# THE CHANGING DYNAMICS OF GLOBAL AGRICULTURE

## A Seminar/Workshop on Research Policy Implications for National Agricultural Research Systems

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# Linking Agricultural Growth with Growth in Other Sectors of the Economy in a Developed Country: The Italian Experience

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## Introduction

The role and importance of agriculture in the structure of the Italian economy has changed dramatically over the last 40 years. Since the early 1950s, for the economy as a whole, and the early 1960s for the farm sector, international competition has been steadily increasing. For the farm sector, international competition came within the highly protected EC (European Community).

Regional disparities in sectoral and overall development were traditionally important in Italy and still are. Intersectoral linkages are deepening both within the food system and between the food system and the rest of the economy. Agricultural development has been strongly stimulated by the development of the urban sector, and through the labor market, the food processing industry, and increased availability of industrial inputs. Lack of agricultural development may be explained at least in part by weak industrial development and poor services.

## Agriculture in the Development of the Italian Economy: Facts and Trends over the Last 40 Years

After a long period of international isolation during the fascist regime and the second world war, Italy began decisive moves to open its economy in 1946. At the beginning of the 1950s, the foreign sector was leading Italian development. Agriculture during the entire post-war period must be looked at within the framework of an increasingly open economy.

Farm interests were not particularly in favor of trade liberalization because backward conditions made Italian agriculture poorly suited to face international competition. Part of the industrial sector was no less backward, and in fact only the relatively more advanced subsectors of Italian industry were in a condition to push for faster liberalization. Even in those subsectors, difficulties with open borders were not minor, but access to foreign markets was viewed as essential for future development. From a more global point of view, opening doors to international trade was the only long-run option for a country so poor in raw materials and energy sources, with such a strong need for modernization.

In 1951, agriculture accounted for as much as 44% of the labor force and only 23% of GNP. Labor productivity in agriculture was little more than 50% of the average economy-wide labor productivity, but some small-scale industries and services were not in a much better situation. If development with industrialization and modernization was to take place, increased imports were needed, along with increased exports to pay the import bill. Although at that time there was an intense debate about the long-run perspectives of an open versus a closed economy, now it is easy to see that "the option facing Italy was not development in a closed economy versus development in an open economy, but rather industrial development in an open economy versus no industrial development, at least initially, in a closed economy" (Graziani, 1979).

European markets were the only accessible ones, and at the same time, the new political scenario at the world level was particularly favorable to integrate Italy into Europe, both politically and economically.

Continuously expanding exports was a must for economic development, and could be attained only by focusing on products in demand on international markets. Italy, therefore, was not to specialize in products for which it already had a comparative advantage, but had rather to attain a comparative advantage in those sectors with a more dynamic demand on international markets.

Internationally dynamic markets in the 1950s, particularly in Europe, were mainly for consumer durables originating from the mechanical and chemical industries, and Italy was able to show a particularly brilliant performance in those sectors in terms of export growth, with yearly increases from 14% to 17% from 1951 to 1962.

Export-led growth of manufacturing rapidly changed the structure of the Italian economy. In only 10 years, agriculture's share in the total labor force moved from 44% to 31%, and its contribution to GNP dropped from 23% to 15%. The process was not to stop: in 1970 agriculture's shares were 18% of the total labor force and 9% of the GNP, and in 1980, these shares were 13% and 7%, respectively. In only 30 years the country had radically changed its economic structure. Labor productivity in agriculture grew at a considerably slower pace than in other sectors, and as a percentage of the average for the whole economy, it was in still only slightly higher in 1985 than it had been in 1951.

Global figures obscure the regional differences that are traditionally so important in Italy. Highly dynamic, export-oriented, modern manufacturing sectors existed in the North very early, mostly within the Turin-Milan-Bologna triangle, while agriculture and small-scale traditional manufacturing prevailed in the Center and South.

Employment in agriculture as a share of total employment was 38% in 1951 in the Center-North and 57% in the South (*Mezzogiorno*). Ten years later the figures were 27% and 44%, dropping to 14% and 31% in 1970, and 9% and 24% in 1980. In the most recent year, agricultural employment in the Mezzogiorno was still above 20%, a level passed in the Center-North 20 years earlier, in the mid-1960s. In the early 1980s, farm workers were 23% of total employment in the Center-North, and 37% in the Mezzogiorno, compared to the early 1950s.

Labor productivity shows even sharper regional differences. Value added per worker in the Mezzogiorno in the Center-North was 75% in the early 1950s, 70% at the beginning of the 1970s, and 55% in the early 1980s.

Living conditions in rural areas were not only generally poor all over the country by the end of the war, but dramatically so in many regions, particularly in the South, and to a much lesser extent in the Center and North. In a country with more than two-thirds of its farmland in hill and mountainous areas, demographic pressure had heavily contributed to creating small and very small farm holdings. Also, political conditions following the economic crisis at the end of the 1920s had prevented any smooth process of land redistribution from the extensive latifundium still prevailing in most of the Mezzogiorno, and to a lesser extent in the Center, up to and including Tuscany's Maremma. In the Center and North, while little latifundium in a proper sense was to be found, social conflicts were growing under the new democratic conditions.

Over the centuries, *mezzadria*, a particular form of share-cropping, had been particularly successful in transforming most poor hill areas in the central and northern regions into relatively prosperous farms. Production was organized at the family level, and decisions were made jointly by the sharecropper (*mezzadro*) and the landlord. Over time, the landlord had come to be less and less of an entrepreneur, and more and more a rentier, while land scarcity still allowed him to get a major share of the farm output. In the Po Valley, entrepreneurial farming based on hired workers prevailed in many situations. Workers now had new political strength to ask for better salaries and working conditions, and medium- to large-scale farmers were already in the process of mechanizing most activities, but still heavily dependent on hired labor. With few nonfarm income opportunities for people back from the war, better access to land, land redistribution, and land reform were to become major political issues as early as 1944.

Political forces on the left were pushing hard for a general, country-wide, agrarian reform, while right-wing parties were strongly opposed. Christian Democrats, the center moderate ruling party, had internal conflicts, with a wide popular based and many populist leaders favoring agrarian reform in moderate terms, and interest groups linked to landowners' entrepreneurial farming opposing it. In 1950 land-reform laws were approved for most regions in the South and Center, as well as a minor area in the most depressed Polesine at the delta of the Po River. By 1956 what was supposed to be the first step toward more general country-wide agrarian reform was completed.

Meanwhile social and economic conditions had been rapidly changing, with the industrial sector in the North booming, and peasant labor migrating mainly from the South to the North, and to Central Europe. Within the new, more optimistic economic environment, and with political equilibrium more favorable for the center-moderate ruling forces, the claim for generalized agrarian reform rapidly lost most of its strength. At the time the Treaty of Rome creating the European Economic Community (EEC) was signed in 1958, generalized agrarian reform was no longer a major political issue. In order to compete openly with some of the most advanced European agricultural economies, priorities had to be completely reformulated. Restructuring and modernizing traditional small-scale agriculture, and creating adequate market structures and organizations became the major concern as Italian agriculture entered a completely new stage.

The limited agrarian reform led to the expropriation of some 700,000 ha, affecting 10% of all holdings above 50 ha, two-thirds of those above 1000 ha, and all above 2500 ha (Marciani, 1966). Expropriated lands were initially in extremely poor condition, and a major investment was necessary to make them viable small farms, including basic land preparation, new housing, roads, and infrastructure development where in many instances there was none. Over 113,000 new small holdings were created with an average size of 5.5 ha.

Even though the expropriated land was taken from a limited portion of Italian agriculture, and the landlords were left with the best part of their holdings and were paid close to market value, it was still a deadly coup for the political power of the rentiers. Scared by the possibility of wider reform, those not willing or able to get into entrepreneurial farming sold land in a market where demand was sustained by a policy of strong subsidies for the creation or reinforcing of small-scale family farms. The aim was to transfer land to farmers through market mechanisms. The indirect effects of land reform – to promote a wider redistribution of land – were estimated to have been no smaller than the direct ones. Other subsidy programs eased access to credit, and lower fuel prices for farm use provided incentives to buy farm machinery. Together, these programs have contributed to the creation of political consensus, social stability, and economic welfare for small farms which was rarely known before.

Later, with many nonfarm income opportunities available in most regions, rural family incomes found new stability as part-time farming came to prevail.

From the point of view of efficiency, problems could not to be solved by creating or strengthening a farm structure dominated by small farms. In fact, farms created by the land reform appeared to be too small by the end of the 1950s, both in terms of cost structure and their capacity to provide an acceptable family income. Efficiency and cost issues acquired increasing importance as the country joined the European Community, and Italian farmers started to experience previously unknown international competition.

Joining the EC was clearly not an easy business for Italian agriculture. All the modernization efforts of the 1950s were largely insufficient to put Italian farmers in shape to compete with the French, Dutch, and Germans. Farm size was an important aspect, but certainly not the only one. Technologically, financially, and managerially, most Italian farmers were not in the best position to enter international competition. The problem was not completely at the farm level. Marketing and processing structures were inadequate. Comparative advantages seemed to be confined to fruits, vegetables, and wine, while disadvantages were most serious in grains, meat, and dairy products. EC protection and price supports differentiate heavily among products and also discriminate against those countries with relative advantages in the less-protected commodities. From the 1960s, Italy has increasingly become a net importer of food and farm products, largely failing to counterbalance the increasing imports of grains, meat, and dairy products with its "Mediterranean" exports of fruits, wine, and vegetables. In recent years the farm deficit has been second only to that for oil and other energy sources.

## Agricultural Labor for the Urban Sector and Industrial Inputs for Agriculture: A Difficult Exchange

At the beginning of the 1950s, Italian agriculture was still mostly based on human and animal labor, but since the beginning of the century, mechanization had made considerable progress in some areas, notably the Po Valley. But country-wide, agriculture entered the 1950s in a state of radical change, and in just two decades a deep technological transformation was completed. In the 1970s machines had already replaced most if not all animal labor, and today a horse or a donkey working on the land is little more than a picturesque detail for the tourist in most remote areas.

Mechanization spread all over the country, but substituting machines for human hands and horses was particularly difficult on steep slopes and in mountainous areas. But these were exactly the areas where the migration of rural labor was particularly intense because of poorer living conditions and lower productivity levels. Size, on the other hand, was a more general obstacle to mechanization, because small farms were often too small to use farm machinery effectively.

Where labor substitution was more difficult, following an out-migration so massive as to be called an exodus by most observers, traditional farming based on cheap labor entered a period of deep crisis. Traditional labor-intensive techniques were appropriate, although with different levels of productivity, to a wide variety of local situations. Relatively steep slopes were not a tremendous obstacle. Soil fertility could be maintained with appropriate farming techniques, and some areas were able to reach a relatively high level of prosperity in a traditional environment, using high levels of labor for farming practices as well as long-term investments to the land. In extreme cases agricultural land had to be reclaimed before it could be used for intensive farming, and many long-term efforts may still be seen in rural landscapes all over the country.

Difficulties in using machines on sloped lands are the main cause of a sharp decline in farming and rural activities in most hill and mountainous areas, but certainly not the only ones. In a broader sense, these areas, often referred to as "internal" (*aree interne*), become increasingly peripheral to the distribution of economic development. Development is a cumulative process in many senses, including spatial. Industrial plans and services are increasingly located in or near the most important urban areas, and along main communication lines and transportation corridors. Farming modernization, while so difficult in peripheral areas on slopes, is much easier in the main valleys and coastal areas. Improved technological conditions accompany better market opportunities the closer farming comes to the urban environment.

Traditional peasant economies both suffer and enjoy a certain level of isolation. Isolation is imposed by the environment and poor communications, as well as by poor market opportunities. Isolation implies that some opportunities may be lost, but it also implies that activities not competitive on broader markets may be possible to maintain locally. Typical of such an isolation-based equilibrium are highly diversified farming and nonfarming activities. The same logic applies to individual farms and the local community: diversified production makes the best use of the available labor force, and at the same time provides a better match for consumption needs.

Opening up communications exposed low productivity to competition from areas where the modernization process had been much more rapid, smooth, and successful. Nonfarm wage income flowing into the local community made it feasible to buy on the market what had previously been locally produced. And with labor flowing out through rural-urban migration, the very condition for maximum diversification in this sort of economy – abundant cheap labor – failed.

Technical change is also a cumulative process. Mechanization tends to accompany adoption of new varieties, better seeds, fertilizers, and pesticides. Innovation packages, rather than individual innovations, tend to be the rule. Constraints to mechanization in these areas impeded broader technological change. But at the same time, nonmechanical, biological, and chemical innovations were also much scarcer for hill farming and for mountainous areas, simply because innovations came from areas where farming was not done under such adverse conditions. Farm labor was becoming increasingly scarce, it was difficult to find a new technological basis for farming, and many activities simply had to be abandoned while farming became more extensive. In many cases, farming per se ceased to be a relevant activity since the increasingly small farms could not be enlarged through the purchase of small plots of land.

Land is not supposed to be only for farming: it is a place to live, to dream, to stay in the future, to dream of doing something better as a farmer in an improbable future. Migrants owning a plot of land often did not sell it even though they stopped farming. Quite often buying a piece of land became the typical investment for family savings with little alternative opportunities. In that way farming became less intensive without farm holdings becoming larger.

The limited size of farms is a general limitation for Italian agriculture. With farms too small, agricultural activities in general and mechanization in particular cannot properly minimize costs. In coastal plain areas this has tended to become the main problem. Increasing nonfarm use of land for industrial and recreational purposes and the expansion of urban areas have made good agricultural land even scarcer. But with no slope-specific obstacles to mechanization, technological change in flatlands was adopted without any particular difficulty, deeply and sometimes radically transforming the rural landscape. Crop diversification, once the rule, was sharply reduced and replaced in many cases by monoculture. Fruits and vegetables, as well as animals, had almost disappeared during the 1960s and 1970s from areas where they had once been quite common.

Since the early 1960s, agricultural development has become more and more concentrated. Extended areas in hill and mountainous regions, once a most important part of Italian agriculture, now have a relatively minor role, both in terms of output and employment. The share of total agricultural output from the flatlands was 42% in 1955, 45% in 1960, 48% in 1970, and 52% in 1982 (Fabiani, 1986). Technological bottlenecks, unequal distribution of services, and industrial development are the main factors which explain the different growth rates. With initial values set at 100 at the beginning of the 1950s, 30 years later total farm output was 200-260 in regions such as Lombardy, Emilia-Romagna, Veneto, Lazio, Abruzzo, Campania, and Puglia, with agricultural growth concentrated in flat, irrigated areas. At the other extreme, farm output was below 200 in all the other regions, and as low as 110 in Liguria, 146 in Valle d'Aosta, 168 in Calabria, and 174 in Sicily.

Average farm size in Italy is particularly small, but for a huge number of holdings, it is extremely small. Currently, people tend to refer to a 20-ha farm (which in many other European countries would be considered small) as medium-sized. The great majority of farms are even smaller, just a few hectares. Physical size is a poor indicator of economic dimension, but even when land quality and capital are considered, most Italian farms would be classed as small to very small by international comparison. Making a living for the whole family from farming alone is quite often an impossible task, and this is the reason that today more than half the farms are part-time farming operations.

Full-time farming on particularly small plots is the joint result of few nonfarm jobs and the difficulty of enlarging the farm where good agricultural land is so scarce. Under such circumstances, family farm labor tends to be relatively abundant and cheap, which in turn is the basis for intensive diversified farming. Switching to part-time farming is primarily the consequence of access to better income opportunities beyond the farm gate, without being forced to completely quit farming as an independent job. This typically occurs where an external job becomes available within a relatively short distance. But quite peculiar to the Italian experience since the 1960s, part-time farming has also become associated with long-distance commuting and even with migration abroad. Two quite different reasons help to explain such intriguing behavior:

1. Neither independent farming nor the new job alone could provide a satisfactory income for the family.

2. Since the 1950s, a very important proportion of Italian migration has been transitory, with the migrant worker leaving and coming back within 12 months in a long chain of departures and trips back home.

In the early 1970s, the proportion of repatriations following a stay abroad of less than 12 months compared with total repatriations was above 80% in Calabria and Basilicata, and above 50% in most of the southern Mezzogiorno. Migration to other European countries mostly involved only male workers, who eventually settled down again in their original village, town, or region (Gorgoni, 1980). Quite often the family stayed at home, children were raised there, and investment plans centered around a better or new house, starting a new small-scale business, or once again trying modern farming. But even when farming per se was not a goal, the small plot of land, if there was one, was not sold, and so rural-urban migration drastically reduced the availability of labor for agriculture (De Benedictis, 1980).

As the family starts getting a significant proportion of its income from nonfarm activities, producing for own consumption rapidly loses its relevance because most goods are better bought on the market. With rapidly decreasing labor availability on the farm, on the other hand, crop diversification and highly labor-intensive techniques are not the best choice any more. Instead, as extra-farm activities tend to prevail, labor becomes a scarce input even for small family farms, and mechanization increases. Production is increasingly for the market, and due to reduced farm size, specialization emerges if cost efficiency is to be attained. With scarce labor and the mechanization difficulties associated with small farms, the development of a sector selling specialized services such as soil preparation, harvesting, pesticide treatments, etc., has become important. This sector has a largely farm origin, but its diffusion is far from even; it is stronger in more advanced areas, and minimal in the more backward and peripheral ones.

## Along the Food Chain: Selling to and Buying from the Farm Sector

The opening of a massive urban market for the initially abundant farm labor is probably the most pervasive linkage between agricultural and nonagricultural growth in the Italian economy. As farm labor becomes increasingly scarce in relative terms, modernizing agriculture implies the adoption of labor-saving innovations. But in a country where good agricultural land has traditionally been scarce, land-saving innovations are also needed. In fact, good agricultural land becomes scarcer during the modernization process, even in absolute terms. Some land, and not infrequently some of the best, is lost by the expansion of urban areas, industrial plants, and infrastructure creation.

The fact that both farm and nonfarm development is concentrated mainly along the coast, in flat areas, and along the main valleys, which are also the densest areas of the population, causes intense competition for land between the farm and nonfarm sectors. On the other hand, moving toward a new technological environment where machines and engines substitute for animal and human labor, many areas previously suited for farming, although with relatively low productivity, now become marginal because it is difficult to efficiently mechanize farm operations on sloped fields. A more elastic land supply would create larger farms in these areas, somewhat easing mechanization problems, but since migrants leaving farming often do not sell the land (nor do they rent it because of an unfavorable law on land rental), one obstacle reinforces the other. The outcome, however, is not less mechanization and technological change in general, but rather a less efficient, more spatially concentrated pattern of modernization. Nor is there any option with less technological change. Once the doors are open to market forces, even initially remote rural communities have little chance of surviving without change. Initially remote poor areas must now compete with more centrally located, better endowed areas, and in an open economy, both must be able to compete in an international context.

For Italy, starting in the early 1960s, the relevant international environment included the advanced farm sectors of the Netherlands, France, and Germany. However, domestic differences were sometimes greater than international ones. For the peasants in Calabria and Basilicata, competing with farmers in Emilia and Lombardy was no easier than for the latter to compete with Bavarian or Dutch farmers. Initially, opening the farm sector to foreign competition directly involved only part of Italian farming, but indirectly and in the long run, the country-wide rural economy was forced to change. Change was badly needed by all farms and areas, but was obviously not equally accessible to all.

Changes in consumption patterns were not minor. Food consumption as a share of total household expenditures was 47% in 1951, 35% in 1970, and 28% in 1982. During the same period, bread and pasta as a percentage of total food expenditures dropped from 26% to 13%, fruits and vegetables rose from 15% to 21%, and meat products rose from 42% to 54% (Fabiani, 1986). As a share in total meat consumption, beef dropped from 40% to 34%, and lamb from 6% to 2%. Poultry and chicken jumped from 11% to 25%, while pork increased slightly from 26% to 28%. In line with the general pattern of economic development, initial increases in per capita income from relatively low levels brought higher food consumption with relatively minor changes in the food basket. Then substitution started taking place: not only was the per capita food basket larger, but it also had more animal protein and less fruit. Eventually most of the marginal increases in food expenditures were not from buying more food, but from buying more highly processed and marketed food.

Looking at the food system as a subset of the national economy, including goods and services sold to farmers and processed goods bought from farmers and then sold to consumers, Italy is the same as other economies. Farming as part of the system becomes smaller and smaller in relative terms, and at the same time, more and more integrated into the total economy.

Compared with other EC countries, intersectoral linkages within the food system and between the food system and the rest of the economy are still relatively weak in Italy. But the change over time is impressive, and the direction of change is the same as in other more advanced economies (Fabiani, 1986). Regional differences in the development of other components of the food system are even greater than those observed for farming.

Regions in the Center and North account for 80% of the national food processing output, but only for 60% of farming output (Balestrieri-Terrasi, 1985). The ratio of value added in farming to value added in food processing dropped from 3.0 to 2.4 for the country as a whole between 1970 and 1982, but from 2.2 to 1.8 in the Center-North, and from 5.8 to 4.6 in the southern Mezzogiorno. In terms of employment, regional differences are even sharper. Between 1970 and 1982, the ratio of farming employees to food processing employees dropped from 5.4 to 3.4 in the Center-North, but only from 13.2 to 9.7 in the Mezzogiorno.

Looking at the food system as a whole, rather than just at farming, regional imbalances in industrial development are certainly no less important than differences in growth rates for farming. In fact, there are reasons to argue that the development of farming was frustrated by a lack of adequate development in food processing. This might apply to the whole Mezzogiorno as well as to most hill and mountainous "internal" areas, where industrial development in general and food processing in particular are even weaker, in relative terms, than agricultural development (Gorgoni, 1987).

Industrial sectors selling inputs to agriculture are even more concentrated than the food processing industry. New plants built in the South by both the private and public sectors have not dramatically changed the situation. It is not that large-scale mechanical and chemical industries are still mainly in the North, but more significant is the weak development of small- to medium-scale industry in most of the South, in sharp contrast with the North and part of the Center. There has been an effort to foster development in the South along the lines of what has come to be known as the Emilian or Adriatic model (which has to do with a particularly happy blend of development in small-scale industry, farming, and services). Although not completely frustrated, this has shown clearly that there are no easy shortcuts, that history, social structure and social values are most important, and that efforts by the public sector alone are not enough if they don't succeed in also activating private business.

Agriculture's decreasing importance within both the food system and the national economy goes far beyond its declining shares in total output, value added, and employment. No less important is the fact that the farm is less and less a locus of entrepreneurial decision making. As economic development progresses, an increasing number of decisions originally taken at the farm level are transferred to either the input supply or to the food processing sectors. Process and product innovations are both too big for farmers. In a sense, the farmer becomes more and more the peripheral executor of decisions taken outside the farm sector. Research and development of new products and processes are simply out of the farmer's reach. Farmers could have some access through the public sector, but the public sector in Italian agriculture has been particularly weak in research and extension. Technical assistance to farmers is increasingly done by the very same commercial firms selling inputs and/or buying outputs. This is obviously not without many advantages for farmers, but clearly they become less and less free, independent entrepreneurs. And what happens within the farm sector is increasingly determined and decided outside of it.

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