

## TRANSFER TO AND WITHIN EUROPE'S RURAL AREAS

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### Summary

The characteristics of the transfer of work knowledge, skills, and tools in rural areas during the second agricultural revolution are reviewed, and trends are outlined. These include changes from noncodified to codified, from horizontal to top-down, from adapted to standardized, and from rural-rural to urban-rural transfers. The consequences of the second agricultural revolution for rural areas and for transfer in such areas are considered, and the introduction of rural development policies is outlined. Transfer in different kinds and areas of rural society is discussed. It is concluded that transfer today aims to contribute to the diversification of rural areas, and to assert their unique character as a tool in their competitiveness. For areas in decline or under transition, the future of transfer lies in research or defining and capitalizing on certain specific features.

## **1. The Role and Forms of Transfer in Rural Areas in the Past**

### **1.1. The General Approach to Transfer and Transfer in Rural Areas**

Throughout time, transfer has played a key role in the development of human societies. The dissemination of tools, know-how, technologies, seeds, and so on, from one part of the globe to another has enabled civilizations to assert and consolidate themselves. This has been the case since the transfer of the first farming techniques right up to the transfer of modern industrial technologies.

With the development of towns, transfer within or toward rural society has been mainly limited to farming. By the twentieth century, this trend had become so firmly embedded that rural economic development became understood as the development of farming or forestry activities.

Advances in new agricultural technologies and their application respond to the search for enhanced performance. In addition to meeting the food needs of a growing population, the market economy is constantly forcing farmers to meet the fall in real agricultural prices and to compensate for this by increases in productivity.

### **1.2. The Second Agricultural Revolution**

This trend gathered pace throughout the twentieth century, particularly following World War II, with the transfer of agricultural technologies radically different from those known before. These concerned the use of production means of industrial origin (fertilizers, chemical substances, mechanization, and so on) and technologies developed in research institutes. European farmers and those from developed countries in general experienced an unprecedented change in farming techniques by the introduction of:

- new varieties and species with greater productivity;
- the systematic use of chemical fertilizers, herbicides, pesticides, and so on;
- mechanization at all levels;
- new buildings accommodating mechanization and mass production (especially for breeding, eggs, milking rooms, and so on);
- industrially produced animal feed.

This radical technological change in farming, called the second agricultural revolution, led to a rapid increase in returns and labor productivity levels. Hence, agricultural returns in industrialized countries increased fourfold or fivefold over the last 50 years of the twentieth century, whereas previously it took between 12 and 15 generations for returns to double, and these had probably stood still for thousands of years prior to that. The productivity of farm work has increased tenfold over a few generations.

The radical change in farming technologies gave rise to economic and social consequences, which will be studied in more detail later, namely:

- an increase in agricultural production which rapidly had to cope with limits in demand;

- a drastic reduction in the number of farm workers: the present farm workforce does not account for more than 5% of the working population in all countries of the EC in comparison with 9.3% in 1984, 37.7% in Italy in 1954, and 12.5% in Belgium in 1947;
- massive rural outmigration, a consequence of the former point, has created a demographic void in rural areas, especially in marginal areas, and a concentration of people in towns;
- concentration of agricultural production in the more productive regions and specialization between rural areas.

### **1.3. The Evolution of Transfer in Relation to Agricultural Intensification**

The second agricultural revolution and prior eras were accompanied by significant changes in the form that transfer took in rural areas:

- a) the embodied material transfer got the upper hand over the immaterial transfer of know-how;
- b) codified transfer replaced noncodified transfer;
- c) horizontal transfer was replaced by top-down transfer;
- d) imposed transfers replaced chosen transfers
- e) adapted transfer was replaced by standardized transfer;
- f) transfer within agricultural society was replaced by transfer from urban to agricultural society.

#### *a) The extension of the embodied transfer*

In the past, almost all production and technical means used in farming originated from farming itself: the use of animal traction, soil fertilization using manure or other organic waste produced on site, the production of seeds on site, and so on. As for the tools, the majority were made by local craftsmen.

It follows that transfer was above all an immaterial transfer of know-how and not an embodied material transfer in the sense of a transfer achieved by the transmission of a material object (equipment, machine, and so on). One important exception, however, concerned the transfer of new plant varieties and animal species, which was achieved by the exchange of seeds or reproducing animals between farmers or between rural communities. Furthermore, certain tools may have come from specialized centers. Archaeological research is proving that such centers existed as far back as the Stone Age (5000 BC). Nevertheless, these forms of transfer were exceptional. Transfer was essentially concerned with the spread of know-how by word of mouth through daily contact between people and through contact between rural communities.

With industrial development in the nineteenth century, particularly in the metal industry, came the first farming tools of industrial origin. From that moment on the embodied transfer assumed greater importance with the farmer having access to a new technology simply by acquiring the means of production (machines, equipment,

products, fertilizers, and so on). The first developments in agricultural mechanization at the end of the nineteenth century and beginning of the twentieth century continued in this direction.

Today, transfer in farming is generally confined to the acquisition of a material means of production.

*b) From a non-codified to a codified transfer*

The use of production means of an industrial origin consequently leads to transfer becoming the norm. By its very nature, industry must be able to sell its products in a standard manner and on a large scale. Thus, transfer is achieved in a uniform manner for a given product, which infers a codification of the transfer. This takes written form in specialized magazines, instructions, technical documentation, and so on, and oral form with the aid of sales representatives, technicians, and so on.

This new form of transfer represents a profound cultural change for a farming society that had, for thousands of years, been accustomed to noncodified transfers, spread by word or mouth or through people traveling. This last type of transfer still continues to function, and quite often certain farmers able to adapt to codified and written forms of transfer are playing the role of local innovator whereby transfer to the rest of the community is achieved directly through observation or by word of mouth.

*c) From the horizontal to the top-down transfer*

Given the considerable challenges posed by the second agricultural revolution in economic terms (as much to meet food needs as to shift surplus produce and labor), the states themselves had to intervene to accelerate its implementation against a background of competitiveness on the international market.

Hence, from the 1950s and 1960s, agricultural policies aiming to rapidly modernize agriculture, have been introduced, notably with the launch of:

- specialized research centers (development of agronomic research) developing new plant varieties and enhanced animal species, new technologies, and working together with industry to develop industrial means of production (farm machines, fertilizers, chemical substances, and so on). Furthermore, these centers have been able to monitor the evolution of farms and their capacity to adapt to technological and market changes (especially through socioeconomic research);
- a system of disseminating research findings throughout the territory;
- a whole range of technical support services for farmers, such as artificial insemination and management centers;
- financial support systems, notably the *Caisses de Crédit Agricoles* and other banks specialized in supporting farming.

These policies were introduced with the help of embryonic professional farming organizations, especially farming unions.

State intervention has strengthened the codified character of transfer by putting in place a top-down policy, standardized at the central level. Thus, agricultural services for transfer and knowledge dissemination and the different technical services were often organized on a central model and disseminated standardized knowledge through research and decision centers.

*d) From the chosen to the imposed transfer*

From a transfer that was achieved in a chosen and voluntary manner, we now have an imposed transfer. This type of transfer has become unavoidable for farmers and is encouraged by specialized bodies, the markets, and central governments:

- The farmer finds him/herself the target of technicians and sales representatives pushing him/her toward farm modernization.
- On the other hand, the downward spiral of agricultural prices is forcing farmers to take these developments on board. For example, the real price of milk (excluding inflation) has been dropping by 2% per annum for more than 40 years. This situation forces dairy farmers to modernize and to progressively increase their stock and the productivity of their cows to maintain sufficient income levels.
- Price policies are introduced by Member States to ensure that price falls adequately follow the pace at which farms are modernized. For example, the European Union's Common Agricultural Policy (CAP) supports internal market prices in relation to world market prices. This guarantees a stable income for farmers while gradually reducing the price difference with the world market as European agriculture becomes more productive.

In these circumstances, all farmers wishing to maintain income levels must undertake farm modernization. This implies considerable investment and often leads to untenable situations of debt. This situation has led certain thinkers to consider farmers as proletarians who have lost their decisionmaking autonomy.

Nevertheless, some sociological studies have shown that many farmers have refused to excessively intensify their methods. They have managed to modernize and at the same time maintain a certain traditional balance, which does not necessarily fit economic logic but meets ecological and cultural concerns.

*e) From adapted to standardized transfer*

There has been some gap between research and production in the development of transfer in farming. In the past, farmers themselves tended to experiment with changes in their production systems, and all transfers were achieved by local experimentation and adaptation. With the increase of intensive farming, dissemination and embodied transfer have often led to the application of standardized techniques that have undergone trials in specialized centers, and which can be applied by following the instructions.

This has undoubtedly created situations of insufficient control and excessive usage of certain production means, with devastating consequences on eco-systems, in particular due to the use of fertilizers and other chemical substances.

With the advance of technologies, the idea of research and development has taken hold in certain countries. Farmers themselves have taken back in hand the task of experimentation and research by grouping together to appoint agricultural engineers and technicians, without recourse to official farming support services.

f) *From transfer within agricultural society to transfer from urban to farming society*

Agricultural intensification is the result of a transfer from towns to agricultural areas, as opposed to the horizontal transfer within agricultural areas. This aspect has a strong cultural dimension that creates the image of a rural society reliant upon urban society, and lagging behind the major changes taking place.

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### **Biographical Sketches**

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