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# Conflicts between Agricultural Policy and Sustainable Land Use: The Case of Northern Spain

**Summary:** The decline of agriculture, observable mainly in industrialized countries, shows itself not only in a gradual decrease in the economic weight of the primary sector, but also in the abandonment of land devoted to agricultural and livestock activities. The phenomenon of agricultural land abandonment is complex and, in order to explain the causes, it is necessary to consider not only the physical and productive features of the land but also the social and economic characteristics of the area. It also appears to be conditioned by production specialization, since traditional livestock-raising areas show a higher risk of abandonment. The process, which is gradual, starts with a reduction in production intensity followed by increasing marginalization and, finally, the total abandonment of land use. Focusing on a representative area on the Cantabrian Coast of northern Spain, this study tests the hypothesis that a large portion of agricultural land in livestock-oriented regions is underused. It also evaluates the viability of forestry as an alternative use for abandoned lands and the potential effects of the Common Agricultural Policy (CAP) reform.

**Key words:** Deagrarianization, Underutilization and abandonment of agricultural land, Cattle density, CAP reform.

**JEL:** Q15.

Farmland is a multifunctional natural resource providing numerous environmental life-support services (regulation of the water cycle, maintenance of the soil structure, conservation of biodiversity, capture and storage of greenhouse gas emissions etc.) while also satisfying other human needs (aesthetic, scenic and recreational). Such land therefore has some public good characteristics since it is *non-rivalled in consumption* and non-excludable and the rights to its ownership are undefined. At the same time, however, it supports human productive activities (agriculture, livestock, forestry, construction, etc.) whereby it also has private good characteristics.

This situation leads to market failure, however, because the price of farmland does not cover all the social costs (negative externalities) arising from unsustainable land-uses<sup>1</sup> which lead to a decrease (or loss) of its natural services. Thus, both over-intensive production and land abandonment can potentially generate negative environmental effects.

In environmental terms, land abandonment is often negatively perceived (scrub encroachment, simplification of the landscape, decline in farmland biodiversity, increased fire risk, etc.). Nevertheless, some authors point out possible beneficial

<sup>1</sup> Sustainable land uses are those that ensure the maintenance of this natural resource indefinitely, without compromising the services it provides (environmental, economic, socio-cultural, etc.).

effects in locations with highly fragmented landscapes, where it may provide opportunities for large-scale restoration of non-agricultural habitats (Alan W. Renwick et al. 2011). The problem is that abandonment processes vary in manifestation, timing, and intensity across different geographical locations, because they depend on each individual social, economic and political context. This suggests the need for a diagnostic analysis adapted to the characteristics of each location.

The process of deagrarianization, visible in most industrialized countries of Europe, is manifested not only in a gradual decrease in the economic weight of the primary sector (a declining share in GDP or in the population employed in the sector), but also in the progressive abandonment and underutilization of farmland.

Several researchers support the hypothesis that land abandonment occurs differently depending on the specialization and agricultural structures of the area. In Spain, the features of the abandonment phenomenon differ between crop and livestock areas. In livestock areas, land abandonment is very often hidden under forms of sub utilization resulting in very low-intensity land use with risk of degradation and loss of value.

In pastoral areas, cessation of farming activities does not result in the immediate abandonment of the land because it sometimes continues to be used for ranching, but at a very low level of productivity. For a variety of social and cultural reasons, or simply to keep the grasslands in good condition, landowners often persist with un-economic farming while supplementing their incomes in other ways. Appearances might suggest this to be a process of extensification, since it results in less livestock units (LU) per hectare, whereas, in reality, it is not a desired change of production model, but merely a consequence of reducing the herd size while keeping land surface constant.

Some recent studies (Renwick et al. 2011) conclude that the impact of future CAP reforms will be very uneven, with mountainous regions appearing particularly vulnerable. In Spain, the threat of land abandonment is stronger in pastoral than in arable lands.

In fact, the Communities of the Cantabrian coast of Spain (Galicia, Asturias, Cantabria and Basque Country) are identified as one of the European areas that are doomed to suffer the greatest impact in terms of utilized agricultural area (UAA) loss<sup>2</sup>, with declines estimated at between 15-20% (in Asturias the impact would be even higher than 20%). Some indirect indicators suggest that a large portion of the UAA from the Cantabrian Coast to the north of Navarre is underutilized to some degree.

An early retirement scheme for farmers has had relatively wide acceptance in the regions of the Cantabrian coast and Navarre, where a large percentage of Spain's dairy farms (mostly small family farms) are located.

Researchers agree in considering the phenomenon of the abandonment of agricultural land as a complex multi-dimensional and dynamic process with interlinked environmental, economic and social causes and consequences. To understand it,

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<sup>2</sup> National and European statistics define UAA as the total area taken up by arable land and permanent grassland. The arable land includes arable crops, fallow land, kitchen gardens and land used for growing tree crops.

therefore, it is necessary to consider both the physical environmental conditions of the area and its dominant productive orientation, without forgetting the general economic and social conditions and particularly the agricultural policy under which farming and forestry operate.

There are major contradictory strands of agricultural policy, some involving schemes to eliminate a significant portion of farmland<sup>3</sup> while others involve measures for environmental and farmland protection. Some regulations place very severe restrictions on land use, without considering any kind of maintenance measure.

There is a new trend in the global economy involving the massive purchase of forest and farmland in Africa, America and Eastern Europe. According to a recent United Nations (UN) report, net food imports from the EU in 2007-2008 would require the equivalent of 35 million hectares of cultivable land.

The trade-offs among competitiveness and environmental policies also can be translated to the EU agricultural sector. In this sense the economic efficiency of the agricultural sector as a whole could probably improve if small-scale, low-intensity livestock grazing holdings, located in hilly/mountainous areas and showing declining viability, were taken out of production. Nevertheless, the abandonment of farmland with a high proportion of semi-natural grassland, which is recognized as having high nature value, can result in environmental deterioration due to scrub encroachment, simplification of the landscape, a decline in farmland biodiversity and increased fire risk. It also has adverse consequences for rural livelihoods in areas with small, rigid land markets and few economic alternatives inside or outside agriculture. Other, no less important, negative implications include depopulation, depletion of the rural heritage, and the loss of social and cultural diversity.

This study views farmland abandonment as a gradual process that usually begins with a decline in farming activity leading to infra-utilization of land and ending in the cessation of agricultural exploitation. The different stages in this evolution can be seen as varicolored stains on the landscape that official statistical indicators fail to capture.

Our research provides an original approach to this topic, since it extends the concept of land abandonment to include the “underuse” of agricultural land, linking this to the productive specialization and thereby to the geographical areas where such specializations are concentrated. Also, given that agricultural and forestry activity are complementary in some regions, the study includes a viability assessment of forestry as an alternative use for abandoned farmland.

By focusing on the Cantabrian Coast, we are able to analyze the phenomenon of abandonment in an area where the characteristics of farmland abandonment differ from those of other areas of Spain or the EU as a whole.

The paper is organized as follows: Section 1 discusses the definition and significance of abandonment, together with the analytical problems it poses. Section 2 deals with the phenomenon of abandonment in the Cantabrian Coast area of Spain, and particularly in the Basque Country. Finally, Section 3 presents some reflections on land-abandonment and some possible directions for CAP reform.

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<sup>3</sup> In some regions second order effects of decoupling and cessation of extensive dairy farms have resulted in land abandonment (Alliance Environnement 2008; Mark Brady et al. 2009).

## 1. Farm Abandonment: Definition, Significance and Analytical Problems

The abandonment of farmland and the decline of agriculture is a long-established phenomenon, the onset of which largely coincided with the decline of rural society and the transition to an industrial and urban lifestyle. Productivity gains led to continued growth in agricultural production despite the fall in rural population.

The abandonment of agricultural lands in the EU varies considerably from one country to another (and even from region to region) and, while appearing in some cases to be quantitatively important, in others it is less so. These differences may be due in part to the heterogeneity of criteria used in the statistics because abandonment is not defined in the same way in all countries.

There is no universally accepted conception of the abandonment of agricultural land, although most definitions consider land to be abandoned when it no longer supports agricultural functions.

The literature approaches land abandonment from two perspectives, the first of which considers land to have been abandoned when it is no longer farmed, while the second views land abandonment as a dynamic and continuous process beginning with a decrease in utilization and finishing in total abandonment.

Although the first conceptualization of land abandonment is simpler and easier to measure and analyse, the more appropriate for our case study is the second, which Clunie Keenleyside and Graham Tucker (2010) termed “quasi-abandonment or hidden abandonment”. This one nevertheless presents a disadvantage, in that the evolving stages in the under-utilization of land are like a heterogeneous palette of colors or stains on the landscape that official statistical indicators fail to capture.

According to Philippe Pointereau et al. (2008) determinants of the risk of abandonment include a variety of geographic and agro-ecological, demographic, socio-economic, and National and European agricultural policy factors. According to economic theory, the competitive firm’s short-run profitability and production conditions suggest that an unprofitable farm will continue producing as long as it is able to cover variable costs and some fixed costs, but will shut down if the market price fails to cover the variable costs of production. A farm will exit the industry, abandoning its land, if the market price is consistently below the break-even point (minimum average total cost) in the long-run.

The literature suggests that the abandonment of agricultural land occurs mainly in disadvantaged and highland areas, but some researchers (Erez Hatna and Martha M. Bakker 2011) believe the phenomenon to be more complex. They conclude that expansion of cultivated area occurs predominantly in areas where land quality is high. Abandonment is not limited to less favourable locations, however, since it also occurs in areas of high economic activity close to road networks where farmers have more opportunities outside the agricultural sector and there exist other more profitable uses for land.

In some areas, urban sprawl places remarkable pressure on agricultural land. Expectations of rising land values are another major reason for the cessation of farming activity and even total abandonment of farmland in these areas.

Several recent models have been developed to explain changes in land use at the EU level, some of which make projections on different land abandonment scenarios. The majority follow one of the approaches described above; that is, the natural science-geographical approach or the economic approach. While the first focuses on agro-environmental issues relating to changes in land cover, using different versions of the Conversion of Land Use and its Effects (CLUE) model; the second aims to analyze management issues (scenarios of CAP reform), using the Common Agricultural Policy Regional Impact Assessment (CAPRI) model. Due to the different nature of the databases used by both type of models, that is, satellite images versus statements gathered from statistical surveys, the resulting UAA data rarely coincide.

Some studies (Pointereau et al. 2008; Renwick et al. 2011) report a 0.9% annual loss of UAA over the period 1973-2005 (a loss of 29% of UAA for the whole period); they conclude that a major portion of Spain's UAA is under significant risk of abandonment, the Communities of the Cantabrian Coast being among the most affected.

In addition, the new country members from Central and Eastern Europe have increased EU's farmland surface in almost 50%, although the risk of land abandonment is extremely high in many areas of them.

Despite lack of agreement between different sources, it is accepted that abandonment of agricultural land is a heterogeneous phenomenon of considerable magnitude (Pointereau et al. 2008; Keenleyside and Tucker 2010). As far as Spain is concerned, we know that due to falling production quotas and a reduction in assigned areas in recent decades, the output of certain products has dropped significantly. The non-replacement of these products with alternative crops, as is often the case, suggests a significant setback in UAA (Eladio Arnalte and Dionisio Ortiz 2006; Francisco Sineiro et al. 2006; Eduardo Corbelle and Rafael Crecente 2009; Raul Compés and Jose M. García 2009).

In general terms, land abandonment in Western Europe has had its greatest impact in mountainous and disadvantaged areas, although it has been noted that abandonment is a complex phenomenon with various causes, some of which are local.

The only consistent means of investigating these situations of abandonment and underutilization of UAA is through costly onsite inspections or indirect methods that analyze the evolution of agricultural employment, as well as the number of farms and heads of livestock. However, despite some correlation between the two, a decline in the number of holdings and farm workers does not necessarily imply abandonment of the land.

In areas of heavy livestock specialization, assuming short-term relative stability of UAA in physical terms (despite the persisting problem of availability of reliable aggregate and county- and municipal-level UAA data), the evolution of herd size enables a closer estimation of the degree of land use at the aggregate level. Through this approach it is relatively simple to obtain an accurate picture of the situation that is easily updatable using highly accurate data from annual livestock health control campaigns.

Due to improvements in farm-cessation modelling (Ana Aldanondo 2009), the proposed approach enables a deeper understanding of its determinants. Farm aban-

donment does not necessarily mean land abandonment. There is no published data on land transfers, but land mobility is known to be very low and only a small percentage of land is rented or bought by neighbouring farmers to enlarge their holdings. The main weakness of the livestock density approach is that the reliability of the results depends on the quality and reliability of the UAA data used. Although the UAA is quite stable in physical terms, UAA statistics are subject to various factors relating to the data collection process, choice of methodology, concept definition, and reliability of information provided by the land owner. However, the same weakness can be found in any approach based on UAA data.

In conclusion, for areas of high livestock specialization, the use of livestock density as a proxy UAA indicator has important advantages: the main ones being its low cost and simplicity and its complementarity for use with models of farm abandonment determinants.

The phenomenon of under-utilization of land is common in cattle-raising regions that have experienced setbacks in herd size. Since permanent pasture land is not always suitable for other agricultural purposes, land mobility is limited to the livestock sector and conditional on the existence of neighbouring ranchers willing to extend on to newly available land.

Thus, a single area may support highly intensive farms alongside less intensive, or extensive, farms (very low livestock density rates) due, on the one hand, to the decision of some landowners to retain their land, and on the other, to the difficulty of matching local land supply and demand.

While low densities may be the result of extensification strategies, existing constraints in the land market and limited land mobility, which prevent “efficient” extensification, mean that they are often the result of adjustments in activity levels brought about by reducing the number of livestock units (LU) while keeping the UAA constant (Arnalte and Ortiz 2006).

## **2. Farm Abandonment on the Cantabrian Coast**

### **2.1 An Overview**

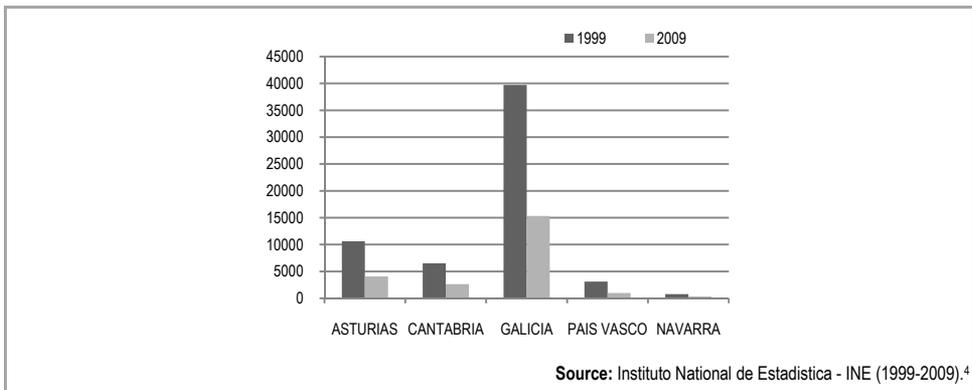
In socio-economic and land management terms, cattle farms represent the heart of the agricultural sector on the Cantabrian coast and in northern Navarre. Due to natural conditions (climate, vegetation, relief, etc.), a large portion of the UAA in these regions is devoted to permanent pasture; hence, their ranching tradition.

There is an agriculture sector based on small family farms, which have been forced by structural adjustments in recent decades to specialize, modernize and increase in size, or disappear. Despite this, the average size (in terms of land area and LU as well as income) of surviving farms remains low by European standards.

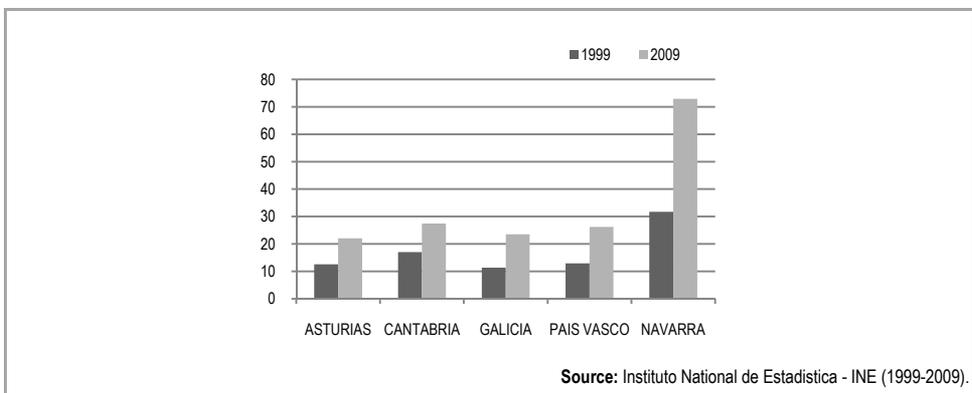
The main factors that have propelled abandonment are: (1) lack of profitability due to input and output market dynamics and agricultural policies; (2) failure of family succession to ensure continuity; and (3) municipal-level demographic and socio-economic factors, such as lack of services and employment opportunities leading to the migration of young people.



**Figure 1** Climatic Regions of Spain



**Figure 2** Evolution of the Number of Dairy Farms in the 1999-2009 Period

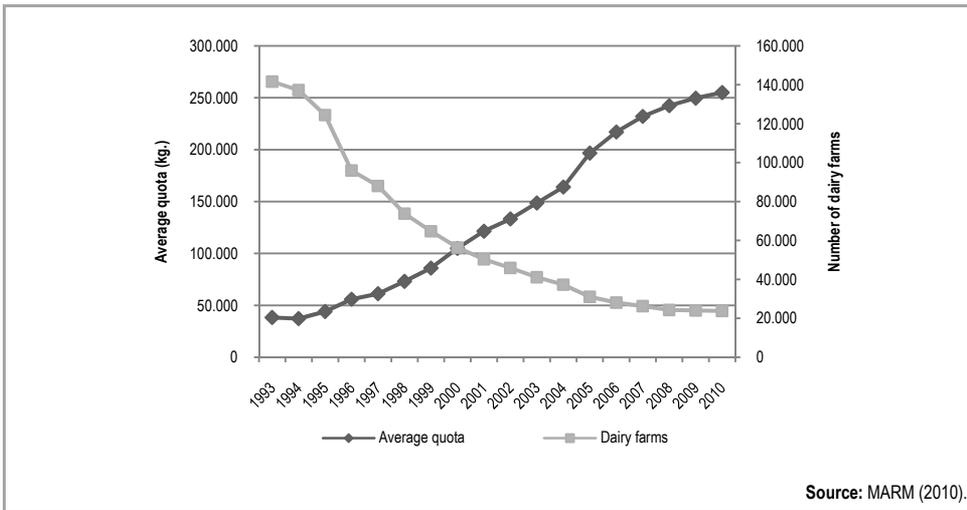


**Figure 3** Evolution of the Average Number of Dairy Livestock Units (LU) Per Farm in the 1999-2009 Period

<sup>4</sup> Instituto Nacional de Estadística - INE. 2009. Agricultural Census 1999 and 2009. [http://www.ine.es/inebmenu/mnu\\_agricultura.htm](http://www.ine.es/inebmenu/mnu_agricultura.htm).

This adjustment process has affected not only the size of farms, but also their productive orientation (Sineiro et al. 2006). In the 80s, Spain's entry into the European community provoked a shift from beef to milk production. Production surpluses in the 90s were addressed by EU programs promoting the abandonment or early cessation of dairy farming and establishing milk quotas. This reversed the trend and some former dairy farms took temporary refuge in beef production as a prelude to their gradual disappearance.

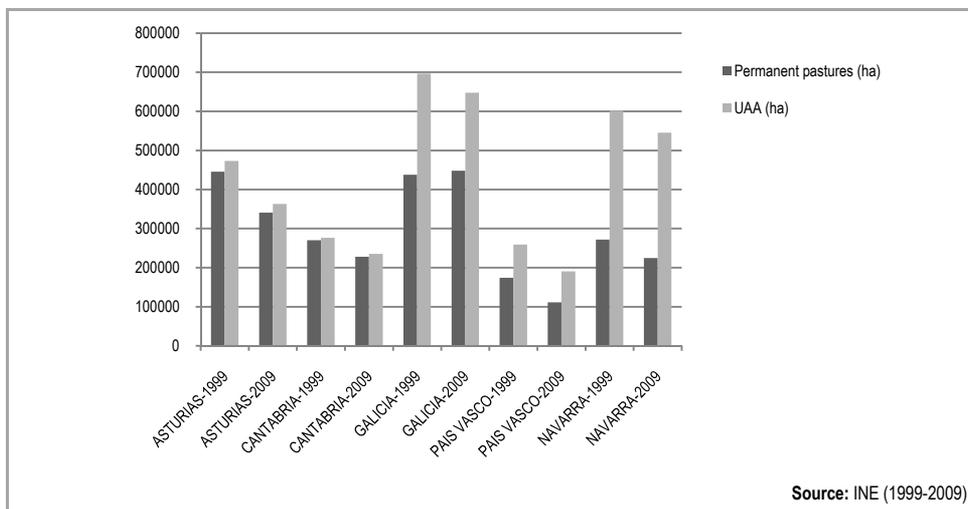
It can be concluded that the majority of modern farms specialize in dairy farming or, to a lesser extent, in beef production. There has been some growth in the size of dairy farms and dairy herds, which have become concentrated in certain areas and increasingly intensified, while beef production is smaller in scale, much more dispersed, and low in livestock density. Far from mitigating, this duality has given way to polarization in recent decades. Thus, although the last two agricultural censuses (1999-2009) reveal both a sharp decline in the number of cattle farms and a somewhat lesser decrease in the number of heads (and LU), the divergence between productive specializations is on the rise. The number of beef farms is relatively stable, despite a small decrease, and beef production remains as a last resort for farmers in the area. The number of dairy farms has fallen more sharply, due to poor market conditions and low CAP support, which has narrowed profit margins.



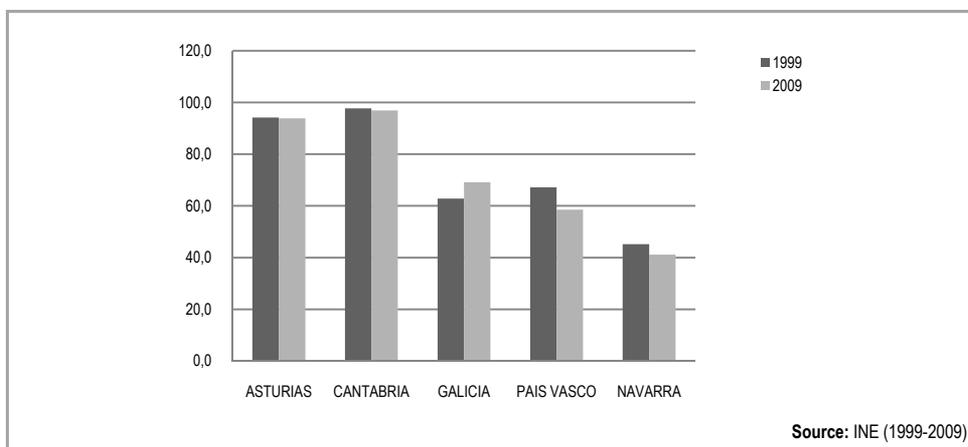
**Figure 4** Evolution of the Number of Dairy Farms and the Average Milk Quota During the Period 1993-2010 in Spain

This has prolonged the decline in the number of farms and effective number of herds both in the Cantabrian region (Figure 2) and Spain as a whole (Figure 4), while increasing average herd size and the average milk quota per farm (Figure 3 and 4). Despite the described decline in numbers of dairy cattle, the Cantabrian area maintains its share in the Spanish dairy sector (79%) and in the total number of heads of dairy cows (63%).

Permanent pastures account for a high percentage of the UAA in the Cantabrian region, where natural conditions led to specialization in livestock. Asturias and Cantabria lead, with percentages above 94%, while Navarre is at the lower end, with just above 40% (Figure 6). The negative trend of the dominant livestock sector has considerably reduced the size of the pasture lands and UAA in the last decade, Galicia being the only region to have seen an increase.



**Figure 5** Evolution of Permanent Pastures and UAA in the 1999-2009 Period (ha)



**Figure 6** Change in the Percentage of Pasture Land Compared to UAA in the 1999-2009 Period (%)

Average livestock densities across most of the natural region are low (less than or equal to 1 livestock unit per hectare of pasture). The only exception is Galicia (1.7 LU per hectare), driven by the high loads of Corunna and Lugo's intensive dairy farms.

In the context of crisis and profound fiscal adjustments in which the European Union is immersed, it would come as no surprise to see cuts in economic support for farmers and the outsourcing of livestock production to more competitive areas further accentuating the risk of under-utilization and abandonment in its various forms and raising the scale from individual plots to the region as a whole.

The Cantabrian coast (like the Mediterranean coast) is generally less favoured, mainly because the dominant specializations (dairy and fruit and vegetables, respectively) receive less economic support (Sineiro et al. 2006). This could increase vulnerability to market instability as well as increase the risk of abandonment in regions specializing in these products.

The cessation of operations does not always lead directly and immediately to abandonment of the land being farmed. In the initial stages, land can still be used to support a few heads of livestock for productive purposes or to maintain grasslands (Arnalte and Ortiz 2006).

This type of usage can be erroneously interpreted as a shift towards extensive production, with fewer animals per unit area, when it is actually a form of semi-abandonment, in which the cattle capital is adjusted while the land base of the farms remains intact. The farm reduces its LU but keeps the land, since it is not transferred. While this process results in very low livestock density, it is not a strategic move towards extensive farming.

Since there are no direct indicators to enable determination of the degree and extent of utilization/underutilization of the UAA, its quantification and localization rely on indirect indicators, such as livestock density and, fundamentally, on herd size and land use evolution, as already explained.

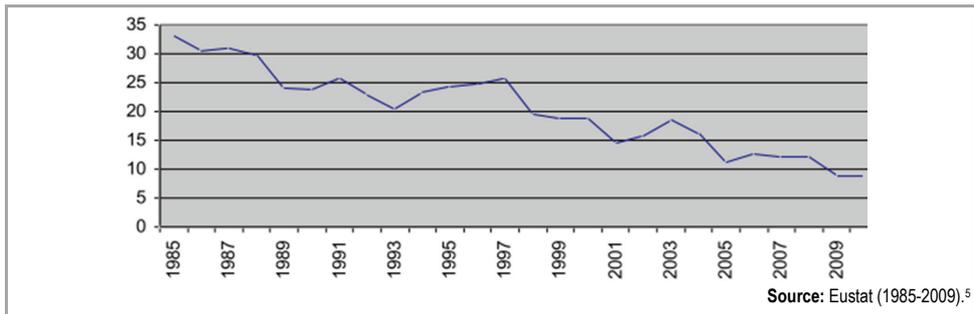
In relation to the afforestation of agricultural lands, about 135,000 hectares, that is, 25% of the arable land in the Cantabrian Communities, underwent afforestation under the Community Program for the afforestation of agricultural lands in the period 1994-2007. The main part of this process (88%) took place in Galicia and the Basque Country. Overall, it represented about 20% of the Spanish reforestation program (Ministerio de Agricultura, Alimentación y Medio Ambiente (MARM) 2007).

Laws and regulations protecting agricultural land have recently been passed by the Cantabrian coast communities (from Galicia to the Basque Country). The creation of land banks and land agencies in several regions reflect the concern generated by low land utilisation and land-market rigidities. Since the land market is neither transparent nor efficient, the purpose of these agricultural land banks and agencies is to improve land market performance by promoting more efficient adjustment.

## 2.2 The Case of the Basque Country

Agrarian decline in the Basque Country, as shown by the evolution of the population employed in the sector, has been significant, with three out of every four jobs disappearing over the period 1985-2009.

This period includes the last phase of economic growth (from the mid 90s) which considerably increased the number of job opportunities in other economic sectors, thereby contributing to agrarian abandonment.



**Figure 7** Evolution in Numbers Employed in the Primary Sector in the Basque Country, in Thousands (1985-2009)

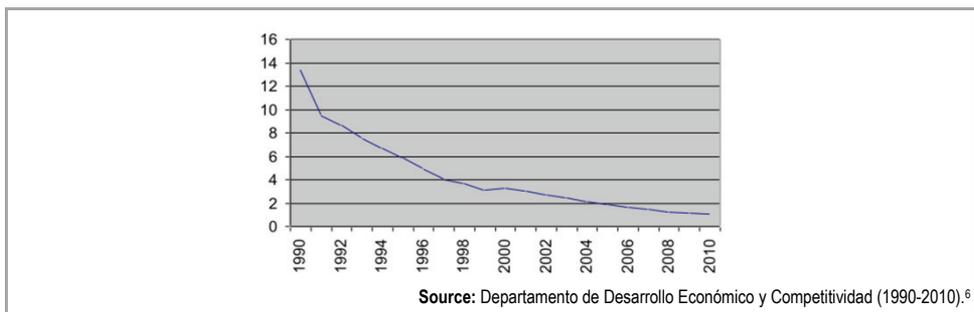
### The Decline of Farming

Although the phenomenon of agrarian decline has been fairly widespread, productive orientation has to some extent determined the degree of utilization or abandonment of farmland. The risk of abandonment appears to have been lower in the traditional crop areas in the south of the Basque Country than in the northern and Cantabrian coast ranching areas.

The Cantabrian area, by contrast, which has been more affected by the decline of the livestock sub-sector, has experienced a significant drop in livestock units and livestock density rates, resulting in serious underutilization of the UAA.

One of the traditional problems in this area was that the smallness of the farms in terms of land surface area limited the size of cow herd they could profitably support. The number of dairy farms has decreased dramatically. The 14,000 dairy farms that existed in 1990 have now dropped to less than 600 (60% of them operating under a quota of less than 150,000 kg).

A small number of dairy farms concentrate a high share of livestock units and production, following the resizing of active farms (25% of farms with quotas over 500,000 kg).



**Figure 8** Evolution of Dairy Farms, in Thousands (1990-2010)

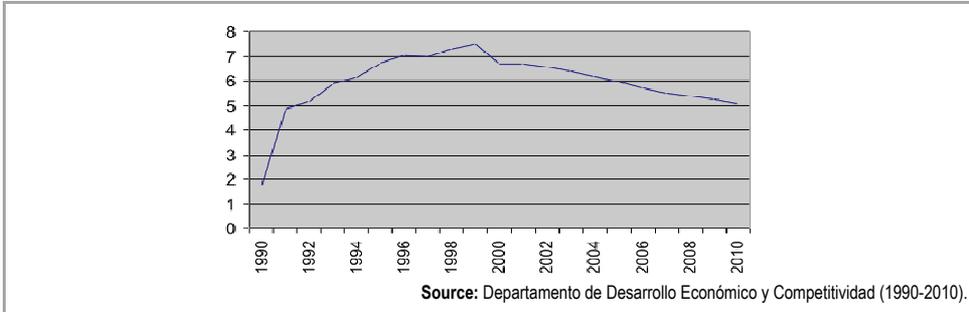
<sup>5</sup> Eustat. 2009. Population With Relation to Activity.

[http://www.eustat.es/bancopx/spanish/id\\_2307/indiceRR.html#axzz2LX67u2Ek](http://www.eustat.es/bancopx/spanish/id_2307/indiceRR.html#axzz2LX67u2Ek).

<sup>6</sup> Departamento de Desarrollo Económico y Competitividad. 2010. Agricultura y Ganadería.

<http://www.nasdap.ejgv.euskadi.net/r50-agrigana/es/>.

The decline of dairy farming was accompanied by a rapid increase in the number of beef cattle farms, which, by 2000, had peaked and begun to diminish. Only a small proportion would classify as professional farms (less than 10% have more than 20 breeders).

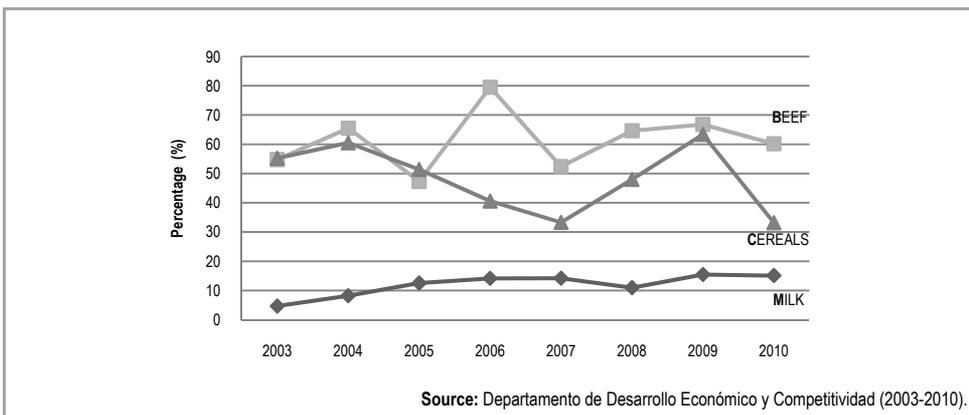


**Figure 9** Evolution of Beef Farms, in Thousands (1990-2010)

The switch from dairy to beef farming has been encouraged by higher CAP support given to beef farmers, who have benefited from non-decoupled premiums for suckling cow production as well as that of calves and older cattle for slaughter.

These imbalances in CAP support are no different from those affecting other products (e.g. COP crops). This means different levels of support for producers depending on the productive specialization of their region, which is rewarded (or penalized) in some regions more than others.

Research on the sectoral and territorial distribution of public support to Spanish agriculture for different periods and using different methodologies, has revealed, with some nuances, the existence of imbalances in the level of public support dispensed (Jesús Arango 1995; Juan R. Murua, Inmaculada Astorkiza, and José Albiac 1996; Juan Oñate et al. 2007; Silvia Andrés and Jose M. García 2008; Observatorio del Apoyo Público a la Agricultura - OAPA 2008, 2010).



**Figure 10** Percentage of Operating Subsidies over Total Output Value for the Main Agricultural Products of the Basque Country over the Period 2003-2010 (%)

A significant proportion of land formerly used for pasture and dairy cattle feed is now used for grazing beef cattle (semi-extensively) or sheep (often marginally). This suggests that a large portion of the UAA of the Cantabrian area of the Basque Country may be under-utilized.

To confirm these appraisals by indirect methods, studies of livestock density (livestock units for surface unit) in the municipalities of the Basque Country have been conducted, with particular focus on the Cantabrian area because of its dominant production orientation and special characteristics (topography, fragmentation and small size farms, and a dynamic economic environment with plenty of job opportunities in the agricultural sector).

**Table 1** Distribution of Basque Municipalities by Livestock Density (LU/ha)

Livestock density	Nº municipali.	%	UAA municip. (ha)	%
<0.5	104	42	148716	57.3
0.5-1	116	46	87557	33.8
1-1.5	23	9	20851	8.0
1.5-2	5	2	1896	0.7
>2	2	1	306	0.1

Source: Departamento de Desarrollo Económico y Competitividad (2010).

In 88% of Basque municipalities, which account for 91% of the UAA of the Basque Country, livestock density is lower than 1 LU/ha. As Table 2 shows, livestock density in 85% of the municipalities is lower than 1 LU/ha, and exceeds 1.5 LU/ha in only 1.5%. As a result, 98% of the UAA is operating with a livestock density below 1.5 LU/ha (the CAP extensification premium rule sets the threshold at 1.4 LU/ha).

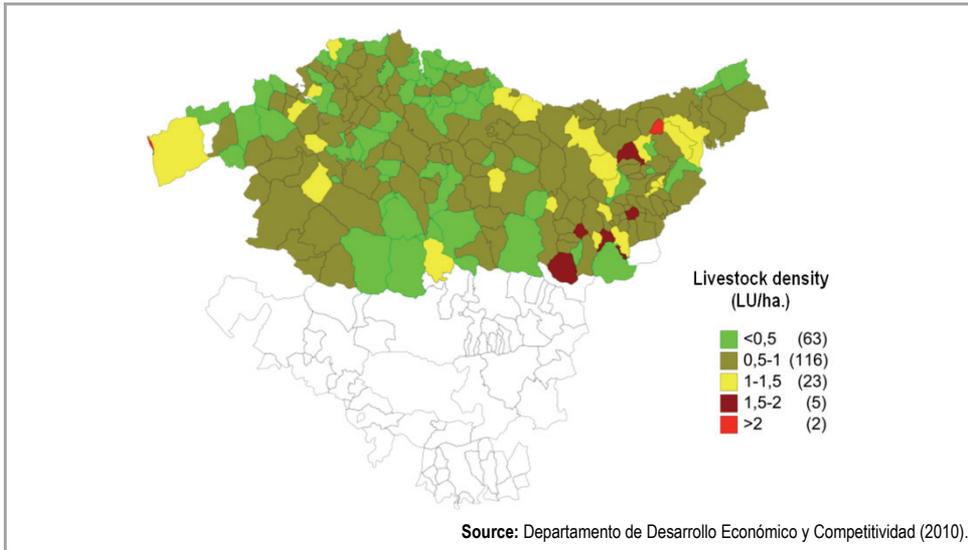
**Table 2** Livestock Density Distribution in the Cantabrian Zone of Basque Country

Livestock density	Nº municipali.	%	UAA municip. (ha)	%
<0.5	63	30	45391	29.1
0.5-1	116	56	87557	56.1
1-1.5	23	11	20851	13.4
1.5-2	5	2	1896	1.2
>2	2	1	306	0.2

Source: Departamento de Desarrollo Económico y Competitividad (2010).

Most professional farms linked to management agencies operating in the years 2009 and 2010 show average loads ranging from 2.1 to 2.5 cows/ha. The average degree of land utilization in the Basque Country dairy sector is about 50% lower than that of professional dairy farms.

Much of the land in these municipalities might be able to support a livestock increase (well above current loads); however, fragmentation and low land mobility, poor business expectations, and alternative employment opportunities are encouraging the sub-exploitation and abandonment of farmland.



**Figure 11** Livestock Density in Basque Municipalities of Cantabrian Zone, 2010

Observation of livestock density in a heavily-specialized dairy zone shows that most municipal loads were below 1 LU/ha. The average county load was 1.2 LU/ha.

Despite the above, highly intensive farms could coexist alongside very low livestock density holdings in the same municipality or region. This is the case in spite of the apparent contradiction because various obstacles impede land transfer from one farm to another.

The new CAP and the abolition of the milk quota system are expected to increase milk production throughout livestock-oriented regions in the EU; supposedly in conjunction with a significant reduction in prices. However, regional effects are expected to be heterogeneous, due in part to falling milk prices and regional variance in production costs (Peter Witzke et al. 2009).

Unless accompanied by compensatory measures, abolition of the quota system will lead to the relocation and concentration of intensified milk production into areas with optimum conditions and to its abandonment throughout the rest of the territory.

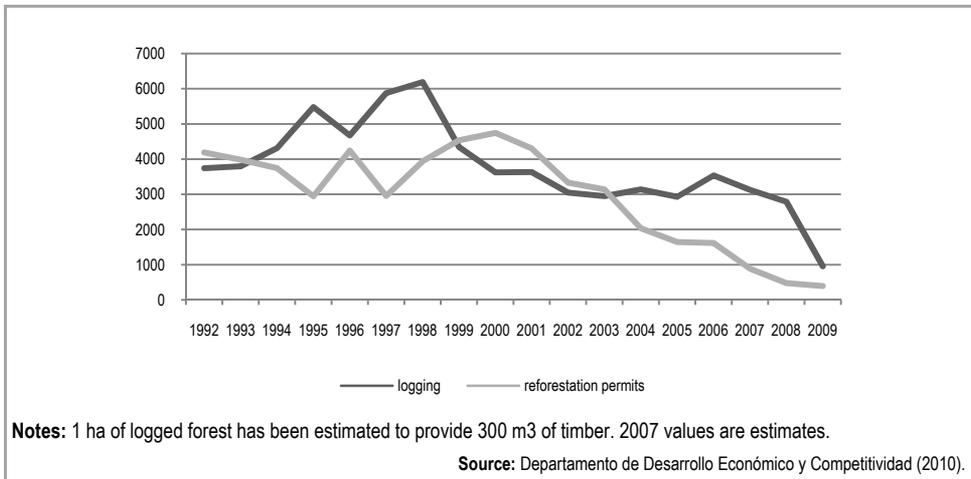
### **Decline of the Commercial Forest Area**

The reforestation of abandoned agricultural land has sometimes been considered, and in some cases adopted, as an alternative to farmland abandonment (Mario Gellrich, Baur Priska, and Niklaus E. Zimmermann 2007).

In the 1950s and 60s, some Cantabrian coastal areas where the land was less suitable for farming were converted into commercial forest plantations (Mario Michel 2006).

Over 50% of the total area of the Basque Country has forest cover, about 39% of which is devoted to the dominant species *pinus radiata*. Most Basque farmhouses in the Cantabrian area used to supplement farming income with some forestry. By the

end of the 90s, however, a number of factors began to suggest the depletion of the so-called Basque forestry model.



**Figure 12** Coniferous Area: Logging and Reforestation Permits in the Basque Country (ha)

The ratio of logged to reforested areas in recent years provides an approximation of the current situation and the economic health of the forestry sector. Logging began to decline at the end of the 90s (afforestation is undertaken after a couple of years' time lag). Since the year 2000, significantly smaller areas are being reforested, mainly because of expectations of falling prices (and rising costs). Other social factors, such as the generation gap and different cultural values among the new owners may also play a part. The reforestation of abandoned land for commercial purposes is not a viable alternative, unless there is a significant increase in the price of timber or reduction in production costs.

### 3. Final Discussion

The relationship between agricultural policy and sustainable land use appears to be a troubled one. Contradictorily, an agricultural policy claiming to preserve biodiversity and landscape fails to consider a significant proportion of farmland.

The CAP has ceased to implement the inefficient and inequitable policies that used to generate large surpluses and is, instead, currently generating other imbalances, by provoking the abandonment or underuse of significant areas of land, while outsourcing the production of some products to countries abroad, from which they are then imported with tariffs low enough to discourage local producers and weaken their position in food/commodity chains. According to the afore-mentioned UN report, EU net food imports would require the equivalent of 35 million hectares of cultivable land. CAP reform should therefore consider the introduction of measures to encourage the use of some of the hectareage threatened by abandonment.

In general terms, it cannot be said that the continuation of current levels of agricultural activity is a necessary and sufficient condition for sustainable land use,

since some reduction in land-use intensity use might improve biodiversity in some specific areas. This is not the case in a considerable number of European regions, however, where farms with low land-use and stocking rates run the risk of total abandonment, which would mean the loss of semi-natural grasslands with high nature value status. As well as environmentally-detrimental effects, it also has adverse consequences for rural livelihoods in areas with low land mobility and few economic alternatives inside or outside agriculture. Other, no less important, negative consequences include depopulation, loss of rural heritage, and the erosion of social and cultural diversity.

Even without considering the loss in producers' surplus due to outsourcing agricultural production, the increase in consumer welfare is lower than might be assumed a priori because the growth in surplus generated by lower agricultural prices is partially offset by the public tax burden for the repair of negative environmental, social and economic externalities. While the costs are borne by national and European public budgets, a higher portion of the added value is captured by commodity buyers and, more significantly, the agribusiness corporations that dominate global trading than by producers in developing countries.

In regions with a high level of dairy specialization, regulatory terms are extremely important. The effects of the abolition of the milk quota system are estimated to be heterogeneous across regions due to differences in production conditions. The new system will lead to the relocation of milk production to those areas with the best conditions and to the abandonment of most dairy holdings in the rest of the territory, even though the European Commission (2002) recognises the multifunctional nature of dairy farming.

It has been shown that the reforestation of agricultural land for commercial purposes is not a viable alternative, unless there is a significant increase in the price of timber and a reduction in production costs in the future. In current conditions, it is more likely to result in the abandonment of existing forest lands than the reforestation of farmland, as observed in the Basque Country.

The EU should review its existing tariff structure and adopt new policy instruments in order to encourage domestic production of crops that could replace some of the protein imported for livestock feeding. This would mitigate the above-mentioned negative externalities in those areas, while also improving food safety, softening market volatility, and ultimately enabling greater territorial cohesion.

Agricultural producers in the EU are faced with highly varied economic and natural environments. To address the problems of a heterogeneous agricultural sector and rural environment in an efficient and equitable manner, future support measures under the new CAP should have sufficient flexibility and a strong territorial component (some studies suggest that regions with specific problems may require special treatment).

The territorial dimension of the CAP is remarkably versatile in dealing with the variety of environments and situations across the EU, but should be compatible with the core of the CAP avoiding the risk of re-nationalization.

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