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Chapter 13

Structural economic dynamics and endogenous rural development: a case study on the Chianti region (Tuscany)*

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1. Introduction

The role of agriculture in economic development is one of the most important topics in development economics and policy. In more developed economies agriculture shows strong economic linkages (i.e. intra- and inter-sectoral integration) and can show a strict dependence from the territory where it is located. Therefore, the study of agriculture dynamics must use a theoretical representation able to understand, and eventually explain, through a *unique interpretative mechanism* both macro-economic phenomena - i.e. the evolution of the linkages between the sector and the system - and micro-economic phenomena which take place within the sector - e.g. the territorial differentiation of agriculture and the different patterns of rural development.

Such a synthesis hasn't been tried yet for its inner difficulties, that date back to the different analytical categories typical of the macro (sector-system relationships) and of the micro (intra-sectoral analysis) approaches. Therefore, the first purpose of the present paper is the attempt to outline some stylized facts that could sketch the macro-economic framework where the agricultural dynamics takes place: this will be done using the so-called «structural economic dynamics» approach (Pasinetti, 1984 and 1993; Quadrio Curzio and Scazzieri, 1990). Then, using this approach we carry out a brief analysis of (*i*) the agricultural structural changes in economic development and (*ii*) the territorial differentiation of agriculture development. We try also to provide an interpretation of some rural development patterns - the so-called «endogenous rural development» patterns (Long and van der Ploeg, 1994; van der Ploeg and van Dijk, 1995) - that have recently gained increasing attention by scholars. Finally, we use the proposed theoretical framework, looking for some first evidences of endogenous rural development patterns in the case of Chianti region (Tuscany).

2. A macroeconomic framework for the analysis of development

With structural economic dynamics (SED) we mean the relationship between the historical evolution of a given economic system and the transformation of its structure, that is SED analyzes those changes in history that have relevant and irreversible effects on the structure of the economic system (Pasinetti, 1984 and 1993; Quadrio Curzio and Scazzieri, 1990). These changes depend on the different contributions of each productive sector to the overall macroeconomic figures. Indeed, empirical analysis show that there is a systematic relationship between the increase of per capita income and irreversible changes in the level of (and ratios between) GDP, consumption, investments, and employment: the process of economic growth

modifies not proportionally the relationships between macroeconomic figures within and among sectors.

The Smithian analytical principle, whom this present paper is related to, is based on the division of labor and on the employment structure, as determinants of the wealth of Nations (Smith, 1776). However the division of labor is limited by the extension of the market, as it deepens only if there is enough demand. On the other hand, market size will be larger when there will be more opportunities for the development of the whole system. This situation determines a virtuous circle of development, i.e. a coordinated sequence of phases that brings about cumulative effects following a mechanism that implies, in the long run, significant changes in the allocation of resources between sectors as well as different development paths.

In such a context technical progress is very important and it shows two different effects:

a) on the production side, the change of price ratios as a result of the change of production techniques (changes in the output quantity, quality, and mix that can be produced with the same amount of inputs). However, there are differences in the rate of innovations adoption among sectors, either because they have different characteristics, or because each sector is characterized by a different market structure. Since technical progress shows different effects in each sector, the growth potential varies across sectors;

b) on the demand side it contributes to the change of the structure of demand. The productivity improvement due to technical progress implies an increase of per capita income and, as consequence, of consumption (Engel's law). As stressed by Falkinger and Zweimueller,

«[A]n expanding variety of consumption plays an important role in the process of long-run growth and development. (...) The recent literature on long-run growth has taken up these questions of how the pattern of demand changes in the course of development. Pasinetti (1981) emphasized the importance of considering within the analysis of growth, the changing structure of consumer demand arising from the non-linear Engel curves that are implied by a *hierarchical* structure of demand» (Falkinger and Zweimueller, 1996: 80, italic added),

as confirmed also by empirical analyses.

This structural framework represents the sketch of a theoretical model which has both analytical and normative relevance, though not sufficient for the complete description of a real-life economic system. Therefore, it is necessary to take into account how the economic system is really organized. In this context institutions are very important: the institutional framework of a given economic system is made up by an array of political, normative and legal institutions, that were pre-existent and modeled during history, with which economic institutions have to interact in order to reach specific results. Therefore institutional aspects become relevant since they can influence the economic variables that characterize the economic system: prices and quantities of exchanged goods and labor, the level of interest rate, etc.

In summary, the macroeconomic determinants of long term growth are technical progress and final demand as structural variables, and the institutional set-up as normative variable.

3. Structural economic dynamics, agriculture, and territory

The percentage decrease of agricultural product on GDP and final consumption, and of agricultural workers on the overall manpower are «uniformities» (Fuà, 1974) that characterize the development process and qualify agriculture as a declining sector[1].

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[1] It's well known by now (see Johnston and Mellor, 1961; Kuznets, 1964) that the decline of agriculture contribution to economic growth (either in terms of product, or of employment) is the result of the change in the relationships between the agricultural sector and the economic system, either on the demand side (demand for non-agricultural consumption goods from the agricultural sector and demand for food from the urban sector), or on the production side (supply of agricultural raw materials to non-agricultural sectors, purchase of industrial inputs and quali-quantitative dynamics of agricultural production inputs).

A first important determinant of the agricultural dynamics is the Engel's law, i.e. the systematic change of the consumption pattern when the level and distribution of per capita income change. With reference to this it should be stressed that, though agriculture could be qualified as a declining sector, the change of the consumption structure offers new opportunities for agricultural products, e.g. for goods which lies at a higher hierarchical level in the structure of demand (i.e., the so-called high quality products, see sect. 4).

The effects of consumption dynamics are intertwined with the ones implied by technical progress[2], which usually is labor saving and causes land specialization (both at farm and territorial level).

The same forces that determine the overall economic growth, determine also the spatial differentiation of economic development (Basile and Cecchi, 1995).

From the production's point of view, a first reason for development differentiation depends on the anisotropy of the territory, that could determine localization advantages for whatever economic activity. Moreover, agriculture shows some peculiar characteristics, that qualify itself as "territorially rooted" economic activity: its biological nature and the continuous presence in agricultural production processes of a non-transferable fund, like land (Polidori, 1996).

Therefore agriculture is differentiated in territorial units that reflect the way economic life is organized, according to given social and institutional structures: the agricultural systems. These systems are the resultants of environmental features as well as the economic behavior of economic agents and socio-institutional aspects. In other words, the landscape of a given agricultural system is relatively uniform; at the same time it is possible to single out different agricultural systems according to different kinds of agriculture (and landscapes). Each agricultural system, being the territorial expression of crop patterns, reflects on the production side a specific mix of crops and on the demand side the set of goods produced by those crops (Serpieri, 1940; Pomarici, 1996).

Differences among agricultural systems depend not only on differences in the resources used in agricultural production, but also on the diversity of structural articulation of transformation and distribution phases stemming out from different crops: each agricultural product, indeed, makes possible the use of different transformation and distribution technologies as well as different organizational (and localization) patterns. This is why the territorial features of agricultural production and the vertical integration characteristics of agriculture based industries are deeply interrelated: both of them contribute to differentiate economic development.

A second group of causes of territorial differentiation lies in the change of consumption patterns. The increase of per capita income triggers, through the action of the Engel's law, the consumption of high quality goods, that are normally exchanged at higher prices (niche-products). In other words, it is possible to single out two broad categories of goods: quality goods and commodities. The production of the latter does not require the use of resources with particular qualitative characteristics and they are exchanged on markets where competition is virtually global (Polidori and Romano, 1996[b]): this implies a weak link of production practices with its territorial basis. In terms of products characteristics, agricultural commodities are subject to standardization according to technical requirements of processing industry.

On the other hand, in the case of high quality products, it is the final consumption which commands for the standardization of their qualitative characteristics (Stefani, 1996): however in this case standardization doesn't mean homogeneity among categories of products, but homogeneity within each category of products, i.e. differentiation of products niches. Therefore,

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[2] Technological change causes a restructuring in production relations, which qualifies agriculture as a sector more and more dependent from client sectors (non-competitive markets) as well as suppliers, whose production units aim at develop processing, in order to get higher added value shares and to strengthen theri own bargaining power (Romagnoli, 1991).

the structural dynamics of consumption may trigger otherwise quiescent production processes. Very important for development spatial differentiation is the possibility of strengthening the territorial diversification of productions. As a matter of fact, high quality goods depends on the quality of both natural and human resources of a given territory, i.e. high quality products are different from commodities because of their stronger link with the territorial characteristics (Romano, 1996[a]) and allow for a "strengthening of production-consumption links".

Operationally, this feature offers new opportunities for development, mostly in "marginal" areas. In fact rural development processes based on high quality products are located basically in areas[3] where the net benefits of agricultural modernization didn't reach the point that could allow the farms to enter in the global competition (see van der Ploeg, 1994). Such processes are generally the reaction to the push towards social and economic marginalization, implicit in market globalization and technological evolution. They can be found, therefore, mainly where the strategy of modernization could not be successful (Polidori and Romano, 1996[a]).

4. Structural economic dynamics and endogenous rural development

The interpretative scheme proposed in earlier sections can be useful also for the analysis of a phenomenon that has recently come up known as «endogenous rural development» (ERD, van der Ploeg and Long, 1994). So far ERD has been rarely studied from the economic point of view (except in Iacoponi et al., 1994; Iacoponi, 1995; Saccomandi, 1995), and, in any case, in a microeconomic framework[4]. We do not disregard the importance of such contributions; it is clear, however, that the microeconomic analysis of ERD takes the wider macroeconomic picture for granted, and therefore it is not able to explain the "preconditions" - macroeconomic and structural - that ignited ERD patterns in local contexts, and of the conditions that nurture such practices.

ERD patterns are

> «[F]ounded mainly, though not exclusively, on locally available resources, such as the potentialities of the local ecology [sic], labor force, knowledge, and local patterns for linking production to consumption, etc. (...) Furthermore, endogenous development practices tend to materialize as self-centered processes of growth: that is, relatively large parts of the total value generated through this type of development are re-allocated in the locality itself» (Long and van der Ploeg, 1994: 1-2).

As reported, "locality" is a key concept in ERD patterns, but this must not to be misunderstood. Although one can acknowledge with the claim that rural localities might be able to play to their strengths, it must also be recognized that the meaning of locality was largely deactivated and deconstructed during the epoch of modernization and that it has only recently been reconstituted. There is no general scheme for ERD: It is only the careful and detailed exploration of «farming styles[5]» and other local elements as embedded in particular frames of

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[3] Areas that are marginal because of the existence of incomplete or imperfect markets, of high costs of transaction, of poor infrastructures, of high levels of risks (Romano, 1996[a]).

[4] The more convincing analysis seems to be the one proposed by Iacoponi (1994) that, interpreting the agricultural and agro-industrial districts as models of endogenous development, argues that the local system is a «quasi-market system» that changes the economic room of maneuver for economic agents and influences the firm's decisions concerning the "making" or "buying" (and selling), based on the comparison between costs of production, costs of transport and costs of transaction.

[5] «Styles of farming» is the pivotal category of analysis of endogenous development, at least from a sociological point of view (see van der Ploeg, 1994). A style of farming is the complex but integrated set of notions, norms, knowledge elements, experiences etc., held by a group of farmers in a specific region, that describes the way farming praxis should be carried out.

interaction with outside factors, that can render insights into the prospects for (or the impossibility of) ERD.

The specific empirical expressions of such a "model" are far from being fully explored. But some indications can be derived from the little we do know in order to highlight a preliminary identification of styles of farming that possibly embody endogenous development patterns:

a) the production of *high quality products* that exploit particular market niches and that allow for a relatively high value-added per unit of end product[6];

b) the dependence upon (and the quality of) *local resources*[7] plays a crucial role in production processes: production techniques and farm organization patterns are highly specific (dependent upon the economic, social and local environmental characteristics) and allow for alternatives to current modernization schemes[8];

c) the identification of specific combinations of *extra-agricultural activities* (pluriactivitiy[9]), which give a particular dynamic to the agrarian process of production;

d) the crucial role of *learning processes* (learning by doing and learning by using) in technology development and adoption: "external" technological elements are internalized only if they can be used to strengthen both the specificity and the vitality of local farming styles[10];

e) the *local recognition and knowledge* of styles of farming, their inter-linkages with markets and technology, their potential and their limits[11].

We believe that ERD patterns emerge where the structural dynamics allows for the following conditions:

a) a high per capita income (and cultural level), which let the consumer to have access to and appreciate high quality products typical of such development patterns, and

b) an institutional set-up that safeguards and valorizes typical high quality productions.

These statements can be understood (and justified) on the basis of the theoretical scheme presented in the last section. Characteristic a) is basically a consequence of the Engel's law: it is the income growth (and its wider distribution) that makes possible the change in family consumption pattern and the triggering of demand for products (e.g. high quality products) which lie at a higher hierarchical level in consumer demand structure; characteristic c) is basically

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[6] The identification of low external input agriculture - that does not mean, however, that the level of total inputs is necessarily low: mostly it is labor that replaces the use of external inputs - together with a high technical efficiency founded on the quantity and quality of labor, allows for additional room to achieve a reasonable income even under adverse conditions.

[7] The particular labor process and dependency on local resources that are often strategic for producing such commodities (and the associated social value) inhibit a high degree of incorporation into supply markets and - simultaneously - exclude a straightforward application of current technological models: craftsmanship remains essential. In other words, particular and presently expanding niches in the markets, not only allow for, but assume and require a position such as the A position.

[8] Both the mobilization of resources and the conversion of resources in to end-products (whatever their nature) imply specific (and highly variable) patterns in the social division of labor, of co-operation, of contradictions, etc.

[9] The expression "extra" here is somewhat misleading in so far as it suggests that these activities are external or only additional to farming. Pluriactivity is, of course, more often than not, strategic for the specific way farming is organized. Hence, the interlinkages, fusion and synergy of agricultural and extra-agricultural activities within one and the same economic unit (currently the family) are central for understanding ERD patterns.

[10] Often after a careful "deconstruction" and "recomposition" so as to guarantee the maximum fit with local conditions, perspectives and interests). If no "fit" can be created, then the external elements will remain what they are, that is, "outside" elements (Long and van der Ploeg, 1994)

[11] It goes without saying that the potential suitability of this methodological approach is largely dependent on the specific culture, the patterns of communication etc., as they are encountered in each particular region.

determined by technical progress: pluriactivity and farm disactivation[12] are the effects of the action of labor-saving technical progress; characteristics b) is the resultant of both Engel's law and of the technical progress, that together strengthen the links between production and consumption. In other words, the demand for high quality products, triggered by the increase of per capita income, is met by high quality production based on local high quality resources, the exploitation of which is possible thanks to technical progress.

From the microeconomic point of view, this situation shows obvious advantages for producers: as a matter of fact, the stronger links with the environmental and human resources of a given territory is the precondition for the improvement of producers bargaining power *vis à vis* distribution and/or processing intermediaries. In other words, ERD practices allow for a wider room of maneuver for the farmer: on one hand the adopted technologies are more appropriate since they fit better to local socio-economical environment (and therefore they tend to be cheaper), on the other hand high quality products[13] can be sold at higher prices.

Characteristics d) and e) seem to play a crucial role in explaining how ERD patterns can "endogenize" the mechanism of growth: the local control of development process and the local redistribution of its benefits are characteristics that make ERD practices economically sustainable. As known from endogenous growth theory (see, among others, Barro and Sala i Martin, 1995), endogenous growth is sustained by increasing returns of scale processes that usually appear when the benefits of growth are reinvested in "non rival" goods or services, like infrastructures, education, vocational training, and R&D activities. Now it is self-evident that learning processes (learning by doing and learning by using), the mechanism of deconstruction/recomposition of production techniques and the diffusion of "local" knowledge are examples of a "reallocation within the local community" (Long and van der Ploeg, 1994: 1-2) of a large share of the benefits stemming out from ERD practices.

However, it should be stressed that such a reallocation depends on culture, institutions (norms and habits) and the level of shared information within the local community. With reference to this, it is self-evident the crucial role played by the institutional set-up (both in terms of rules and norms, and of organizations), since it is the framework which gives meaning to economic relationships[14]. Namely, institutions are important at two different levels in ERD patterns:

    a) specifically, it strengthens the technical peculiarities of local agricultural production processes and helps the exploitation of market opportunities for high quality products (through the institutional acknowledgment of trade marks, codes of production, etc.), and

    b) more generally, it strengthens the role of the local community as an institutional actor, whose economic transaction are dominated by institutionally determined behaviors, based on principles of solidarity and subsidiarity (Polidori and Romano, 1996ᵃ).

These two characteristics call for a higher role of "governance" and stress the role of the local community, as a system of resources organized in a comunitarian way (Bourbouze and Rubino, 1992), as a catalyst in the processes of rural development. Indeed, as stressed by Becattini and Rullani,

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[12] That is, the reduction of farm labor inputs and the acquiring of larger share of services from extra-farm enterprises specialized in specific tasks (e.g. harvesting, etc.).

[13] High quality products are usually niche goods, which allow for market segmentation and higher prices: this guarantees higher margins and therefore the survival of farms that otherwise would have been swept away by the globalization of the markets.

[14] In fact the institutional set-up determines the amount, and often even the sign, of economic agents course of action (Bromley, 1989). Therefore, economic agents are interested not only in the exchange of goods and services (transactions of goods), but also in the definition of individual and collective choice sets, changing the institutional set-up (institutional transactions): the history of Chianti Classico consortium (see section 5) are a good examples of these attempts by economic agents living in the Chianti region.

«[T]he local *milieu* is the end-tail of a natural and human history, that provides the production organization of some essential inputs, like labor, entrepreneurship, material and immaterial infrastructures, social culture and institutional organization. (...) Production is not only the transformation of a (given) set of inputs into an output according to given technical processes, but it means also the reproduction of material and human requirements on which the production process is built. (...) Commodity production entails the *social reproduction of the productive organism*: a truly productive process *should co-produce not only commodities, but also values, knowledge, institutions and the natural environment that perpetuate it*» (Becattini and Rullani, 1993: 28, emphasis added).

5. The Chianti as an Example of ERD Pattern

The Chianti region[15] seems to fit very well with ERD stylized facts, showing what we called the "preconditions" for the appearance of ERD processes, as well as their distinctive characteristics as pointed out by van der Ploeg (1994).

5.1 The Preconditions for ERD

The Chianti represents the typical example of a region whose development is based on a quality product like the Chianti wine. The Chianti Classico (CC hereafter) is a VSDP wine: therefore we should expect a higher income demand elasticity for it than for table wines[16]: in this case, we should expect that an increase of real per capita income, like the one which has taken place in OECD countries in last or so (Table 1), would cause a relative increase in CC wine consumption or, at least, a slower fall of CC demand as compared to table wines.

Indeed, Table 2 shows that table wine consumption decreased in selected European countries (apart from Germany), while the one of VSDP[17] wine increased.

Unfortunately, there are no consumption data at all for any category of wine at Tuscany. Therefore, we used production data as a "proxy" for consumption. The overall Tuscany wine production halved between 1980 and 1994 (Table 3), while VSDP wines kept their own position, increasing of about 80% their share on the overall regional wine production. We same can be said for CC, whose share increased from 5.72% in 1980 to 10.17% in 1994.

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[15] As known, the Chianti region is a hilly territory of about 72,000 hectares in the provinces of Firenze and Siena, whose main economic activities are agriculture and tourism (mainly agri-tourism).

[16] Several scholars have carried out econometric estimations of income elasticities for wine in Italy (Gios and Vernizzi, 1987; Boatto, 1988; Raffaelli, 1994; Stefani, 1996): VSDP wines have an elasticity higher than (luxury goods), while table wines show a negative income elasticity (inferior goods). Researches carried out in France (Dubos, 1979) are more detailed, singling out making table wines ($\eta<0$), personalized table wines ($0\leq\eta<1$), regional denomination wines ($\eta\cong1$) and high quality wines ($\eta>1$): they confirm that the higher the quality of wine, the higher its income elasticity.

[17] We used VSDP data because of the lack of data on CC wine consumption.

Table 1 Real per capita income (1987 US $) in selected OECD countries, 1983-1993

Year	Italy	France	Germany	Japan	UK	USA
1983	9,909	12,385	12,494	10,318	10,480	15,677
1984	9,009	10,827	12,048	10,344	9,451	16,581
1985	8,552	10,197	11,542	11,143	8,859	17,182
1986	9,297	11,250	12,175	13,214	9,637	18,419
1987	11,340	13,920	14,290	17,270	11,320	19,800
1988	13,944	17,363	18,056	23,466	13,388	20,805
1989	14,173	17,761	19,591	24,893	13,465	20,350
1990	14,244	18,100	20,834	24,962	13,364	19,837
1991	14,336	18,250	18,537	25,285	12,866	19,370
1992	15,381	19,765	19,875	26,603	13,511	19,939
1993	13,871	19,113	19,296	28,767	12,999	20,318
Difference	**39,98%**	**54,32%**	**54,44%**	**178,80%**	**24,04%**	**29,60%**

SOURCE: World Bank, 1995

Table 2 Wine consumption in selected European countries (thousands of hectoliters)

Years	Germany		Spain		Italy		France	
	Table	VSDP	Table	VSDP	Table	VSDP	Table	VSDP
1982-85	4,450	8,386	13,694	3,830	36,747	5,086	31,755	11,607
1986-89	3,295	8,930	10,005	5,276	31,067	5,502	27,450	12,759
1990-93	3,781	11,423	8,488	6,896	28,066	5,695	22,475	13,856
1994-96	5,021	11,896	6,523	7,190	26,029	7,302	19,656	15,378

SOURCE: Polidori et al., 1997

These performances are not only the offspring of an increase in per capita income; institutions also played a role, namely the establishment of the Consortium for CC promotion and the approval and evolution of CC production code.
Since early years of this century, wine makers claimed for the protection of the origin denomination of CC. Therefore, the " Sindacato enologico chiantigiano " (Chianti Oenological Union) was established in 1903, in order to protect the name of the wine produced in the area and to institutionally strengthen the link between the wine and the area where it is produced. The denomination changed in 1932, when a ministry commission acknowledged to the Chianti producers the right to use the denomination "Chianti Classico" for the wine produced in the historical area, i.e. in the oldest one where this wine was born. In 1967 the acknowledgment of the controlled denomination of origin (DOC) let the Chianti producers to take advantage of a stronger production code. In 1984, following several modifications to the old production code, the so-called controlled and guaranteed denomination of origin (DOCG) was acknowledged. However the Chianti Classico producers were able to differentiate their own wine from the remaining Chianti wine, adopting their own production code, characterized by more stringent prescriptions concerning production technique, peculiar physical-chemical and taste characteristics of the wine, and a shorter ripening period. Eventually, in 1992 the law n. 164 established a new legal framework, that allowed for the approval in 1996 of a brand new production code for the CC, which acknowledged the full autonomy of the historical CC area from other Tuscany areas where Chianti wine is currently produced[18]. In short, we can recog-

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[18] Several prescriptions of the 1996 production code allow for a market differentiation of Chianti Classico from other Chianti wines, e.g. the grapes mix, the vineyard characteristics, limits to production per hectare (the allowed maximum production is 75 q/ha of grapes for Chianti Classico, while the other Chianti vineyards can

Table 3 Wine production in Tuscany, 1980-1994 (hectoliters)

Year	Chianti Classico	Other Chianti	Chianti Total	CC/CT	VSDP	CC/ VSDP	Grand Total	VSDP/ GT	CC/ GT
1980	327,313	929,537	1,256,850	26.04%	1,452,964	22.53%	5,718,800	25.41%	5.72%
1981	347,584	891,839	1,239,423	28.04%	1,457,627	23.85%	4,101,300	35.54%	8.47%
1982	367,039	999,653	1,366,693	26.86%	1,600,953	22.93%	4,714,600	33.96%	7.79%
1983	373,528	1,043,809	1,417,337	26.35%	1,656,581	22.55%	4,691,800	35.31%	7.96%
1984	245,081	691,465	936,545	26.17%	1,116,976	21.94%	3,527,300	31.67%	6.95%
1985	273,941	703,916	977,857	28.01%	1,110,642	24.67%	3,297,200	33.68%	8.31%
1986	299,812	698,552	998,364	30.03%	1,133,569	26.45%	3,818,900	29.68%	7.85%
1987	310,602	758,727	1,069,328	29.05%	1,193,435	26.03%	3,819,400	31.25%	8.13%
1988	292,101	659,665	951,766	30.69%	1,074,153	27.19%	3,684,200	29.16%	7.93%
1989	271,733	587,921	859,654	31.61%	1,101,680	24.67%	3,165,700	34.80%	8.58%
1990	252,316	572,701	825,017	30.58%	1,080,217	23.36%	3,141,900	34.38%	8.03%
1991	221,270	532,901	754,171	29.34%	973,530	22.73%	2,928,700	33.24%	7.56%
1992	268,327	762,512	1,030,839	26.03%	1,307,477	20.52%	3,167,400	41.28%	8.47%
1993	236,086	531,997	768,083	30.74%	1,180,160	20.00%	2,937,733	40.17%	8.04%
1994	273,911	563,070	836,981	32.73%	1,239,229	22.10%	2,693,730	46.00%	10.17%
Diff.	**-16.32%**	**-39.42%**	**-33.41%**	**25.66%**	**-14.71%**	**-1.88%**	**-52.90%**	**81.07%**	**77.66%**

SOURCE: Stefani *et al.*, 1996

nize a well defined and long lasting strategy pursued by CC producers, aimed at linking the environmental and historical characteristics of the Chianti territory with CC wine: the quality is institutionally acknowledged and valorized by strengthening the product differentiation[19].
In conclusion, it is the mix of technical, economic and institutional factors that allow for the CC characterization as a well differentiated product in comparison to the other wines of the Chianti area.

5.2. Main features of ERD process.

The institutional support to the production and valorization of a quality product ("institutional closure") allows for market segmentation, higher prices, and potentially higher added value deriving from the production of that goods. This can be proved not only looking at production evolution, i.e. the CC keeps its own share better than other wines, (Table 3), but also looking at prices that in the period 1980-1996 increased faster for the CC than for other Chianti wines, with a growth in the ratio between the two prices of more than 30% in the period (Table 4).

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reach up to 90 q/ha), the localization of wineries (which must be either within the CC area boundary or, if outside, at a distance not exceeding 10 kilometers form such a boundary). Given the strategic role played by the bottling phase both in the terms of production process and of contribution to the final product added value, it is easy to understand that the latter prescription works as barrier to entry the CC market for outside firms (Dini *et al.*, 1997).

[19] Different is the strategy of valorization pursued by other Chianti producers, that is rooted in vintage choice and wine-making techniques (Stefani, 1996).

Table 4 Wine prices (winery gate) in the Chianti region, 1980-1996 (thousands Lit/hl)

Year	Chianti Classico	Other Chianti	CC/OC
1980	72,2499	50,3796	1.434
1981	69,2703	51,6755	1.340
1982	69,0939	52,2940	1.321
1983	60,2598	46,5271	1.295
1984	78,6382	62,2756	1.262
1985	91,1450	67,4568	1.351
1986	106,6532	62,8290	1.697
1987	119,9470	56,8661	2.109
1988	135,7514	56,8977	2.385
1989	145,6910	65,4663	2.225
1990	137,8280	78,7415	1.750
1991	127,3556	87,0232	1.463
1992	87,6975	76,9316	1.139
1993	68,8580	55,3627	1.243
1994	115,3740	71,7481	1.608
1995	238,3900	125,7293	1.896
1996	296,7407	158,5526	1.871
Differ.	**310.71%**	**214.72%**	**30.50%**

SOURCE: Stefani et al., 1996

Higher prices often means larger margins. Data from the Chianti Classico and neighboring areas support such an hypothesis (Table 5): the ratios between the gross margins of CC and other grapes farms are variable, while the ones of wine processing are always higher than 1, mostly in years in which wine prices differentials are very high (years from 1988 to 1990). The gross margins for the whole CC wine sector are 1.5-2.0 times larger than the ones for table wine.

A second basic characteristics is represented by the exploitation of local resources. The Chianti is an agricultural system because of both its environmental and productive characteristics, and the socio-economic and institutional characteristics. Namely, the area is characterized by a specific crop mix (vineyards and olive trees[20]) and processing of their products. From the socio-economic point of view, the Chianti could be singled out from the neighboring areas of Firenze and Siena provinces for a higher degree of rurality, that confirms the importance of agriculture, as proved by a higher agriculture employment share (averaging 9.0% of total workforce) and the permanence of farms, both in number and size[21], which contrasts sharply with the dynamics in the remaining part of Firenze and of Siena provinces.

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[20] The wine-olive oil mix depends on the complementary of the two crops in using farm funds: human and mechanic labor. Therefore, farms are organized according to a fixed ratio of such crops, usually 1:1 (Dini et al., 1997).

[21] Comparing data from the last two Agriculture Censuses, we find the same number of farms (3,357 in 1982 and 3,352 in 1990) and the same agricultural land area (41,671 in 1982 and 40,675 in 1992), with an average farm size of 12 hectares.

Table 5 Gross margins for Chianti Classico and table wine in central Tuscany, 1988-1993 (Lit/ha)

| Year | Chianti Classico | | | Table wine | | | Ratio | | |
	Grape Production	Wine Processing	Total	Grape Production	Wine Processing	Total	GP	WP.	Tot.
1988	4,286,450	6,686,897	10,973,347	5,302,833	713,936	6,016,769	0.81	9.37	1.82
1989	3,997,305	8,356,539	12,353,844	4,258,650	1,684,894	5,943,544	0.94	4.96	2.08
1990	4,243,368	5,390,486	9,633,853	3,574,818	1,922,175	5,496,993	1.19	2.80	1.75
1991	3,304,327	7,236,852	10,541,179	3,720,201	3,948,133	7,668,334	0.89	1.83	1.37
1992	1,782,805	11,954,794	13,737,599	4,265,306	5,359,797	9,625,103	0.42	2.23	1.43
1993	2,966,067	11,258,404	14,224,470	2,661,632	5,925,103	8,586,735	1.11	1.90	1.66

SOURCE: INEA-ETSAF, several years

The main production activity is viticulture: on average Chianti's vineyards are larger than other Tuscany vineyards[22]. Moreover, the quality of grapes produced is higher: this comes from the hilly location of vineyards, according to production code prescriptions, and from a healthier status of such vineyards[23]. There are also differences in terms of production techniques, because of different grapes mix and crop practices[24]. Another peculiarity of Chianti area is its high density of wineries: the ratio between processing units (both private cellars and cooperatives) and grape producers is 2.3 in the Chianti area, while it is only 0.4 in Italy. Higher is also the number of farms which process and bottle wine on their own: 21% in Chianti, while it is only 6.4% in Tuscany (Dini et al., 1997).

The overall production character of Chianti is therefore the production of high quality wine (and olive oil). The institutional closure granted by DOCG favors this phenomenon and lock all production phases in the territory.

A third characteristics of ERD patterns is pluriactivity (van der Ploeg, 1994). Typically, in Tuscany agritourism is the main activity complementary to agriculture and, also from that point of view, Chianti agrotouristic farms show some peculiarities as compared to Tuscany agrotouristic farms[25] (Table 6):

   a) Chianti agrotouristic farms have a vineyard and olive tree area twice the Tuscany average;
   b) Chianti agrotouristic farms have 1.2-1.4 times more farm buildings than the average

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[22] As a matter of fact, 18% of Chianti farms (80% of the overall vineyards area) has vineyards larger than 5 hectares, while Tuscany farms with vineyards are only in 3% of total farms (51% of vineyards area).

[23] In the CC area 70% of total vineyards are ranked as having excellent or good health status, while only 52% in the remaining Chianti area and 47% in whole Tuscany.

[24] On average, grape strains grown in Tuscany are Sangiovese (80%) and Trebbiano (11%), while in the Chianti Classico the percentage of Sangiovese is up to 99%. There are many differences in terms of production techniques (density, vine rearing, etc.) whose effect is to get a lesser productions per hectares (maximum 75 q/ha), but higher quality grapes.

[25] The average agrotouristic farm size and agricultural cultivated land are almost the same in the two subsamples, so the ratios reported in the last column of Table 6 are also average per hectare ratios.

Tuscany agritouristic farm (although only 30% of buildings are for agritouristic in the former, while up to 50% in the latter);

c) Chianti agrotouristic farms gross revenue is more than 2.5 times the Tuscany average; moreover, almost all revenues come from wine and olive oil productions (96%), while only 81% on average in Tuscany;

d) agritouristic gross revenues in Chianti are more than twice the Tuscany average, thanks to a higher number of visitors (despite the agritouristic surface per farm in Chianti is only 2/3 the Tuscany average); more important, Chianti agritouristic farms have an agritouristic gross revenue per visitor which is 1.6 times the Tuscany average.

Table 6 Agritourism indicators for Chianti and Tuscany

	Chianti Classico (1)	%	Tuscany Total[a] (2)	%	Ratio (1)/(2)
Number of farms	20		115		
Average farm size (ha):					
Total	106	100	102	100	1.0
Crop Area:	50	47	50	49	1.0
Vineyards	16	15	8	8	2.0
Olive trees	11	10	6	6	1.7
Farm buildings:					
Number	4		3		1.2
Surface (m²)	1,414	100	980	100	1.4
Agricultural use	990	70	490	50	2.0
Agritouristic use	324	23	468	48	0.7
Farm Gross Margin(Lit):					
Total	536,907,306	100	206,012,252	100	2.6
Wine	480,794,306	90	146,779,820	71	3.3
Olive oil	33,499,250	6	19,974,597	10	1.7
Agritouristic Gross Margin (Lit):					
Total	255,070,921		114,186,697		2.2
Visits per farm	1,946		1,427		1.4
Agritouristic Gross Margin per visit	131,095		80,045		1.6

[a] Tuscany Total, i.e. including Chianti Classico

Finally, learning, adaptation and diffusion of production techniques at local level are important factors that characterize the ERD pattern: also from this point of view the Chianti region presents many peculiarities. While in the past these processes happened at individual level and only in a second round they were internalized at "social" level by the local community, today they are promoted directly at "social" level through the action of the Chianti Classico Consortium, with the determinant participation of grape producers. For instance, CC Consortium has developed a research-project[26], carried out directly on private farms, aimed at improving agronomic techniques for high quality grapes production. The research project focuses mainly on clone selection and on crop systems sampling. Clone selection is aimed obtaining new vineyards, realized with superior genetic material, obtained from vines originat-

[26] This research, called "Chianti Classico 2000", examines all production phases of olive-oil and wine sectors. With reference to the wine sector, the research started in 1988-1989 and will last for several years: it involves about 25 hectares of vineyards, in 16 experimental fields representative of different pedo-climatic characteristics and 10 agro-metereological stations have been installed.. Moreover, 5 cellars have been equipped with 203 microvinificators, for processing samples. This research is jointly carried out by local farmers and researchers of the Universities of Firenze and Pisa.

ing form Chianti and, hopefully, better fitted to pedo-climatic conditions of the area. Moreover, agronomic research aims at defining more appropriate technique for vineyards installation and cultivation. The effective participation of farmers in this research activity is shown not only by the localization of the experimental fields in their own farms, but also by their direct involvement in executing all cultivation tasks (e.g. land preparation, fertilization, pesticide treatments, pruning). This is possible because farmers have a common knowledge of production technologies, deemed as "normal" in the whole Chianti region.

We can conclude that in the Chianti area farmers pursue a strategic goal (the qualitative improvement of the wine, strictly linked to the geographical origin) through a regeneration and an exploitation of the local resources. This result is pursued through a process of learning of the dominant technological knowledge, adapted to local conditions and past experiences, using current up-to-date experimentation procedures.

5.3. ERD effects

Sustainability of ERD processes can be traced back in the better local control of development process and in the local redistribution of its benefits, that allow the "endogeneization" of the growth mechanism.

The local redistribution of the benefits in the case of Chianti can be proved by the fact that proceeds from wine production are capitalized in the land bases (Table 7). Regressing the CC price difference between subsequent years on CC wine prices differences (both in constant values) we see that the latter explains 63% of the variance of the former:

$$\Delta P_{vineyards} = -437205.56 + 35.8638 \cdot \Delta P_{wine}$$

$$(-0.927375) \quad (4.715165)$$

$$R^2 = 0.6310 \quad F = 22,2328 \quad d.f. = 13$$

Land owners seem to be bettered off relative to other economic agents which contribute to the production process. Setting aside distribution concerns, it is clear that a substantial part of the benefits accruing from ERD is reallocated within the local community[27]. However, the only reallocation of benefits within the local community is not sufficient to ensure the sustainability of the development process. The endogenous growth literature has pointed out that in order to have permanent economic growth at least part of growth benefits need to be re-invested in "non rival" goods and services, like infrastructures, education, professional training and research and development actions. Now, incomes accruing to landowners are re-invested in such actions by the Chianti Classico Consortium[28], whose role in terms of ERD is to strengthen the function of the local community as institutional actor, allowing it to control from within some variables that determine the process itself.

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[27] More than 90% of Chianti farms land is owned by local inhabitants.

[28] Current members of CC Consortium are 600, representing about 80% of CC wine production.

Table 7 Chianti's vineyard prices and Chianti Classico wine prices, 1981-1996 (nominal values)

Year	Vineyard market price (Lit/ha)	CC wine price (Lit/hl)
1981	10,000,000	47,000
1982	11,500,000	52,000
1983	11,500,000	54,000
1984	13,000,000	58,000
1985	13,000,000	100,000
1986	13,000,000	115,000
1987	15,000,000	145,000
1988	18,000,000	180,000
1989	18,000,000	200,000
1990	20,000,000	220,000
1991	20,000,000	190,000
1992	20,000,000	170,000
1993	20,000,000	130,000
1994	20,000,000	200,000
1995	27,000,000	350,000
1996	35,000,000	550,000
1997	50,000,000	650,000

SOURCE: Chianti Classico Consortium, several years

Technological and organizational innovations are some of these variables in the case of CC Consortium: it is currently engaged multiyear research activities for more than 6 billions lire. Information actions are a second group of variables: better market information, technological information and just-in-time information about production and sales play a crucial role on farms and firms management and investment decisions: the Consortium publishes two periodicals, a quarterly and a monthly one.

Other control variables are represented by several forms of social regulation of the production process: quality control centers, technological innovation centers, professional training centers are important clusters that foster development. The wine quality control is carried out directly by the Consortium, according to procedure of analysis even stricter than the ones established by the law[29]. Professional training is carried out at farm level, in collaboration with other public organizations. Another factor is the strengthening of market power of CC producers, pursued by the Consortium setting yearly quotas on the production that can get the denomination of quality; on the other hand, effective promotion and advertising activities are carried out directly by the CC Consortium.

All these activities can be quantified in monetary terms analyzing the Consortium budgets (Table 8), which show not only the relevance of its activities in absolute terms (4.7 billions lire on average in 1993-96), but also that they are increasing. It is also important to stress that the mix of activities has changed moving from pure marketing actions in early '80s (45% of total expenses), toward knowledge diffusion (R&D) and human capital improvement (training).

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[29] A wine quality standard is established on a yearly basis, through the analysis of many representative samples, that are analyzed according to more than 90 parameters: only wines showing a score higher or equal to the year standard can be labeled Chianti Classico.

Table 8. Actions of Chianti Classico Consortium (thousands 1992 Lit)

Actions	Yearly average 1986-87	%	Yearly average 1993-96	%
Vocational Training	-	-	13,940	3
R&D	204,856	6	553,994	12
Advertising (Italy)	1,092,713	30	702,767	15
Advertising (abroad)	559,537	15	515,221	11
Advertising Total	1,652,250	45	1,217,988	26
Total	3,634,997	100	4,736,493	100

6.Conclusions

The proposed model explains the role played by agriculture in advanced economies dynamics in a macroeconomic framework: the growth of labor productivity and the increase of per capita income determine a decrease of agriculture share on final consumption and the shift of demand towards non-agricultural products, respectively. The macroeconomic framework helps to explain, also, the territorial differentiation of agricultural development. Moreover, integrating demand changes and technical progress dynamics with territorial and human potentials of specific agricultural contexts, it is possible to explain to birth and evolution of so-called "endogenous rural development" patterns.

These patterns are based on quality products, on the exploitation of local resources and on the use of appropriate technologies which fit with local environmental and socio-economic conditions. However, in order to let these patterns to develop, two conditions need to be fulfilled: (i) a high per capita income (and a high cultural level), which can trigger the demand for quality goods; (ii) the existence of institutional actions (marks, codes of production, etc.) that help to safeguard and valorize the quality of typical productions.

Indeed we can say that the quality of products is a necessary but not sufficient condition to start and sustain a long-term ERD process. As shown in the case of Chianti Classico, it is the "institutional closure" done by the Consortium that allowed the differentiation of the product, the exploitation of the benefits coming from market segmentation and the reallocation within the local community of benefits accruing from development.

Moreover, the institutional set-up could be a flexible tool to ensure the sustainability of ERD process. As a matter of fact, the quality characteristics of production can only slightly change in the course of time, so that they could be a constraint in terms of adaptive behavior necessary to reply to changes in the socio-economic environment. The institutional set-up, on the other hand, has the required flexibility, given that it can evolve in time, exploiting the new opportunities offered by the changes in the overall environment (or to create "new" more favorable conditions). In other words, economics should take into account not only market transaction, but also what Bromley (1989) called "institutional transactions":

«[W]hen economic and social conditions change, then the existing institutional structure may no longer be appropriate. In response to these new conditions, members of society will undertake efforts to modify the institutional arrangements (...) so as to bring them in line with the new scarcities, the new technological opportunities, new distributions of income and wealth, ot the new tastes and preferences. Those activities undertaken in response to new economic conditions, with the intent of establishing new institutional arrangements, are called *institutional transactions*. Those activities undertaken within a given institutional structure are referred to as *commodity transactions*» (Bromley, 1989: 110).

Referring to this, the case of Chianti Classico and the evolution of the CC Consortium is a textbook case.

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