EVOLUTION OF EFFICIENCY FACTORS, DIFFERENT WAYS BY WHICH IT CAN BE REACHED, AND COMPETITIVENESS OF SMALL FARMS

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Abstract

This study contributes to the debate on the prospects of small farms’ subsistence on the market, and their resilience and competitiveness, exploiting any new opportunities that may arise. The empirical context quality type analysis method was applied. The results thus obtained, on the basis of bibliographic study and a limited number of interviews with privileged witnesses, show that in the current global market, differently to the past, it may now even appear easier for small farms to survive than medium-sized. In any case, differentiated technology, and an increased number of heterogeneous management strategies, allow different sized farms to coexist. As such, just as differentiated management strategies are springing up spontaneously, differentiated public interventions must be implemented to improve farm efficiency. We cannot, in fact, force small farms to become competitive by using the same models as large farms.

Keywords: farm, size, competitiveness
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1. INTRODUCTION
The current global market shows a clear supremacy of large multinational companies selling
technical means for agricultural use and purchasing agricultural products, alongside a variety of
different physical and/or economic size agricultural farms, based throughout various countries and
continents. The supply chain is influenced by large agricultural-food companies. In the first
agricultural production phase, small and medium-sized farms compete with large farms, who enjoy
high scale economies in production, and greater contractual trading power.

We can only wonder if this context will lead to the eventual disappearance of small farms, or
whether they can compete on the market, at least providing their owners with a source of income, if
not with profit margins.

This is no minor issue, given the extent and social and economic function of small farms in both
underdeveloped and developed countries.

The debate on this, also in relation to the rural development and agricultural policies to be
implemented in the E.U., is particularly interesting.

2. STUDY OBJECTIVES AND METHODS
This study contributes to the debate on the prospects of small farms’ subsistence on the market, and
their resilience and competitiveness, exploiting any new opportunities that may arise and working
around risks.

The empirical context quality type analysis method has been used, carried out on the basis of
bibliographic study and interviews\(^1\) with a few privileged witnesses (farmers, freelance
horticulturalists, statistical-economic data collectors on farms, farmers’ technical consultants,
agricultural category association managers). We have considered the context of the current market
situation.

3. EVOLUTION OF SMALL FARM ANALYSES: A CRITICAL REVIEW
Farm size can be defined by various different parameters: economic first and foremost (income
levels), but also in terms of labour and land. These parameters are generally linked, although area
should be evaluated more carefully, and can only be considered a valid point of comparison, where
land fertility, crops and management systems are equal.

Being small in business has always been seen as a disadvantage, particularly given the inability to
benefit from scale economies, thereby raising both production and sales-related costs. As such, in
agricultural policy, division of farms was traditionally hindered as extension was encouraged.
The worldwide spread and application of the Green Revolution meant that for many years, attention
has focussed on searching for a type of efficiency of agricultural activity based on an industrial
model.

In fact, although the start of the G.R. dates back to the late 1940s, it is in some ways linked to the
1950s-1960s development theories grounded in modernisation and industrialisation. In agriculture
too, this idea of efficiency celebrated the importance of reaching appropriate scale economies linked

\(^{1}\) This study considers the initial results of a broader investigation, still underway.
to the introduction of mechanical and other innovation, although mainly ‘hard’. Smaller farms were therefore doubtless considered greatly penalised.

In the early 1960s, however, Sen highlighted the efficiency of small farms in terms of greater productivity per surface unit, reporting that they were actually more productive than large (1962). Sen’s apparently surprising conclusions have been verified in various countries, with, in some cases, a significant production difference per hectare, between small and large farms (Monbiot, 2008).

The relationship between farm productivity and size has been much debated, considering its implications in both underdeveloped and developed countries (Mendis, 1992; Khalid, Amit, Torsten, 2004; Delgrado et al. 2008; Tauer, 2001). Some authors claim a direct relationship between productivity and size, whilst others state the contrary. Both have been shown. There are different routes to different types of productivity. One is linked to productivity per surface unit, another to net income per product unit, consequent to the difference between income and costs, and connected to the reduction of average long-term unitary cost, in turn linked to scale economies and therefore to the most efficient scale dimension (or dimension gap). This can vary according to product type and production technology.

What really counts is an efficient allocation of farm factors. Small farms have been found to compete with larger farms, even in terms of unitary costs, if efficient (Tauer, 2001). Productivity per surface unit, apparently privileging small farms, has been analysed in various ways to identify the cause. Some researchers believe it could be the result of statistical artifice: fertile soils support a greater population than barren soils, and dimension is thus a result of productivity, not vice-versa, but further studies have shown that an inverse relation is also true for land of equal fertility. The most plausible explanation is that small farms use more labour per hectare than large. This greater labour allows farmers to cultivate land more intensely, rotating different crops on the same land throughout the year. Furthermore, the quality of work and care of the land and crops, is higher.

Competitiveness linked to the reduction of the average cost per product unit tends, on the other hand, mainly to privilege large farms making best use of capital invested in machinery. However, at times medium-sized companies may be privileged, when an efficient scale is reached within a smaller dimension, above or below which we have diseconomies of scale, and elsewhere, small farms can also compete in relation to costs and net income index per product unit. Marginal survival is possible, as they reduce labour costs with the farmer and his family providing this, relatively ‘underpaid’ if compared with alternative employment options.

It cannot be a given, that only large farms can reach increased return to scale. Medium farms, and indeed small farms, can too. The different technology available allows different size farms to choose the technology most appropriate to their size (Chavas, 2008), thereby each reaching better scale performance, cutting average costs, or at least obtaining constant return to scale.

This helps explain why farm sizes vary tremendously. It also explains the widespread international persistence of small family-run farms. In fact, all the time farms can access appropriately-dimensioned technology, there is no benefit (in efficiency terms) in increasing farm size.

We must also consider the economies related to production diversification, particularly important in farms, which by nature are multi-product and multipurpose. Diversification reduces production risks and, if appropriately organised, can generate economies of scope.
Empirical evidence shows an inverse relationship between diversification and farm size (Fernandez-Cornejo et al., 1992). This can be explained by the fact that scope economies tend to decrease as farm size increases. Vice-versa, as size decreases, specialisation economies increase (Chavas and Aliber, 1993). Furthermore, large farms can manage risk, sustaining insurance costs small farms cannot afford (Chavas, 2008). This encourages small farms to diversify, whilst large tend to yield economies linked to vast scale specialisation. Both farms can therefore become efficient and competitive, by making different choices.

Research focus has gradually moved from in-farm dynamics to external relations. Where working properly, the network system is fundamental to obtaining competitive advantage through the realisation of scale and scope economies, in addition to its structure encouraging flexible management to meet to continuously evolving market demands (Sabbatini, 2006).

A farm’s competitive strength, therefore, does not depend on internal resources, as much as on the characterisation of networks to which it belongs (Rullani, 2004).

We do not currently look to a single efficiency model, but rather to new, continually emerging and contrasting business development models. The individual farmer must choose the most appropriate to his farm.

The increasing ‘squeeze on agriculture’ suffered by farmers (expression used by various, including Van der Ploeg et al. 2000), forces them to identify innovative management methods. This has given rise to greatly heterogeneous organisation models (Van der Ploeg, 2008), linked to various competitiveness strategies, generating different farm management styles.

Sabbatini (2006) identifies (for Italian agriculture), nine different archetypes, to which a great many more specific farm types can be traced. This characterisation represents farm management models that are only partly market-orientated. And some potentially efficient models (‘Diversification’, ‘Optimisation’, ‘Relational’) can relate to small farms.

4. RESULTS
4.1. The results of direct investigation
As mentioned, we interviewed a few privileged witnesses. The investigation only involved the Sardinia region, but the results can provide some points for more general consideration.

Given the difficulties experienced by many farms, the interviewees were asked if the current market context meant that small farms were particularly disadvantaged, and likely to disappear.

Approximately half the interviewees answered that small farms may actually be in a better position than medium-sized. The remainder answered that all farms, size aside, were in difficulty (except very large, particularly strong farms). None answered that small farms would disappear.

Beyond these various opinions, debate showed:
- Smaller farms resist cost increases better, as they purchase fewer factors from the market. They are also less indebted than medium-sized farms, due to lower investments in fixed capital. As such, by reducing use of technical means, and underpaying the farmer’s own work, they can resist longer in difficult market conditions. The medium-sized farmer, on the other hand, has fewer options by which to reduce product costs, and is limited by amortising investments.
- The medium-sized farm can be crushed by competition, by the contractual strength the large distribution chains, and by the commercial intermediation margins, also because the farmer,
concentrated on increasing production, has less time to devoted to marketing strategies. Small farms can, on the other hand, more easily sell produce directly, or have/find a niche market where they can place a small quantity of product.

- Furthermore, a whole series of bureaucratic requirements (safety at work, risk evaluation, waste disposal, consumer safety re: food products, etc.) weigh (in terms of time and costs) particularly on medium size farms, which produce greater product quantities and have more workers.

In addition to this empirical evidence in favour of small farms, discussion with interviewees revealed that:

- Medium and medium-large farms presently endure better if they adopt extensive farming, reducing costs to a minimum (particularly with regards to zootechnical companies)
- Small farms diversifying activities endure better. Companies ‘verticalising’ activities were mentioned, which include transformation phases (e.g. mini cheese factories), or even directly market produce, or those with complementary activities (e.g. agritourism structures).
- Regardless of the size and type of farm, survival capacity and income production very much depends on the farmer, namely his skill in identifying the most appropriate strategy for his particular farm.

4.2. An evaluation of small farms’ survival potential in the current market context

Having carefully considered the bibliography, and observed real situations, we must answer the question: ‘Can small farms survive in the current market context?’ with a firm ‘Yes’, for various reasons:

- At present, ‘soft’ knowledge-based innovations are more important than in the 1950s-1960s: consider techniques for organic productions, and for other products with innate high quality. Also the controversial introduction of biotechnologies is a type of innovation not affected by significant scale economies.
- Telematic information networks have made awareness of innovation more accessible to small farms too, creating information exchange networks on production techniques and market situations, and allowing them to aggregate their demand for technical means, and their supply of agricultural produce, thereby acquiring greater contractual power.
- Today’s mounting attention to environmental matters involving a rational use of natural resources, considers land performance, namely production per hectare (also linked to maintaining fertility levels), increasingly important. These elements blend well with small farm intense cultivation production methods, without over-using the land - monoculture (Shiva, 1993), for example, generally used by large farms.
- The acknowledgement, in agricultural policy and other, of the multipurpose nature of agricultural farms, and the different roles held by farms in producing environmental and social services in general, alongside their traditional role as food producers. This implies benefiting from public aid for certain services and private payment for others, with even small farms reaching of economies of scope, performing several activities simultaneously.
- Aggregation and scope economies are now more important than scale. This benefits small farms finding their own route to efficiency through a combination of activities.
- There is a diversification of technologies that makes them suitable to different size farms, reducing the problem of scale efficiency.
- Farms respond to the market squeeze differently, with multiple, heterogeneous management strategies, some of which make small farms competitive.
- Given the significant instability of the market, farms must be flexible, rather than particularly well-equipped.
- Network relations become more important than in-farm structure.
- Entrepreneurial skill is more important than farm size.

On today’s market, the input-output price polarisation is causing difficulties for agricultural farms. There are contractual imbalances between transformation and marketing companies, and agricultural farms. At the same time, the different-sized first production farms compete amongst themselves.

In this situation, medium-sized companies would appear to be weakest. They, more than smaller companies, suffer increasing production costs and scarce product price dynamics.

Small farms have structures less equipped with machines and plants than medium, making them more flexible to price changes, and with lower fixed costs. Furthermore, they also purchase fewer factors on the market at market prices (labour in particular), keeping explicit costs to a minimum.

The hypothesis that prospectively market dynamics would even appear to privilege a more accentuated dichotomy between large, and very small, farms, may not be absurd. It is therefore difficult to establish what size and type of farm may best withstand competition. However, whatever the company dimension and type, by choosing products and/or services to be obtained, combining production factors differently, creating aggregations, purchasing given factors or services externally or producing internally, they can find their own route to efficiency, remaining on the market.

5. CONCLUSIVE REMARKS
Small farms can be competitive. Their capacity to persist, derives from the fact that there is no real objective reason, in efficiency terms, to grow. This, despite the general route taken by agricultural policy in virtually all countries, which has led to their decrease, but not to their extinction.

Differentiated technology and many different heterogeneous management strategies, allow different size farms to coexist. There is more than one way to compete, and each farm type can choose the most appropriate route to take, according to its characteristics.

At the time of development theories based on modernisation and farm management according to industrial models, it was held that this was the only type of management able to guarantee efficiency and competitiveness. Issues of environmental and social sustainability had not yet arisen, as nor had the multipurpose nature of farms, and local and rural development. At present, on the other hand (e.g. in European agriculture), rural development processes are being confirmed with new forms of organising agricultural activities, which go 'beyond modernisation' (Van der Ploeg, 2006). And these processes leave room for various management strategies.

We have noted the importance of entrepreneurial skill in the identification and adoption of appropriate strategies. It follows that professional training of businessmen is one of the most efficient, and least market distortional tools of public intervention.

As indications of economic policy, we can therefore recommend a greater focus on the problem of professional farmer’s training (already considered in the CAP), in addition to a different attitude with regards to the small farm efficiency, with aids more specifically aimed at its pursuit. This can
clearly take place by differentiating interventions, and not only through policies mainly aimed at
enlarging them, as in the past.

Just as differentiated management strategies are springing up spontaneously, differentiated
interventions must be implemented. We cannot, in fact, force small farms to become competitive by
using the same models as large farms.

On this matter, scientific research must also take some responsibility, as study of a greater number
of differentiated models is required, rather than simply starting from the principle that small farms
are inefficient. “Small farms can compete—but not by trying to farm the same way large farms do.
Nor can they compete or survive if the majority of the research that is done continues to look at
ways to put them out of business” (Duffy, 1997).

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