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Understanding alternative food networks: exploring the role of short food supply chains in rural development

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Abstract. In this paper we explore the development and incidence of alternative food networks within a European-wide context. By developing a consistent definition of short food supply chains, we address both the morphology and the dynamics of these, and then examine empirical evidence concerning their incidence and rural development impact across seven EU member states. These developments need to be seen as one significant contribution to the current transitions in rural Europe concerning the crisis of conventional intensive and productivist agriculture and the public consumer pressure for a larger variety of distinctive 'quality' food products.

1 Introduction

In recent years we have witnessed the emergence of new forms of dynamism in agricultural commodity markets. These are to be situated within the context of a more general transition in rural economies, characterised by some as the shift from a productivist to a 'postproductivist' food regime (Ilbery and Bowler, 1998; Schucksmith, 1993), whereas others speak of the establishment of a new 'rural development paradigm' (van der Ploeg et al, 2000). The creation, operation, and evolution of 'new' or 'alternative' food supply chains is one of the key dimensions of new rural development patterns now emerging. As Marsden (1998, page 107) states, "food markets are becoming more differentiated on the basis of a range of socially constructed food quality criteria", resulting in the emergence of new quality-food markets in addition to (and superimposed on) existing anonymous mass food markets.

The food chain dimension has become a key element enabling us to understand better new patterns of rural development (Marsden et al, 2000a) and, potentially also, a significant building block for future policies designed to influence these. In this paper we explore some key aspects of the relation between food supply chains and broader issues of rural development. In this, a direct link between theory and practice is made. It is contended that to understand the role of food supply chains in rural development more fully, we need to come to grips with the empirical richness of emerging alternative food networks—by examining how these are built, shaped, and reproduced over time and space—and we need to understand better the extent to which they actually deliver in terms of rural development objectives.

In the analysis ample reference is made to European examples of alternative food networks. These are drawn from case studies presented in the COST A12 Working Group and, most importantly, from the results of European-wide IMPACT research on the socioeconomic impact of rural development practices. The construction of new

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food supply chain configurations forms a crucial element in the strategies underlying these new practices, as is the case with, for example, organic farming, quality production, and direct selling. The presented figures underline the impressive growth of new food supply chains in recent years.

At the same time, a comparative analysis makes clear that there is a diversity of competing definitions of quality along these food supply chains, both between and within countries. This is exemplified by the very different ways in which consumer demands and new producer supplies are articulated to specific (organic, integrated, regional, artisanal, etc) production 'codes'. These differences result from a diversity in farming systems and territorial settings, different cultural and gastronomic traditions, a diversity in the organisational structures of food supply chains, variations in consumer perceptions, and also from substantial differences in institutional and policy support.

At the outset of the paper it is important to address some definitional issues. The term alternative food networks (AFNs) is here used as a broad embracing term to cover newly emerging networks of producers, consumers, and other actors that embody alternatives to the more standardised industrial mode of food supply (Murdoch et al, 2000). This fits with the general use of this term by the COST A12 Working Group (see editorial of this issue). To understand the diverse nature and dynamics of AFNs, however, we have found it necessary to employ more specific empirically identifiable concepts and parameters. In this paper, therefore, we attempt to explore these different dimensions by beginning to specify empirically different types of AFN. In the IMPACT study, for instance, three categories of alternative or short food supply chains (SFSCs) are used: organic farming, quality production, and direct selling. These have been consistently applied to the collection and analysis of empirical evidence. The SFSC concept is more specific than AFNs, and, rather, covers (the interrelations between) actors who are directly involved in the production, processing, distribution, and consumption of new food products.

As the analysis in this paper indicates, it is important not to overly 'prejudge' or theoretically restrict definitions of AFNs given the current scarcity of theoretical and empirical work conducted upon them. There is an urgent need for more specific concepts that help us to grasp the variability of AFNs and begin to provide an improved 'toolbox' with which to explore the heterogeneity of AFNs. This paper can be seen partly as a contribution to understanding the different levels of conceptual and empirical definition and specification of these new rural realities. AFNs, by their nature, employ different social constructions and equations with ecology, locality, region, quality convention, and consumer cultures. As such, a major theoretical and empirical task is to explore how these evolve and contribute, in different ways, to rural development: or, we should perhaps say, rural *developments*.

We start here, in section 2 of the paper, by examining some of the problems associated with the conventional food sector in advanced economies. The decline in consumer trust, in addition to the continued farm-based 'price squeeze', can be seen as setting some of the broader conditions for the uneven development of food supply chains. We then begin to address the conceptual and empirical challenges identified above by, first, attempting to explore the different mechanisms for extending SFSCs in time and space, and the variety of quality definitions employed within SFSCs (section 3). These conceptualisations are based upon intensive case-study analysis conducted as part of the IMPACT and COST studies. In the second analytical section we take a wider empirical approach. We attempt to estimate, through the construction of national-based quantitative evidence, the incidence and the levels of extra value added attained in the development of different SFSCs (section 4). Both of these analytical sections are, by their nature, exploratory. Nevertheless, they begin, as we

shall discuss at more length in conclusion, to assess critically the opportunities, potentials, and barriers to the wider diffusion of SFSCs, and the potential contribution of SFSCs to wider aspects of rural development.

The foregoing exploratory analysis begins, then, not only to demonstrate the inherent diversity of such rural development practices, but also to raise some important questions about their evolutionary development over time and space, and the degree to which different institutional forms of support are a necessary precondition for their continuance. As such, it helps us to assess critically whether the recent growth of SFSCs represents either a long-lasting countermovement, or a more short-term range of potentially abortive local initiatives.

2 Setting the conditions for the emergence of AFNs

AFNs have long been advocated as one potential solution to the problems of peripheral rural regions. Indeed, the market niches resulting from new processes of commoditisation[(1)] in food markets have traditionally been seen as mainly relevant for less-favoured rural areas. They were thought to embody a potential way out for vulnerable regional production systems, whose survival was threatened by market liberalisation and productivist technological developments (Ilbery and Kneafsey, 1999; OECD, 1995). Much less reference was made to regions that were highly integrated in global food markets like the Netherlands, and much of the United Kingdom, where the dominant discourse foresaw a continued expansion of food production systems along the lines of modernisation and within conventional market structures.

Actual and more recent developments suggest that this dominant discourse has been largely a misconception. It is now suggested by many that we are witnessing an impressive growth of a variety of new food-production and trade circuits falling outside the conventional model of agriculture. Although still highly fragmented and anecdotal, these new rural development practices are being increasingly well documented,[(2)] making clear that their occurrence is by no means restricted to peripheral areas and that they are spreading to the same extent in parts of the European countryside previously conceived of as 'growth poles' of productivist agriculture.

The emergence of new food circuits in globalised agricultural economies should be seen against the background of a number of fundamental changes along the different links of the agrofood chain. On the consumption side of the agrofood chain important transitions in consumer perceptions of food and farming have occurred. These can be seen partly as the consequences of a more generally increased public concern over issues like ecology, health, and animal welfare, resulting in the emergence of a potential market for food products that are distinguished in credible ways on one or more of the contested quality aspects of food. Most of all, however, changing consumer perceptions have been fed by a growing distrust in the quality of food stemming from conventional agriculture. Since the late 1970s the public image of agriculture has become dominated by an ongoing stream of 'food scandals' ranging from salmonella and bovine spongiform encephalopathy (BSE) to dioxine residues in milk. While governments and experts stress, time and again, that supposed health hazards lack any scientific basis, consumer distrust in modern food production has become firmly rooted (Goodman, 1999). New events—be it the introduction of genetically modified organisms (GMOs) or the

[(1)] Long and van der Ploeg (1988) define commoditisation as the extension of markets to new spheres of activity or the imposition of new types of market relations on existing ones.

[(2)] Interesting in this respect are the 'atlas' type of overviews of rural innovations being published in several countries (for example, IATP, 1998; Stassart and Engelen, 1999; van Broekhuizen et al, 1997; and van der Ploeg et al, 2002). Also the LEADER database contains numerous interesting cases (LEADER, 2000).

recent outbreak of foot and mouth disease—are perceived in the subjective reality of many consumers as confirmations of their preestablished, negative image of modern food production.

A report of the Dutch Council for Rural Areas (Council for Rural Areas, 1998) identifies the capacity to regain consumer trust as a major factor conditioning the future development of food markets. The delinking of food production, processing, and consumption inherent to the industrial mode of food supply created a structural necessity to establish some kind of institutionalised food quality guarantee. In former times, when food was produced in the direct surroundings or even by the household itself, the need for this was less apparent. 'What the farmer does not know, he will not eat' goes a Dutch proverb, indicating that the perception of food quality in former times was mainly founded on personal observation and social networks in the direct vicinity. With the expansion of mass food markets the regulation of food quality necessarily became more institutionalised, resulting in the emergence of an expert system of (semi)governmental agencies for the control of 'food quality' and its standardisation in objectified and measurable technical parameters. For several decades this arrangement met broad social support, but now industrialised food production is under fire, the conventional institutional regime and the objectified quality standards it embodies are also increasingly challenged. Large consumers groups no longer tend to believe or trust unconditionally in the expert system formally assigned to protect the safety of what they eat and drink.[3]

Future developments in food markets depend considerably on the differentiated capacity of food circuits to regain consumer trust and establish new institutional arrangements guaranteeing food quality in credible ways. This must be seen against the background of a highly dynamic market with trends and fashions, in which products sometimes go as fast as they arrive.[4] Food consumption is increasingly intertwined with different lifestyles, meaning that different, sometimes strongly diverging, images and expectations are projected on food products. Instead of meeting basic, minimum quality standards, future food will be increasingly 'designed' and 'socially constructed' in response to specific demands.[5] Where easy preparation is expected, convenience food (prewashed, precut, and precooked) is constructed; where time pressure dominates, fast food emerges. The quality definitions are also contextual for health food, regional quality food, organic food, slow food, etc. Even between different spheres of activity within the daily life of one individual quality, expectations may diverge considerably, resulting in complex and sometimes internally contradictory 'hybrid' consumer demands.[6]

From the producer side of the agrofood chain, the emergence of new food supply chains should also be seen in the light of the continuous and increased pressure on farm incomes. The modernisation approach to agriculture embodied a specific economic logic that sustained farm incomes by increasing total production volume and simultaneously enhancing the technical efficiency of production (van der Ploeg et al, 2000). For several reasons this once so successful model reached its limits towards the

[3] Interestingly, this trend is not confined to food production, but is also apparent in other spheres of contemporary 'risk society' (Beck, 1992). It can be related to the decreased transparency and growing anonymity of production relations in globalised economies.

[4] A recent report of the consultancy Moret Ernst & Young states that two out of three newly introduced products disappear from the supermarket shelves within one year. For 'me too'—products—intended to profit by imitation from innovations of others—the failure is 80%.

[5] Lash and Urry (1994) in this respect identify the growing 'design intensity' of production as a fundamental characteristic of contemporary production regimes.

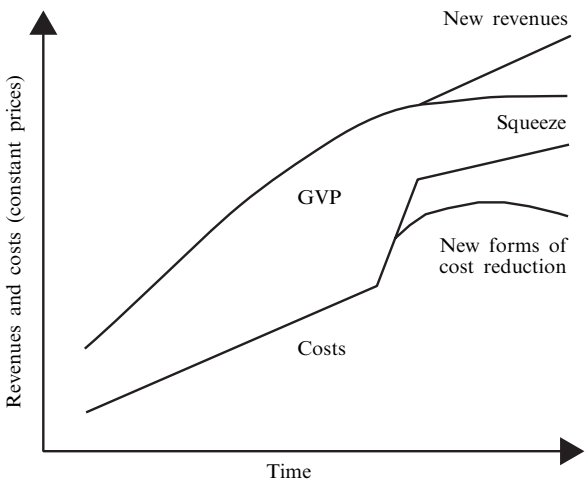
[6] On holiday in the countryside we do not have the same quality expectations towards food as at home or in the canteen at our workplace.

end of the 20th century. Total production volume could no longer be expanded because of the saturation of markets, increased possibilities for sourcing food industries with nonagricultural primary materials, and growing opposition to the 'dumping' of surpluses on world markets.

At the same time, production costs increased dramatically. This is related partly to the 'technological treadmill' (Cochrane, 1979), pressing farms to invest continuously in new technologies so as not to lose out in the race for the lowest production costs. In addition, farms are confronted with several obligatory investments springing from new environmental regulations, animal-welfare standards, and sanitary measures.[7] Product requirements from food industries and retailers had a similar cost-increasing effect. Access to markets is increasingly conditioned by the capacity to meet specific criteria, concerning the variety and appearance of products, membership of good-practice labels, and the capacity for flexible delivery. The 'regulatory treadmills' associated with this (Ward, 1993) are rarely compensated with higher financial returns.

Developments on mass food markets therefore take the shape of a 'squeeze' (see figure 1), in which economic margins are structurally decreasing (van der Ploeg et al, 2000). Conventional answers are often no longer possible, as farm production is increasingly limited through quota systems and environmental regulations. More promising answers are founded in new ways of increasing financial revenues—for example, by diversifying into new activities (nature and landscape management, agritourism, etc), or by increasing value added on farm products (quality production, on-farm processing, direct selling, etc). Another option involves new forms of cost reduction that, for example, curb down costs related to 'regulatory treadmills' in innovative ways.[8]

It is exactly this way out of the 'squeeze' that is increasingly being adopted by farmers which allows an understanding of the emergence of AFNs and diversified, multifunctional forms of agriculture. A growing number of farmers are now prepared



Note: GVP—gross value of production.

Figure 1. Postwar agricultural development and the contours of rural development.

[7] Elsewhere, we have termed this the bureaucratic 'hygienic' mode of food production (Marsden et al, 2001).

[8] An outstanding example is the 'environmental cooperatives' that emerged in Dutch agriculture (Renting and van der Ploeg, 2001). By taking collective responsibility for the ecological sustainability of rural development in their region these new cooperatives negotiated the freedom to implement policies in more flexible ways and adjusted to local conditions. Various obligatory investments related to 'regulatory treadmills' could be avoided by this.

to try their luck with alternative forms of production and new ways of marketing, in the conviction that mass food production for their farm no longer provides continuity and sufficient income. These rural development practices are an active response of farmers to the changing economic and political context of their enterprise, and they correspond, at least partly, to the well-understood self-interest of the European farming population. SFSCs represent, in this context, active attempts by producers to recapture value in the supply chain in ways which can hopefully ameliorate the conventional problems of the price squeeze. Nevertheless, these processes of 'short-circuiting' the conventional chains take a diversity of forms over time and space. In the next two sections we explore how we might conceptually and empirically map the shape of these rural development practices.

3 Exploring the morphology and dynamics of AFNs

To what extent, then, are these general consumer and regulatory trends inherent in the conventional agrofood system beginning to foster the development of alternatives? Although there is strong evidence that all over Europe new food networks are emerging, it is still too early to judge their viability and efficiency in delivering goals of sustainable agriculture and rural development. This is partly a result of the absence of empirical data of sufficient reach and quality, but also because of the relatively 'young' developmental stage of several experiences. Nevertheless, we suggest, it is important to come to a clearer insight of the potential of these innovative practices. Especially, it is a challenge to go beyond the singularities of individual cases and progress to a wider overview and comparative analysis of their reach and impact.

The reconfiguration of supply chains is an important mechanism underlying the emergence of new rural development practices. SFSCs hold the potential for shifting food production out of its 'industrial mode' and to break out of the long, complex, and rationally organised industrial chains (Marsden et al, 2000b) within which a decreasing proportion of total added value is captured by primary producers. At the same time, new food supply chains are important carriers for creating new linkages between agriculture and society, producers and consumers. They bring consumers closer to the origins of their food and in many cases involve a more direct contact between farmers and the end-users of their products. A key characteristic of new supply chains is their capacity to resocialise or respatialise food, thereby allowing the consumer to make new value judgments about the relative desirability of foods on the basis of their own knowledge, experience, or perceived imagery. Commonly, such foods are defined by either the locality or even the specific farm where they are produced; and they serve to draw upon an image of the farm and/or region as a source of quality. In this, often more direct linkages are created between farming on the one hand and rural nature, cultural landscapes, and local resources—what the French call the *terroir* of agricultural production (see Barjolle et al, 1998)—on the other hand.

For these reasons, rather than the unspecific adjectives 'new' and 'alternative', we prefer 'short' as a common denominator for the types of food supply chain that are emerging within rural development. SFSCs on the one hand 'short-circuit' the long, anonymous supply chains characteristics of the industrial mode of food production. On the other hand, producer–consumer relations are 'shortened' and redefined by giving clear signals on the provenance and quality attributes of food and by constructing transparent chains in which products reach the consumer with a significant degree of value-laden information. Lastly, SFSCs are an important carrier for the 'shortening' of relations between food production and locality, thereby potentially enhancing a reembedding of farming towards more environmentally sustainable modes of production.

The unexpected emergence of SFSCs demonstrates that we urgently need better conceptualisations of the ways in which markets are socially constructed. In neo-classical economics 'the market' merely appears as external to the social world and its outcome is thought to correspond to a singular, distinctive logic or 'magic hand'. The emergence of new food markets indicates that SFSCs are not the results of some kind of external, elusive 'free market'. They result, rather, from the active construction of networks by various actors in the agrofood chain, such as farmers, food processors, wholesalers, retailers, and consumers. To understand developments in food markets we therefore need a 'sociology of the market' (Marsden and Arce, 1995), which attempts to unravel the patterns of social interaction between different actors in the agrofood chain and analyses how supply chains are constructed as arrangements of interlocking projects of these actors (van der Ploeg and Frouws, 1999).

The dimensions of SFSCs

One of the first key steps in progressing this agenda is the development of a better understanding of the morphology and dynamics of SFSCs in order to come to grips with the empirical variety of SFSCs throughout the European countryside. How can we understand the different ways in which consumer demands and producer supplies are articulated to specific (organic, regional, artisanal, etc) production 'codes'? And why is this in many cases accompanied with new market structures, whereas in others supply and demand are articulated by conventional market players? In addressing these issues it is important to go beyond a simple description of product flows and focus our analysis on the type of relationship between producers and consumers in these supply chains, and the role of this relationship is constructing value and meaning, rather than focusing solely on the type of product itself.

On the basis of a comparative analysis of cases conducted as part of the IMPACT and COST studies, two interrelated dimensions were identified to describe the empirical variety of producer – consumer relations within SFSCs. A first dimension concerns their organisational structure and the specific *mechanisms entailed in these to extend relations in time and space*. A second dimension concerns the different *quality definitions and conventions* involved in the construction and operation of SFSCs. With respect to the first dimension three positions are distinguished, corresponding to different mechanisms for extending SFSCs across longer distances in time and space (figure 2). It is important to note that one business may be involved in supplying one or more of these different supply chains.

A first category of SFSCs is essentially based on *face-to-face interaction* as a mechanism for aligning producer – consumers networks. Consumers purchase products directly from the producer or processor and authenticity and trust are mediated

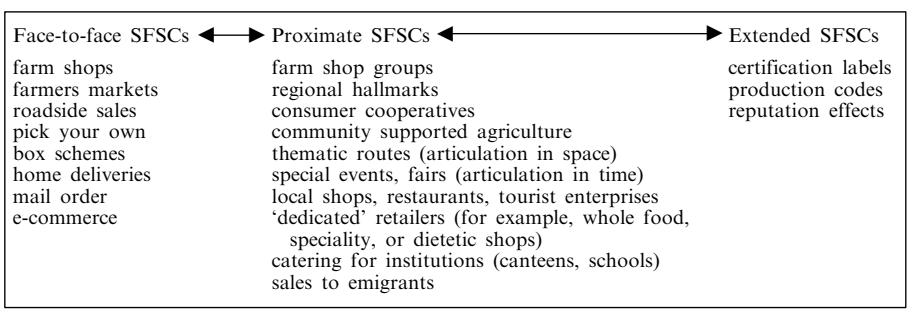


Figure 2. Different mechanisms for extending short food supply chains (SFSCs) in time and space.

through personal interaction. This category largely coincides with a narrow definition of direct sales, be it through roadside sales, 'pick your own', farmers markets, or farm shops (Holloway and Kneafsey, 2000; Knickel and Hof, 2002; Pretty, 1998). Marketing concepts like box schemes, mail order, and home deliveries offer some possibilities to extend the reach of this form of SFSC, but mostly these remain restricted to individual farms. The internet now provides opportunities for new variants of 'face-to-face' contact through online trading and e-commerce.

A second category of SFSCs extends its reach beyond direct interaction and is essentially based on *relations of proximity*. Obviously, extending SFSCs over longer distances in time and space supposes the creation of more complex institutional arrangements. Most common is the cooperation between producers, who, for example, widen their product range by exchanging products between farm shops or by combining individual products under a regional quality hallmark (Banks, 2001; Roep, 2002). Consumer coops and 'community supported agriculture' are examples where consumers join their buying power to facilitate the extension of SFSCs (Alonso Mielgo and Guzmán Casado, 2001; Farnsworth et al, 1996; Mormont and van Huylenbroeck, 2001). Networks are mostly based on *spatial* proximity, whereby products are sold in the region (or place) of production, and consumers (for example, tourists) are made aware of the 'local' nature of the product at the point of retail. The articulation of activities in space and time by organising specific events, fairs, or thematic routes (Brunori and Rossi, 2000) may contribute to the regional identity of products, attract customers, and thereby enhance a further stretching out of SFSCs. Producer – consumer networks may also be based on *cultural* proximity, as exemplified by the sale of regional specialities to emigrants (LEADER, 2000). Proximate SFSCs often include intermediary actors in the agrofood chain, whereby these take over the role of guaranteeing product authenticity. Examples are local shops and restaurants (for regional products), but also specialised retailers like 'wholefood' and dietetic shops which play an important role in the marketing of organic products (Michelsen et al, 2000; Miele, 2001).

A third category further enlarges the reach of SFSCs to *extended relations* in time and space. Here, products are sold to consumers outside the region of production who may have no personal experience of that locality. In most cases products are exported from the region to national markets, but some extended SFSCs may span large distances covering the globe. Examples of these are well-known regional specialities like Champagne wine or Parmigiano Reggiano cheese (de Roest, 2000), but also 'fair trade' products like coffee and tea (Renard, 1999; Whatmore and Thorne, 1997). These global networks are still 'short' food supply chains: it is not the distance over which a product is transported that is critical, but the fact that it is embedded with value-laden information when it reaches the consumer, for example, printed on packaging or communicated at the point of retail. This enables the consumer to make connections with the place/space of production and, potentially, with the values of the people involved and production methods employed. The successful translation of information allows products to be differentiated from more anonymous commodities and command a premium price if the encoded information is considered valuable by consumers.

Extended SFSCs depend critically on institutionalised conventions, codes, and mediators that enable both a lengthening of producer – consumer networks and 'acting at a distance' (Whatmore and Thorne, 1997). Sometimes networks may be aligned on the basis of 'reputation effects' (Shapiro, 1983), but here it is difficult to safeguard the exclusivity of the product, and markets become prone to imitations and downward pressure on prices. Mostly, extended SFSCs therefore involve the creation of more formalised institutional codes (for example, labels), which specify regulations for

production, processing, and other stages of the agrofood chain. The authenticity of products, rather than being founded in networks of trust and confidence, is backed up by securing a formal juridical basis for brands and labels and by involving external, independent bodies for control and certification. The transaction costs resulting from this, and the relatively high transport costs, accentuate the importance of economies of scale and may turn larger (conventional) market parties into 'obligatory passage points' (Callon, 1986) within extended SFSC networks.

The *specific quality definitions and conventions* involved in the operation of new food networks are a second dimension differentiating empirical expressions of SFSCs. All SFSCs operate, in part at least, on the principle that the more embedded and differentiated a product becomes, the scarcer it becomes in the market. Product differentiation implies the construction of transparent market relations around specific sets of quality definitions that are shared by all parties involved, and are sufficiently communicated to consumers to convince them of paying premium prices. When we look at the empirical variety of SFSCs, two main categories of quality definitions may be identified (see figure 3).

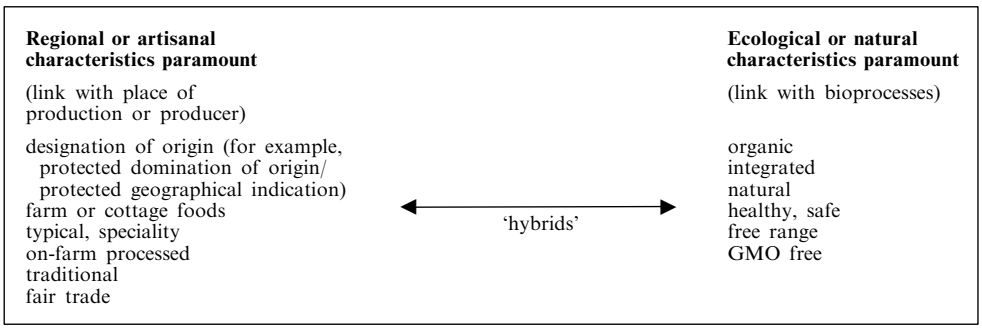


Figure 3. Different quality definitions and conventions employed within short food supply chains.

A first category of SFSCs mainly stresses the link between quality attributes of the product and its *place of production or producer*. Specific characteristics of the place of production (natural conditions, cultural and gastronomic traditions, etc) or the production process (artisanal, traditional, farm based, etc) are critical parameters to define the quality of the product, and in many cases are claimed to result in distinctive (typical) tastes or appearances. The most clear example of this is regional speciality foods with (protected) origin indications (Sylvander et al, 2000).[9] Farm or cottage foods, rather, stress the artisanal nature of the production process and the experience and skills of the producer, but in many cases implicitly also refer to cultural heritage and (local) traditions. Quality definitions based on 'fair trade' are also included for their emphasis on links with producers, although in this case considerations of ethics and justice are paramount.

A second group of SFCSs defines quality in terms of the links of food production and consumption with *bioprocesses*. This includes products that, in response to public concerns over ecology, are distinguished by environmentally sound production methods such as organic and integrated production. Apart from clearly specified labels, there is a vast range of products with more general claims of being 'natural'. Partly, these draw upon romantic images of (traditional) farming, but they also express a tendency towards the valorisation of multifunctional forms of agriculture, for example, for their contribution to rural nature and landscapes. This category also includes

[9] PDO (protected denomination of origin) and PGI (protected geographical indication) products are regulated under EU regulation 2081/92.

products conceived as more healthy and safe. Although such claims are rarely made explicit, there appears to be a widespread 'common sense' idea among consumers that products produced with less chemical substances (or GMO free) are more healthy (Nygard and Storstad, 1998). A type of quality definition included here concerns 'free range' products, distinguished by respect for the natural behaviour and welfare of animals.

It should be stressed that in reality clear distinctions between various quality definitions can often not be made and that boundaries between categories become blurred. Partly, this results from associations made by consumers as indicated above, but also several SFSCs actively create 'hybrids' of different quality attributes. This is, for example, the case for regional products, which as part of product imagery emphasise, the role of farming in safeguarding rural landscapes, also there are examples of environmentally sustainable products that extend product identity with a regional dimension. It should be stressed that quality conventions involve more than merely the language of production regulations: they most of all refer to the perceptions and discourses of actors involved and are influenced by their personal (lay) knowledge, interests, and cultural backgrounds. It may be clear that at this point important struggles occur between actors involved in SFSCs, as well as attempts to construct compromises and coalitions.

4 Empirical evidence on the incidence and impact of AFNs in Europe

The described typology enables us to come to a better understanding of the underlying mechanisms and dynamics of SFSCs and, as was demonstrated elsewhere (see Marsden et al, 2000a), may be successfully applied for a comparative analysis of case examples of AFNs. For this paper we will not follow this line of argument; rather, we widen our perspective and explore more quantitative empirical evidence on the overall incidence and impact of SFSCs in Europe. We need to recognise that any attempt to obtain such a wider overview is seriously hampered by the lack of official data of sufficient reach and quality (Knickel and Renting, 2000), and therefore has to remain exploratory. As a result, many of the deeper conceptual questions raised above remain speculative. In fact, the only type of SFSC for which in recent years some more standardised (also not unproblematic) data at European level are emerging concerns organic farming. For all other fields, any comprehensive overview is lacking, which obviously represents a major obstacle for an appropriate monitoring and analysis of these new rural developments.

Despite these limitations, the IMPACT project succeeded to make an overview of the spread and impact of SFSCs in seven European countries: together these countries represent some 75 – 85% of farming in the EU15.[10] Where possible, data were used from official (national) statistics and secondary sources, but in many cases a range of complementary research methods (including surveys, expert consultation, and 'grey' data) had to be applied (Renting et al, 2002). Table 1 gives an overview of the incidence of different types of SFSC as obtained through the application of this 'toolbox' approach. The figures give a reasoned and consistent indication of the range and diversity of SFSCs throughout Europe, with respect to both their incidence and the type of activities in different national settings. We need to keep in mind that probably 'blind spots' still remain, and therefore actual numbers might still be higher. Also, for reasons of data availability the year 1998 was taken as reference, and since then SFSCs appear to have expanded significantly.

In view of the available data, a differentiated typology of SFSCs as set out above unfortunately could not be fully applied. Rather, data were collected according to three

[10] These are: the Netherlands, the United Kingdom, Ireland, Germany, Italy, Spain, and France. Together they represent 76% of the total number of farms, 84% of utilised agricultural area, and 84% of the total net value added of agriculture (Eurostat 1997 data).

Table 1. Estimated incidence of short food supply chains (SFSCs) in seven European countries (1998).

	The Netherlands	England and Wales	Germany	Italy	Spain	Ireland	France
Organic farming	962 certified farms	1125 certified farms	9200 certified farms	43 698 certified farms	7392 certified farms	900 certified farms	8140 certified farms
Quality production	1600 farms with quality-beef label 850 farms with free-range eggs 150 farms with free-range meat 690 on-farm dairy processing 90 on-farm goat and sheep milk processing 30 farmer groups with regional products (400–500 farms) 1500–2000 small-scale food producers	700 farms with speciality products, including meat (203), cheese (98), yoghurt (70), ice-cream (77), wine (63), fruit juice and cider (77), pickles and preserves (56), water (7), bakery products (42), and beer (21) 1100 farms with (regional) quality-beef label 550 farms with (regional) quality-sheep label	190 on-farm dairy processing 21 000 farm distilleries 1000 fruit processing 11 000 farms with quality vines 130 farms with free-range eggs 150 cooperative quality projects (7500 farms) 60–80 regional quality meat projects (3500 farms) 50 regional quality crops projects	30 PDO cheeses (40 000 farms) 24 PDO/PGI meat products (6000 farms) 24 PDO/PGI olive oils (2000 farms) 443 DOC/DOCG/IGT wines (154 000 farms) 25 PDO/PGI fruits, vegetables, and cereals (1800 farms) 6 other PDO/PGI products (1000 farms)	113 designated PDO/PGI products, including: wines (156 000 farms), olive oil (27 000), cheeses, fresh meats, vegetables (c.2000), fruits (c.11 000), legumes (320), honey, raisins (4100), rice (6700) and tubers (750) various other regional labels of autonomous communities	30 farms with farmhouse cheese 130 farms with other farmhouse or cottage foods (breads and cakes, jams and preserves, meat products)	Overall 182 500 farms (Census 2001), covering: 543 AOC/AOP labels 8000 farms and 4500 processors AOC/AOP cheese and beef 59 400 farms with quality wine of which 33 000 AOP 630 other labels, such as Label Rouge and IGP (51 000 farms)
Direct selling	4715 farms with on-farm sales (roadside sales, farm shops) 33 organic farmers markets (100 farms) 100 farms with box schemes 120 farms with home deliveries 500–1000 farms with washing, cutting, prepacking	2850 farm shops 250 farmers markets (5000 farms) 1450 pick your own 3450 farms with farm-gate or roadside sales	24 000 farms with direct sales 110 cooperative farm shops 240 regional marketing projects (7200 farms) 200 farmer markets (1600 farms) 1100 farms with meat packaging 500 farms with home deliveries or box schemes 2000 pick your own	Overall 800 000 farms, of which: wine (185 000 farms) cheese (c. 125 000) olive oil (280 000) vegetables and potatoes (85 000) fruits (49 000) meat (c. 300 000) eggs (175 000) honey (10 000)	Overall 90 000 farms, including farmers markets, door-to-door selling, farm gate sales 21 producer–consumer associations of organic products	650 farms with markets stalls 80 farms with box schemes 56 farms with roadside sales	Overall 102 000 (Census 2000), of which: c. 40 000 farms with farm gate sales (no production) c. 60 000 farms with on-farm processing for direct sales

Notes: AOC—appellation d'origine contrôlée, AOP—appellation d'origine protégée, DOC—denominazione d'origine controllata, DOCG—denominazione d'origine controllata e garantita, IGP—indication d'origine protégée, IGT—indicazione geografica tipica, PDO—protected denomination of origin, PGI—protected geographical indication.

different, empirically defined, fields of activity: organic farming, quality production (including on-farm processing), and direct selling. Whereas the category of direct selling largely coincides with face-to-face SFSCs, organic farming and quality production may cover all three types of SFSC and are mainly defined by the type of quality definition employed. These problems of data availability and consistency represent one of the key methodological barriers currently involved in exploring new rural development practices. More specifically, the problem is how to explore relational supply chain categories, based, as outlined before, either upon different space–time relationships (figure 2) or the diversity of quality definitions and conventions constructed (figure 3). Tables 1 and 2 indicate more distinctly farm-based outcomes: that is, broader farm-based aggregated expressions—organics, quality production, and direct selling—of these deeper relational supply chains.

Nevertheless, on the basis of these constructions of estimates of the incidence of SFSCs, it was also possible to develop a range of indicators of their socioeconomic impact. The number of farms involved in SFSCs were first of all related to the total number of farms (Eurostat 1997 data) so as to compare the degree of dissemination of

Table 2. Socioeconomic impact levels of short food supply chains (SFSCs) and two other rural development activities in seven European countries and projected levels for EU15 (1998).

	The Netherlands	United Kingdom	Germany
Organic farming			
ΔNVA (million Euro)	23	25	84
% of total NVA	0.3	0.2	0.8
number of farms involved	962	1462	9 200
% of total number of farms	0.9	0.6	0.6
% of farms over 2 ESU	0.9	0.8	2.1
Quality production			
ΔNVA (million Euro)	85	54	209
% of total NVA	1.3	0.5	2.0
number of farms involved	3 000	3 200	40 000
% of total number of farms	2.8	1.4	7.5
% of farms over 2 ESU	2.8	1.7	9.3
Direct selling			
ΔNVA (million Euro)	68	318	678
% of total NVA	1.0	3.0	6.4
number of farms involved	6 000	14 700	35 000
% of total number of farms	5.6	6.3	6.5
% of farms over 2 ESU	5.6	7.9	8.1
Agritourism			
ΔNVA (million Euro)	20	331	615
% of total NVA	0.3	3.1	5.8
number of farms involved	2 500	19 400	62 000
% of total number of farms	2.3	8.3	11.6
% of farms over 2 ESU	2.3	10.5	14.3
Nature and landscape management			
ΔNVA (million Euro)	12	71	156
% of total NVA	0.2	0.7	1.5
number of farms involved	12 000	46 300	100 000
% of total number of farms	11.1	19.8	18.7
% of farms over 2 ESU	11.1	25.0	23.2

Note: NVA—net value added, ΔNVA—additionally generated net value added, ESU—economic size units.

the activity. The same figures were also related to the number of farms with a minimum economic size of 2 ESU (economic size units), in order to correct for (the sometimes substantial) number of small 'hobby farms'. Generally speaking, SFSCs appear to be mainly taken up by medium-sized farm businesses: a minimum production level is often necessary to make the activity viable and to generate sufficient income to finance investments, whereas large volumes are sometimes at odds with the specific and differentiated processing and marketing structures involved.

To explore the national economic importance of SFSCs, their socioeconomic impact was also expressed in terms of the additional net value generated. This appears to be the most appropriate measure for socioeconomic impact, because it covers both family labour and employed labour remunerated by the activity. It therefore expresses rural development benefits, at both farm and regional level. The additional net value added generated on top of conventional agricultural production (ΔNVA) was used as a measure to express the rural development gains of SFSCs in comparison to more conventional, productivist development trajectories. The presented data have been elaborated on the basis of farm economic studies, representative sets of farm accounts,

Table 2 (continued).

Italy	Spain	Ireland	France	EU15 projection
214	42	2.1	31	640
1.1	0.2	0.1	0.1	0.6
43 698	7 392	900	8 140	102 000
1.9	0.6	0.6	1.2	1.5
3.5	1.0	0.7	1.5	2.2
865	142	16	887	2 724
4.3	0.8	0.6	3.5	2.4
143 000	224 000	160	182 500	804 000
6.2	18.5	0.1	26.8	11.5
11.5	28.8	0.1	32.7	17.4
328	262	1.7	840	3 012
1.6	1.5	0.1	3.3	2.7
800 000	90 000	790	102 000	1 420 000
34.6	7.4	0.5	15.0	20.2
64.4	11.6	0.6	18.3	30.6
131	8.8	13	76	1 441
0.7	0.1	0.5	0.3	1.3
5 300	2 200	1 900	16 500	147 000
0.2	0.2	1.3	2.4	2.1
0.4	0.3	1.4	3.0	3.2
86	88	125	138	1 443
0.4	0.5	4.5	0.6	1.3
40 900	55 600	34 700	90 000	840 000
1.8	4.6	23.5	13.3	12.0
3.3	7.2	26.7	16.2	18.1

and expert opinions. Again, because of the unavailability of adequate data, impact figures have the character of exploratory but reasoned estimates. Although their accuracy can certainly be further improved, and their applicability to our earlier typology (based upon qualitative case-study analysis) is still limited, the data do give us a sufficient measure to explore the extent to which the production base of European farming has shifted from productivist agriculture to rural-development-based SFSC activities.

Given these methodological provisos, we can argue that the presented empirical evidence on the incidence and impact of SFSCs in seven countries (tables 1 and 2) makes it possible to progress a first comparative analysis of SFSCs at the European level. The figures make clear that SFSCs have developed substantially in all countries. If the figures are projected to European level it is estimated that on a total of 7 million farms some 1.4 million farms (20%) were involved in direct selling, 800 000 (12%) in quality production, while approximately 100 000 farms (1.5%) were engaged in organic production. The relative shares even increase considerably when farms with a minimum economic size of 2 ESU are taken as a reference. An important conclusion is that between countries large differences occur in the incidence of SFSCs. In terms of the number of farms involved, SFSCs are the most developed in Mediterranean countries like Italy, France, and Spain, and also in Germany.

Activities of direct selling and quality production are widely disseminated here, sometimes reaching shares of 15 – 35% of the total number of farms. SFSCs are much less developed in the United Kingdom and the Netherlands, and Ireland is clearly lagging behind with very small numbers of farms involved. In the first two countries, SFSCs sometimes reach shares of 5 – 10%, whereas in Ireland figures never surpass 1%. In terms of the number of farms, organic farming is generally much less developed than other SFSCs, with the highest shares in Italy and France (1 – 2%). However, we need to keep in mind that since 1998 the number of organic farms has increased rapidly and that in countries not included in the sample (for example, Austria, Finland, Denmark) levels of 5 – 10% of the total number of farms are reached (Yussefi and Willer, 2002).

There are also striking differences in the specific types of SFSC that are most developed within the various countries. In countries such as Italy, Spain, and France SFSC-development to a large extent appears to centre around activities of regional quality production and direct selling, which built on long-lasting cultural and gastronomic traditions. National and EU legislation for the juridical protection of quality production (for example, PDO/PGI) here appears to have served as an appropriate institutional environment for the consolidation (if not revival) of these activities. Italy, Spain, and France together represent 280 of the 575 products that were registered as PDO or PGI in Europe in 2001. The difference with the United Kingdom, the Netherlands, and Ireland, which amongst them hold only 33 registered PDO/PGI products, is striking (European Union, 2002). In countries like the Netherlands, the United Kingdom, and to a certain extent also Germany, SFSC development is more often based on 'modern' quality definitions stressing, for example, environmental sustainability or animal welfare. Also, new and innovative forms of marketing (such as farm-shop groups, box schemes, farmers markets) appear more often to play a critical role in SFSC development. The fact that in these countries the productivist agricultural model developed more strongly, with negative implications for the survival of traditional production and marketing systems, may play an important role. For organic farming less striking differences between countries occur. In several countries, such as the Netherlands, the United Kingdom, Ireland, and Spain, organics continues to be relatively weakly developed. The lack of sufficient domestic demand, but also shortcomings in institutional support, are important factors. It is only in Italy and

Germany that the organic sector appears to have left its initial low-development base behind.

With respect to the socioeconomic impact of SFSCs (table 2), as expressed in the additionally generated NVA compared with conventional agriculture, again very different levels occur. Germany, Italy, and France are the countries where SFSCs have reached the highest socioeconomic impact: organic farming, quality production, and direct selling together here add some 7 – 10% to the total NVA realised in agriculture. The Netherlands, the United Kingdom, and Spain obtain an intermediate position with around 2 – 4%, whereas in Ireland less than 1% is added to the total NVA by the development of SFSCs. These figures at first sight may appear low, but they only refer to the *additional* NVA generated by activities. Data referring to the *total* NVA associated with SFSC activities unfortunately are not available for most countries. However, for Italy it is known that the total NVA (including primary production) of organic farming, quality production, and direct selling amounts to 5395 million Euro or 29% of the total NVA of the agricultural sector, implying that an important share of the overall production base of Italian farming is geared to SFSC development (van der Ploeg et al, 2002).

Table 2 also presents impact data for two other rural development practices—agritourism and nature and landscape management—that do not directly coincide with SFSCs. The figures demonstrate that SFSCs should not be seen in isolation from overall rural development patterns, and that each country is characterised by a specific composition of rural development practices in response to national contextual factors, of which SFSCs provide one significant part. For example, in Ireland, where SFSCs are rather weakly developed, nature and landscape management is much more advanced than in any other national setting. The same activity is relatively weakly developed in Italy and Spain, where, in contrast, SFSCs play a key role in overall rural development patterns. The interrelations of SFSCs with other rural development practices are especially important in view of possible synergies and multiplier effects between different activities (van der Ploeg et al, 2000). For example, rural development in Germany is characterised by high impact levels for direct sales and agritourism, which points to a specific pattern of simultaneously developing SFSCs in combination with agritouristic activities.

Such synergy effects, arising from the construction of coherent sets of compatible and mutually reinforcing rural development practices, appear to play a crucial role in the enhancement of impact levels, at both farm and regional level (Knickel and Renting, 2000). Obviously, a highly relevant question here is how differentiated impact levels relate to the categories of face-to-face, proximate, and spatially extended SFCS as defined in the previous section. Case-study analysis (Brunori and Rossi, 2000; Knickel, 2001) indicates that the degree of embeddedness of food production – consumption systems in wider regional networks (rural districts) is an important factor behind the spurring of rural development impacts and synergies. This would suggest that especially proximate and face-to-face SFSCs are promising in this respect. An analysis of these effects at more aggregated, national levels goes far beyond presently available data-sets, and would suppose substantial improvements in data-collection systems. Nevertheless, the figures presented here (table 2) suggest that proximate and face-to-face producer – consumer relations, in spite of the overall growth of market shares for SFSCs, continue to play an important role. Direct selling, largely coinciding with face-to-face SFSCs, at overall European level represents the largest number of farms involved and the highest impact levels. For organic and quality food products the picture is more complex and highly differentiated between countries. Nevertheless, also on leading organic markets like Germany, France, and Austria important shares

ranging from 27% to 65% continue to be commercialised through dedicated market channels like farm-gate sales and specialised shops (Michelsen et al, 2000).

5 Conclusions: evolutionary dynamics and potentials of AFNs

SFSCs, with their focus on consumers' needs and sustainable modes of production, may hold some of the keys to future developments of European farming in a context where existing support measures are increasingly under debate in view of the present WTO (World Trade Organisation) round, CAP (Common Agricultural Policy) reform, and the enlargement of the European Union. However, a major question remains as to whether this represents a long-lasting countermovement or a more short-term range of aborted initiatives? The two differing types of analysis presented here have shown that their development, although uneven in Europe, is by no means marginal. SFSCs have developed substantially throughout Europe, and in some countries SFSC-centred trajectories have become key elements of rural development.

At the same time, we need to recognise that even with significant degrees of success there are examples of spatially extended SFSCs (see figure 2) and ecological types of production (like organics, see figure 3) which can fall victim to appropriation by retailers and other agribusiness concerns. In the United Kingdom, for instance, but also in countries like Sweden and Denmark, over 70 – 80% of organic foods is traded through corporate retailers (Michelsen et al, 2000). Some have suggested that the increased corporate control over SFSCs brings with it the danger of a downward pressure on producer prices and a dilution of quality standards, thereby undermining the raison d'être of SFSCs as such (Goodman, 2000; Vos, 2000). That SFSCs are certainly not immune to the 'price squeeze' effects characteristic of conventional markets also is clear from the experience of Parmigiano Reggiano, for which it is reported that sales and farm margins are increasingly under threat as a result of the competition of inferior cheeses with similar characteristics (de Roest, 2000). Table 1 and 2, however, suggest that in certain regions and countries (most notably France, Italy, and Germany) sufficient synergies between different types of rural development practices can be mobilised to significantly add value to local production systems. This indicates that the very process of shortening food supply chains, at least partly, engenders new market relationships which are built around new forms of association and institutional support. It also suggests that new rural development practices, such as SFSCs, are leading to a revised geography of rural development across Europe. The underlying new and reconstituted spatialities implicit in agrofood are being built and shaped around new types of comparative advantage, competition, and power structures, it would seem, which rely much more heavily upon constructing new synergies between proximate relationships, associations, and ecological and regional food identities.

However, if SFSCs are able to play a lasting and significant role in the process of agrarian-based rural development, it is important to identify and analyse evolutionary patterns in their development and consider their long-term impact and future potentials. This requires much more in-depth and longitudinal microanalysis of case studies as well as the broader and exploratory typological and comparative analysis attempted here. In particular, more work needs to focus upon the temporal, spatial, and demand evolutionary dynamics involved in SFSCs, so as to gauge whether they are economically, socially, and environmentally more sustainable over the long term (see Marsden et al, 2000a). In-depth analysis of case studies in this regard suggests that sustaining rural development through the evolution of SFSCs must be based upon both institutional support and new types of associational development involving a range of actors operating within the chains and their surrounding networks. Furthermore, these relationships must alter and reconfigure over time and space. Here, concerning the interactions between the farm,

institutions, and the associational realm, and in appreciating the degree of variability witnessed in both our conceptual typologies and statistical indicator analysis outlined in this paper, there is no one dominant model of development. Such findings have important theoretical as well as policy-relevant implications. If we are witnessing the emergence of new rural economic relations out of the deepening crisis of industrial agriculture, it would seem that new institutional practices and interventions will be needed both to stimulate and to foster these diverse trends. In this paper we have begun to scratch the conceptual and methodological surface of this emerging rural development terrain. Much more theoretically guided and empirically focused research is needed in this regard, given that—either intended or otherwise—the conventional agrofood system and, more particularly its (statistical) governance, has tended to avoid giving these developments the significant attention they deserve.

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