service of property and forest protection, which built up in forest management units and forest ranges of the state joint-stock companies, performs its task on a high level. The current tasks are carried out according to purpose and having regard to the local features.

8. The impact of the social-economic change of regime on employing the labour force of the region

Before the formation of joint-stock companies and following it, the forest management units have transformed one part of contracted labour force into entrepreneurs in relation of that, as their tasks and the requirements have been changed. The large supply of entrepreneur /entrepreneurs partly composed of own former workers, partly arrived from other region/ has been used to forming a steady, reliable layer of entrepreneur.

The conception of the Communal Work Council, which was aimed at employing the jobless, has been realized only to a very little extent.

9. The information and the efficient production management

In the joint-stock companies a flow of information is realized, following their activities (e.g. at the logging the quantities of felling, of skidding and of conversion into assortments, at the forest regeneration the soil preparation, the number of planted seedlings, other information connected with the works, etc.). At the same time the conditions of the efficient production management are given in the forest management units and forest rangers.

Increasing the efficiency of the production management can be solved considering more factors (using technical instruments of information - mobile telephones -, computerized data processing and analysis, etc.).

10. Causes hindering the efficient production management and their solving possibilities

Applying the methods of creative technique and drawing the specialists into the work, I have revealed and weighted the causes hindering the efficient production management of the tree harvesting and of the silviculture on forest management and forest range levels, as well as the possibilities stopping the most essential causes.

The mentioned object wanted to approach the problem sphere from a creative side.

I have solved the task by the assistance of the colleagues of Forest and Wood Processing Joint-Stock Company of Balatonfelvidék (1), of Forest and Wood Processing Joint-Stock Company of Kiskunság (3) and of Park Forest Joint-Stock Company of Pilis (2).

The most important revealed and weighted factors, which are hindering the efficient production management of the **tree harvesting**, and their simultaneous removing possibilities for joint-stock companies on **forest management unit** and **forest range** levels, are:

ad 1. the *buckering, scaling and divers burdens*

Its removing possibilities: employing of skilled buckeer and scalar, elaborating a more modern voucher system than the present one, in time and space more optimal scheduling of works, redirection of forest rangers at the expense of protective service, forming a forest dimension approaching the ideal one.

ad 2. the *external market factors* (wood prices, sales possibilities, smallness of organization, if there is not market, even if it has to follow the production, e.g. for stocking)

Its removing possibilities: beginning the market research, incitation on sale by using the marketing and advertisement methods, servicing of complete value of the market, introduction of international standards (ISO 9000, 14000), conversion into assortments in accordance with market demand.

ad 3. the *inflexible reaction of the organization to market requirements (it is the consequence of the area dimension too)*

Its removing possibilities: creating the direct material interest of the participants in process (on all levels), ensuring the telephone connection on all levels of the process, increasing the decision freedom for forest management units and forest ranges (on cost level too), excluding the "difficult" people, revealing the different wood processing possibilities.

The most important factor, which is hindering the efficient production management of the **silviculture** and its simultaneous removing possibilities for joint-stock companies on **forest management unit** and **forest range** levels, is:

ad 1. the *degree of supply with labour force and entrepreneur*

Its removing possibilities: appropriate remunerating the own workers and the entrepreneurs, as well as their material incentive, simplifying the settlements (real alteration of K-1 statement), employing a labour force of suitable skill, creating the skilled labour force with vocational training, handling the seasonal problems.

ad 2. the *amount of game stock*

Its removing possibilities: increasing the game cull, pressing for the capture of game, objective determination of the amount of game stock, habitat development (considering the shrub-storey, wild berries, browses, feeding ground management), reservation and creation of enclosures.

ad 3. the *short-term interest* (certain works don't happen, e.g. branch pruning, crown shaping at hybrid poplars).

Its removing possibilities: the quality work performed in forestation have to be shared in additional material recognition, the society have to recognize also in money the additional investments made in the interest of future, producing propagation material of higher biological value within the joint-stock companies

11. The relation system of the state owned and private forestry

The efficient cooperation of the state owned and private forestry is hindered by many factors (1. table). Removing the obstacle - if a demand arises for this from the part of the private forestry - will be possible only in the longer run considering the mutual interests and by establishing the confidence.

12. Analysing the natural indicators of the forest joint-stock companies between 1987-1999

From the 1980's to 1995 the tendency of success of the silvicultural activity for the joint-stock companies showed a positive image. Their tasks have been performed under a decreasing manual staff.

As regards the logging, the production shows a decreasing tendency. The manual labour force diminished considerably.

The technical condition of the machines operated by the entrepreneurs and the background of machine repairing make less possible the safe production.

13. The state forest joint-stock companies, forest management units and forest ranges

From 1994 the joint-stock companies - including the forest management units and forest ranges - have been meeting the expectations to an increasing extent.

For the impact of the social-economic change of regime forest ranges were wound up in several places, and the area of the remained forest ranges increased. In 2001-year 1273 forest ranges were in existence with 953 hectares average area and 63 forest ranges fell to a joint-stock company on average.

14. The place of the forest management units and of the forest ranges in production management of the forest joint-stock companies

The forest management units and forest ranges can fully carry out their tasks within the joint-stock company only then, if their legal status, the measure of their independence and their tasks are clearly determined, their constitutional structure reacts flexibly on the challenges of market, their competence of powers are cleared up, the tasks, legal status, obligations, spheres of authority and of responsibility of the chief foresters, technical managers and forest ranger are clearly and plainly defined.

I have determined the place of the forest management unit and forest range within the joint-stock companies. The tasks defined in the management plans are performed by the forest management units, **which are linearly founded on** within the framework of the **vertically** and **horizontally** structured joint-stock companies, but **they are essentially operating functionally**.

The forest management units, as economic enterprises, by virtue of their dimension, domain of activity and considerable territorial extension, display their activity in a vertically and horizontally structured constitutional system. The competence of powers of the **vertical** (central) organization covers **all activities and areas** of the joint-stock company.

The competence of powers of the **horizontal** (regional) organization covers only the touched, regionally exactly delimited operational unit.

The forest management units, as regional administrative organizations are for an economic enterprise geographically and for productive-servicing activities divided constitutional units, **which don't possess an independent legal personality**. In their area of activity **they are independently organizing and directing the production and the service**, but in accordance with central instructions.

The **forest ranges, as regional constitutional units** within the framework of forest management units, are performing the forest tasks. Consequently **they are regional constitutional units of one person, which don't possess legal independence**.

15. The factor and cluster analysis of the forest activities

They can determine with factor analysis:

1. **from the mass of data the production factors, which influence first of all the efficiency of forest plants,**
2. **the localization compared to average of certain forest management units.**

They can determine with cluster analysis:

1. **the plants belonging to the identical group, hereby it becomes possible**
2. **within the group the setting side by side in conformity with factors determined by factor analysis.**

Analysing the combined structures - such are the forest management units too - demands a complex examination. In our case at present **the factor analysis and the cluster analysis** deserve mostly attention between the applicable methods.

The advantage of using the factor analysis is, that it supposes not an "a priori", not a dependent state or causal relation, because there is no kind of distinction between the dependent and independent variables. Therefore it is unnecessary to build up a prehypothesis on the relations. The **factors applied** in examination are independent factor groups and **complex indicators** including all factors of evaluation.

The factors of evaluation are parameters registered in connection with activities of the objects.

The purpose of the method is, that the variables of analysis shall be expressed as a linear combination of such common factors, which explain the best part of the dispersion for the original variables.

But certain factors of evaluation are included with different weight (factor weight) in each factor (in factor group). The computer performs the calculation of factor weights automatically. The factors can be identified on the basis of factor weight matrix.

The **factor plot** (1. figure) makes possible **the best planar representation** of the forest management units (objects), thus the reduction of the examined factors of evaluation to two such factious factors, which give the greatest information content. On the plot a "+" sign indicates the average object. The causes of deviation can be studied on the basis of the **guide vectors in conformity with the factor** (2. figure).

The essence of **the cluster analysis** is, that the groups of the identical individuals can be produced from the "still correlating" ones of an assembly. It furnishes the basis for the same judgement of the identity, ensures the course of the additional examination, and renders help to examine and to eliminate the logical contradictions. The logical contradictions can practically be annulled on the ground, that objective factors are fixed from all objects (from forest management units) and so the factual debates can be made unambiguous. It helps to eliminate the contrarious contradictions so, that the objects belonging together according to the factors become evident.

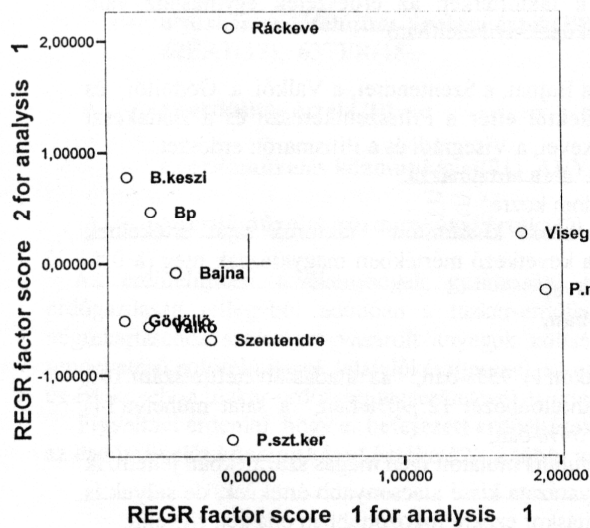
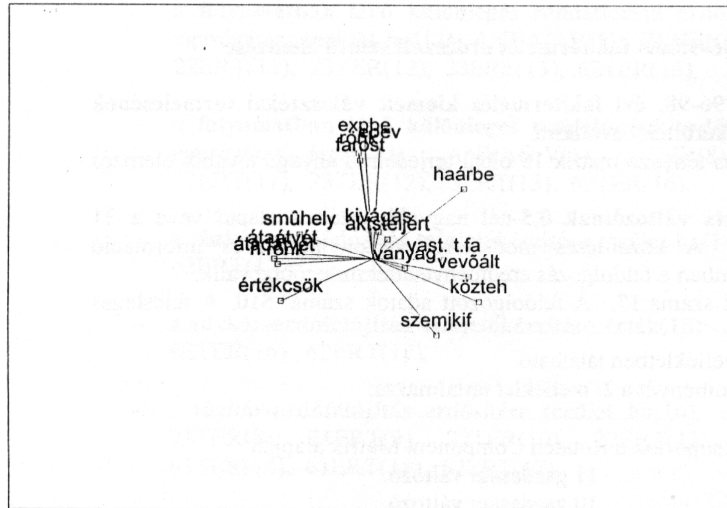
The 3. figure shows the **dendrogram** of forest management units of the joint-stock company.

I present as an example the respecting parts of the analysis of forest management unit level for the **logging** of the Park Forest Joint-Stock Company between 1996 and 1998 years..

The production factors, which influence primordially the efficiency of the forest management units, are the following:

1. Long log, 2. Log, 3. Billet, 4. Roundwood for boards, 4. Thick fuelwood, 6. Purchaser,
7. Home sales revenue, 8. Export sales revenue, 9. Capitalized own performance value, 10. Handing over - receipt settlement, 11. Other revenues, 12. Price margin of hand over - receipt,
13. Purchased material, 14. Own workshop, 15. Payments to personnel, 16. Amortization, 17. Rates and taxes.

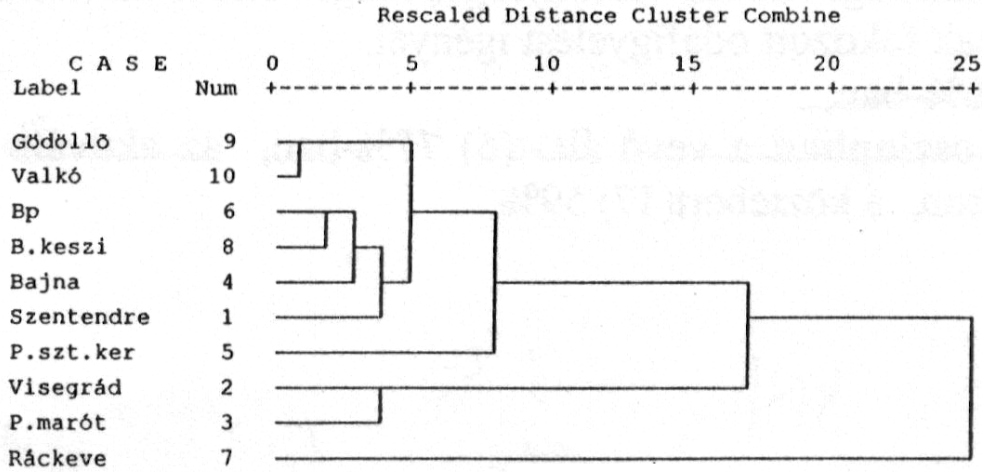
Component Plot in Rotated Space



Dendrogram

***** H I E R A R C H I C A L C L U S T E R A N A L Y S I S *****

Dendrogram using Average Linkage (Between Groups)



The factor plot is of 59 % content and of good approach.

On the basis of the production factors the Forest Management Units of Bajna, of Szentendre, of Valkó, of Gödöllő and of Budapest are of **average situation**. The Forest Management Units of Pilisszentkereszt and of Budakeszi deviate from ones of average situation. The Forest Management Units of Ráckeve, of Visegrád and of Pilismarót are of specially irregular situation.

The variables causing the deviation and their weight can be read from the figure.

The Forest Management Units of Szentendre, of Bajna and of Budakeszi fall within the same group on the basis of **cluster analysis** of the production factors. Also the Forest Management Units of Visegrád and of Pilismarót form one group. The Forest Management Units of Pilisszentkereszt and of Ráckeve are detached. Also the Forest Management Units of Gödöllő and of Valkó form a common group.

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