Farm diversification strategies in northwestern Spain: Factors affecting transitional pathways

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A B S T R A C T

The present paper identifies strategies that farmers have undertaken in northwestern Spain, an area characterized by late structural adjustment. For this study, a survey of over 550 farms has been conducted in four areas representative of different specializations and rural situations, from marginal to productive intensification. Farms have been categorized according to social and productive characteristics through a multivariable analysis. Four basic behaviors have been identified and connected with farm types and rural areas using a multiple correspondence analysis. These basic strategies were defined depending on whether investments have been made on farms to increase or intensify production and whether new on- or off-farm diversification activities have been introduced. This analysis allows us to assess transitional pathways for the future and to assume some consequences of farm behavior in connection with structural adjustments. Thus far, empirical evidence shows that the nature and main drivers of the diversification process are different from those in northern European areas. At the same time, a significant level of farm abandonment is registered.

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1. Introduction

Studies on the strategies followed by farms to adapt themselves to agricultural policies and changes in the socioeconomic environment are frequent in the literature on rural restructuring (Shucksmith and Smith, 1991; Marsden et al., 1996; Meert et al., 2005; for a review, see Evans, 2009). Although the term “strategy” is not always accepted when farms do not follow a specific plan with an identified target (Crow, 1989), this term has been widely used to define responses to changes in the socioeconomic environment by family farms in western countries. Previous studies suggest different answers and therefore different strategies depending on the territory (Pfeifer et al., 2009), the type of farm (McNamara and Weiss, 2005; Evans, 2009), the values and attitudes of the farmers (Paniagua, 2001; Shucksmith and Herrmann, 2002) and family characteristics, such as the owners’ age (McNamara and Weiss, 2005; Jongeneel et al., 2008) and succession.

In the 1980s, many studies particularly examined pluriactivity and part-time farming (Arkleton Trust, 1985) because these types of activities were increasingly common in an adverse economic environment for family farms. In the 1990s, the development of the theoretical framework of post-productivism as a paradigm that exceeds productivism (Ilbery and Bowler, 1998; Wilson, 2001) focused again on farms’ pluriactivity as a part of a broader concept of diversification. According to Ilbery and Bowler (1998), diversification, both of production and consumption (including activities such as tourism, nature conservation, housing, leisure, traditional products), with dispersion and extensification may be the features that describe post-productivist rural systems. This conceptualization was later enlarged by other authors (Morris and Evans, 1999; Mather et al., 2006; Wilson, 2001, 2007).

More recently, Van der Ploeg et al. (2009) describe and provide empirical evidence of the divergence of paths regarding the patterns followed by European farms, where many but not the majority of them did not follow the way established by the paradigm of agro-industrial modernization in terms of concentration, expansion and specialization. This behavior is what Evans (2009: 219) calls “farm
business development paths” – in Bowler’s words (1992) – and Evans argues that “the formulation of paths, in particular, provided a convenient way to locate and evaluate the role of plurality on farms within a strategic framework”. Here, plurality includes both “off-farm employment” and “on-farm diversification”, and it should be understood as a strategy between the seeking of a higher presence in markets and a growing marginalization.

In addition, since the reform of structural funds in 1988, European policies on rural development have proposed several measures (now included in Axis 3 (311), (EC) Reg. 1698/2005) that directly or indirectly encouraged farm diversification claiming the multifunctional character of European farming. Pluriaridity and diversification were expected to help families become less dependent on their revenues from farming and to maintain the population in rural areas by creating new jobs. Although the implementation of these measures in the EU was not homogeneous among member States, there is a significant connection between the implementation of these measures and the development of new activities by farms (European Commission, 2008). However, the Commission report does not observe the same relation with the creation and the preservation of jobs in rural areas for all of the analysed areas; this relation depends on different circumstances.

Thus, farming diversification strategies have been presented in many studies (Brun, 1988; Marsden et al., 2002; Meert et al., 2005) as being typical of or suitable for peripheral farms, or farms that are remote from international markets. Nevertheless, it is possible to identify some differences depending on each type of farm (Daskalopoulou and Petròu, 2002). In Spain, however, this strategy did not seem to have a strong implementation at the beginning of the decade (Hoggart and Paniagua, 2001) even in the less favored regions, at least in the theoretical framework of non-productivism. At the same period, Arnalte Alegre (2002:393) noted the shortage of empirical works addressing “production strategies of farming companies and families showing their ways to adapt themselves to the different farming policies and to the evolution of markets”.

More recently, Moreno-Pérez et al. (2011) show the persistence and strength of the processes of concentration, capitalization and intensification even on family farms with new forms and strategies.

The north-western region of the Iberian Peninsula is an area with a strong specialization of cattle, which explains its current farm structure (Arnalte Alegre, 2002). Namely, in Galicia (the major region of this area), the value of agriculture is still higher than the agri-food industry – 54.7% gross value added of the entire agri-food production in 2012 – and employs a significant portion of Galicia’s labor force – 5.2%. In the entire northwest, most farms are family run, and their future is bound to the demographic and economic situation of owner families (Sineiro García et al., 2006). In the last two decades, this territory experienced intense restructuring and adjustment processes that ended by a dramatic reduction of the number of farms and a deep geographical concentration and specialization of production (López Iglesias, 1998; Sineiro García et al., 2006). These experiences had a double result: abandonment of land in marginal areas and significant pressure on land where milk production is concentrated. Currently, milk is northwest Spain’s main product in terms of value added, however the rise of fuel and cereal prices as well as changes in the CAP have created a scenario of uncertainty for this territory. At the same time, northwest Spain is an area with a wealth of experience in rural development programs seeking the economic diversification of farms and territory (Pérez-Fra et al., 2012).

This paper analyses the response of farmers to these changes in the economic and institutional environment. The results are based on a survey conducted in four areas representing different rural situations; two areas specialize in dairy (one in a less-favored zone), another area on wine and the last area is situated in a mountain zone devoted to beef cows. Special consideration has been given to diversification under the non-productivist paradigm, which has been well studied in European industrialized agrarian systems but not in the southern countries or in less favored areas.

2. Theoretical framework

The recognition of the multifunctional aspect of the rural space and farming might drive an evolution toward farm diversification (Van Der Ploeg et al., 2000; Marsden et al., 2002; Wilson, 2008). In fact, the approaches to multifunctionality, both positive and normative (OECD, 2001), may involve different developments for diversification. In a policy discussion, Marsden and Sonnino (2008) depict three types of multifunctional agriculture. First, multifunctionality may be viewed as restricted to pluriactivity in an agro-industrial model. Second, arising from a ‘post-productivist’ paradigm, it was argued that farming would no longer be a main driver for a rural economy whereas other land-uses gain prominence. Third, other rural development models were identified in post-productivist theory (Knickel and Renting, 2000; Marsden et al., 2002), where farms and agricultural activity are still important to generate economic activity. By enlarging their activities to include environmental aspects or by covering some stages in the food chain (Arnalte Alegre, 2007), farms intend to keep the rural environment alive. Marsden and Sonnino (2008) place these later findings in a sustainable rural development paradigm that corresponds with Professor Wilson’s view and what he calls “strong multifunctionality”.

Wilson (2009: 270) defends a concept of multifunctionality that “should not only be seen as a mere concept describing agricultural change but as a process explaining what is happening on the ground”. Wilson also presents a model of a multifunctional continuum, which progresses from weak multifunctionality corresponding with a productivist action to strong forms of multifunctionality corresponding with non-productivist action and thought (Wilson, 2009). In addition, Professor Wilson raises the question of scale and states that “multifunctionality should have tangible expression rooted in specific localities, in the farmed landscape, and in ... multi-level governance structures”. The farm level is the most important spatial scale for the implementation of multifunctional action ‘on the ground’.

The concept of post-productivism has been severely criticized for several reasons. First, the reality described by this term refers only to particular farming situations, namely, in the UK (Paniagua, 2007). Second, from a quantitative point of view, there is little empirical evidence of any pattern that might be attributed to post-productivism (Walford, 2003; Lobley and Potter, 2004). Finally, the name that was adopted gave the idea that, with time, productivism would be replaced by another system toward what we are heading now. Professor Wilson (2007, 2008: 368) argues that this concept lacks both territorial homogeneity and linearity, and he suggests the term “Non-productivism” to describe the changes that, contrary to any logic of productivism, seem to appear in European farming (Wilson, 2008, 2009). This author explains—albeit in a theoretical way—how a farm may follow diverging paths (weak, moderate and strong multifunctional paths) throughout its existence varying between productivist and non productivist actions. In strongly multifunctional systems lead by non-productivist actions and thought, “there will also be a revaluation of existing farm household knowledge and a greater likelihood for farms to embark on diversification pathways” (Wilson, 2009: 270).

Later on, the literature raises the concept of resilience to explain differences in the adaptation of human systems to environmental, economic and social changes (Wilson, 2012, 2013). For Professor Wilson, social resilience is a process linked to improved adaptive capacity involving dynamic changes over time associated with

learning and the willingness to take responsibility and control of development pathways (Wilson, 2013). As well as the concept of “non productivism”, resilience refers, in Wilson’s words, to non-linear processes, heterogeneity and spatial complexity and is not dissimilar to the notion of “strong sustainability” (Wilson, 2013), and Kelly et al. (2015) see sustainable development as an outcome of a resilient community. We can say that resilient communities are also multifunctional communities where employment is diversified (Lynd Cheshire et al., 2015). At the same time, communities are comprised of households, individuals and other groups of individuals who all have their own resilience pathways (Wilson, 2012). This author states that local communities and individual decision-making pathways are embedded in nested hierarchies of scales, with close scalar interconnections between the community and other supra-levels. Natural, economic, social, cultural and political/institutional factors affect resilience at all these levels with different expressions influencing individual actions (Paniagua, 2013).

Bowler (1992), with the contributions of Ilbery et al. (1998) and Ilbery (2001) as discussed by Evans (2009), has developed an useful classification of the ways farms can develop. We consider this classification a reference for our study with the adaptations indicated in Fig. 1.

Some differences between both classifications must be emphasized. In the study presented here, under “diversification of farm’s agricultural production”, unconventional production – such as organic production or the introduction of endangered animal breeds – and conventional production – such as innovative products not common in that area – have been included, as well as producers choosing to begin differentiation quality strategies to produce according to quality certifications or under the farm’s own brand.

However, according to Ilbery and Bowler (1993), conventional production may not fall under “diversification” as a post-productivist feature. More recently, Maye et al. (2009) prefer to discuss “farming-related activities”, when referring to what they call “farm diversification activities”, where all types of farm production, product processing and direct marketing activities are included.

Under “income diversification”, we find cases where the family labor force is devoted to off-farm activities: off-farm employment and non-agricultural activities. Here, this concept is described as Non-linked and as Linked non-agricultural diversification, meaning that activity diversification is produced by using the farm’s own resources. The exclusion of these activities from the concept of diversification would mean hiding the contribution of the rest of the family, other than the owner, to the preservation of the farm (McCally, 2001; Maye et al., 2009). These activities are relatively important in the surveyed area (Sineiro García et al., 2006). Activities included in this strategy are farm tourism, the processing of agricultural products, offering farm services, such as machinery rental for different forestry and agricultural tasks, forest activities, craftwork, and assignment of land for power production, etc. Noticeable is the provision of environmental services through participation in agri-environmental programs. All of these programs are well described in the literature related to non-productivist strategies and strong multifunctionality.

Reasons for initiating diversification patterns have been established in the past (McCally, 2001). The most frequently mentioned reasons are the generation of income, a more efficient use of the farm’s resources and a reduction of total risk associated with farming activities (McInerney and Turner, 1991, 1993). Additionally, McCally’s work (2001) summarizes the characteristics associated to farm diversification bundled under the following groups: profitability of farms’ resources, policy changes, financial risks, characteristics of production units and the household. McNamara and Weiss (2005), in a theoretical framework related to risk aversion, show empirical evidence concerning the influence of the owners’ age and farms’ characteristics on diversification. It has been discussed that farms with bigger economic dimensions can assign more resources to non-agricultural activities or to several types of production (McNally, 2001; Shucksmith and Herrmann, 2002; McNamara and Weiss, 2005). A stronger tendency to develop simultaneously both agricultural and non-agricultural activities has also been associated with some production. This means that farms focused on milk production would not be able to develop other activities, the opposite of other farms that produce cereal or fruit/wine with higher seasonal job variations (McInerney et al., 1989; Ilbery et al., 1997). Labor market developments (Vergara et al., 2004) establish opportunities when choosing to complement income with off-farm activities. In this list of factors moving toward a diversification strategy, the role played by the type of holding and its implications on diversification has been studied recently (Maye et al., 2009). Despite recent evidence that notes some connections between the tendency to diversify and farms’ localization (European Commission, 2008), connections between diversification and territory (or any other external factors) have been less analyzed (McNamara and Weiss, 2005; Pfeifer et al., 2009). Wilson (2009) is the exception, and he identifies the influence of different geographical levels in encouraging multifunctionality.

3. Methodology

3.1. Description of the surveyed areas

Data have been gathered through a survey conducted in four sample areas of Northwestern Spain. The purpose of the survey has been carried out to understand the economic relations of farms that have been implemented on the territory and for production strategies. Rural areas in this part of Spain are characterized by recent disappearances (through the 90’s and 00’s) of farms and the decrease of economic activities in certain territories. Meanwhile, the main part of agricultural production is concentrated in only a few places. This process has taken place at the same time that of the diversification of rural policies which were implemented and financed by European funds. The areas selected for this work reflect the dichotomy between areas of very high agricultural productive and areas of declining production from an agricultural perspective. The two different realities which are commonly occurring in Europe are being confronted: The agricultural concentration and agricultural abandonment.

Two of the selected areas belong to a territorial typology that we call “high agricultural productivity rural areas”. The first selected area is inland, hereinafter referred to as “Internal Coruña”. The second selected area, hereinafter referred to as “Coast Lugo–Asturias”, is located on the coast, which means a higher level of competition for land resources. In both cases, these farms are highly specialized in milk production (Fig. 2). The third area is representative of “low agricultural productivity rural areas”. This area has been called “Mountain Ourense” and is largely specialized in extensive beef farming. The fourth area has been classified as “diversified rural areas”, where a higher number of different economic activities can be found, hereinafter “Coast Pontevedra”. Here, most farms specialize in wine production.

3.2. Survey and quantitative methods

Results come from 559 personal in-home interviews conducted between March and September 2008 (see Table 1 for a guide). According to the existing production specialization in the four...
selected areas, minimum variance random sampling was stratified as follows. For livestock farms depending on herd size, stratification was expressed in the number of cows, with data from the census of official livestock health campaigns. For wine farms, stratification was determined by the quantity of grapes sold, and data were gathered from production records from the Protected Designation of Origin “Rías Baixas”.

A hierarchical cluster analysis (Ward’s method) was conducted to classify farms in typologies, needed to establish relations with past and future strategies. This technique, that classified objects in homogeneous groups, is suitable for exploratory analysis where exists ignorance of the optimal number of groups. This analysis classify farms in four groups by means of seven quantitative variables shown in Table 2 common to the four areas that concern the holdings’ social characteristics, production and income level strata.

Prior to its inclusion, a Spearman’s rank correlation coefficient was used to verify non co-linearity effects among these variables.

To process the “production stratum” variable, for every selected area, each holding was assigned a level on a scale from 1 to 10, depending on the number of cows or kilos of grapes produced.

Farm revenues level comprises the sale of agricultural products, current subsidies, other gainful activities and pensions.

The criteria used to determine the number of groups was based on two methods: dendogram and calculation of the variation ratio between the clustering coefficients in successive stages. An analysis of variance has been performed in order to establish differences between groups for variables included in cluster analysis and for other complementary quantitative variables.

Once the cluster analysis was obtained, four types of ideal behavior or strategies were identified from the survey informa-
tion. This information was gathered through questions regarding investments and improvements made on the farm during the last five years, their behavior in terms of intensification and production increases, and activities related to income diversification performed both on and on the farm (Table 1).

Fig. 3 shows the process followed to identify these different strategies and diversification patterns, separating farms that follow different pathways and identifying those who undertake different strategies at the same time (see section 4.1 for a better explanation).

In addition, answers obtained to the question concerning the intention to develop certain activities in the near future were used, and they were classified as shown in Fig. 4. From the 559 farms surveyed, we divided the different groups that intend different strategies that can be indicative of their future behavior.

To analyse the relations between past and future strategies with the farms’ typology, a multiple correspondence analysis (MCA) has been used. This method allowed us to show connections between studied variables in a graphical way testing if there is a relation between non-metrical variables, their intensity and the degree of influence in this relation of different values that variables take. Further details of these patterns are provided in next sections.

4. Results

Table 2 allow us to characterize the groups of farms obtained from the cluster analysis, it shows the resulting groups (clusters) of analyzed farms, their statistical significance and the variables used with their average values per group; all the clusters are significant at 1% for the analysis of variance. This analysis gave us four groups of holdings: those with a high farming activity, those with a medium farming activity, those where income from off-farm activities is greater than 50% and those farms with a very low level of production and elderly stake-holders that we call “in recession”.

Farms (165) with a high level of agricultural activity have, on average, younger owners (41 years old) and the largest families (4.7 members), as well as the highest level of production and income, 72% coming from the sale of agricultural products (Table 2).

In farms with a medium level of agricultural activity (157), owners are approximately 10 years older than the previous group and their families have approximately 2 members less. The production stratum and income of these farms are also low, with agricultural proceeds 10% lower. Farms in these two groups mostly comprise dairy farms.

The third group comprising 175 farms is more dependent on off-farm activities, or 57% of their income. This figure is more than twice their proceeds from agricultural activities. Nearly half of these farms are beef farms, and 40% are wine producers. All of these farms have low production levels. Finally, the 62 farms in recession exhibit very low agricultural activity. Households are small, and farm members are older than 65 years on average. The average age explains why pensions are the main income of these farms—86%. Income from agricultural activities on these farms is only 11%, and their production volume is very limited. Most of these farms focus their reduced agricultural activity on livestock and 10% on wine production.

4.1. Description of identified past strategies

Of the 559 farms surveyed, 310 have undertaken actions and investments seeking growth concerning size and production. Meanwhile, 249 have maintained as stable or stagnant. However, growth and stagnation could be combined with other actions intended for diversification and pluriactivity. Of the 310 with growth activity, only 140 have specialized their production, and 170 have undertaken some type of diversification. Specifically, 36 farms have undertaken agricul-

<table>
<thead>
<tr>
<th>Cluster’s variables</th>
<th>Activity</th>
<th>F</th>
<th>Signif. level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High farming activity</td>
<td>Medium farming activity</td>
<td>Off-farm</td>
</tr>
<tr>
<td>Number of cases</td>
<td>165</td>
<td>157</td>
<td>175</td>
</tr>
<tr>
<td>Age of owner</td>
<td>41.4</td>
<td>51.8</td>
<td>51.7</td>
</tr>
<tr>
<td>Family average age</td>
<td>42</td>
<td>55.5</td>
<td>45.2</td>
</tr>
<tr>
<td>Number of family members</td>
<td>4.7</td>
<td>3</td>
<td>3.4</td>
</tr>
<tr>
<td>Productive stratum</td>
<td>6.2</td>
<td>5.3</td>
<td>4</td>
</tr>
<tr>
<td>Level of income*</td>
<td>7.1</td>
<td>4.5</td>
<td>3.9</td>
</tr>
<tr>
<td>Income from agricultural activity</td>
<td>71.9</td>
<td>61.3</td>
<td>22.4</td>
</tr>
<tr>
<td>Income from other external activity</td>
<td>6.5</td>
<td>6.1</td>
<td>57.2</td>
</tr>
</tbody>
</table>

Note: * Results used in this article.
cultural diversification, 84 non-agricultural diversification, and 50 farms have undertaken both types of diversification. Of the 249 farms without growth activity (stable), approximately half (127) have been involved in some type of diversification; 21 farms have engaged in agricultural diversification, 78 in non-agricultural diversification and 28 in both types of diversification (Fig. 3).

It is possible to establish several connections between the types of past implemented strategies and the farms’ characteristics. Table 3 shows the mean values for every analysed variable by each type of strategy. Following the process described in Fig. 3, 4 types of ideal past strategies have been identified. Two behavior patterns are mutually exclusive: growth and stagnation. However, these patterns rarely appear in isolation. On the contrary, diversification behaviors following the classification in Fig. 1 (agricultural and non-agricultural diversification) have been combined with growth and stagnation. Agricultural and non-agricultural diversification categories are also mutually exclusive, but this fact does not mean that a single farm could not exhibit both strategies. In fact, 78 farms show both diversification patterns (Fig. 3). In addition, we have differentiated two subtypes of Non-agricultural diversification (linked and non-linked) not shown in Fig. 3 that can appear in the same farm.

The following paragraphs describe each one of the strategic patterns that have been observed based on the data shown.

The Conventional growth strategy has been implemented by producers who said they had intensified and increased their production in the past or had enlarged the size of their farms, either in terms of number of livestock units or area—by renting or buying land or by working fallow land. Of the 559 inquiries, 310 of these farms have been identified (Table 3). Under this strategy, most producers might be considered “productivists” because their key target is to increase their production, and they are frequently focused on one single type of product.

The average values for these farms (Table 3) show young owners working in agriculture on a professional basis—58% of their income is generated on the farm and 11% from pensions. Households include four members, farm sizes are large, and production levels are higher. This strategy is highly concentrated in a certain territory, considering that this strategy is followed by most farms in areas with high agricultural productivity.

This strategy is also compatible with other strategies. Only 140 of the surveyed farms say they have only grown whereas the remaining farms (170) have implemented different diversification strategies, being more numerous non-agricultural type (Fig. 3).

The strategy of stagnation or stabilization is implemented by producers – 249 cases – who have made no productive investments and have not increased their production or the farm’s size during the past five years. The reasons for the producer’s stagnation concern two different situations; either a desire to end their activity in the future or to have reached their limits to production with their current resources.

These farmers are closer to the retirement age, and their households have low income levels, one-third of which come from retirement pension schemes and nearly another quarter from off-farm activities with limited revenue. However, differences in this group are remarkable.

This strategy is largely implemented by farms located in areas with low levels of agricultural productivity – 68% – or areas where many farmers end their activity. In 127 cases, these farms also developed different diversification strategies. Among these farms, non-productivist activity may be found.

As we have already said, producers choosing to develop new products, crops, animal breeds, new productions methods or to begin differentiation quality strategies have been identified as followers of an Agricultural diversification strategy (AD). Only 24% of the samples demonstrate this type of strategy – 135 farms – and most of them – 79 – are

<table>
<thead>
<tr>
<th>Farm Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>122 Only Stable (21.8%)</td>
<td></td>
</tr>
<tr>
<td>21 Stable and Agricultural Diversification (3.8%)</td>
<td></td>
</tr>
<tr>
<td>78 Stable and Non Agricultural Diversification (13.9%)</td>
<td></td>
</tr>
<tr>
<td>28 Stable and Agricultural/Non Diversification (5%)</td>
<td></td>
</tr>
<tr>
<td>140 Only Grow (25%)</td>
<td></td>
</tr>
<tr>
<td>36 Grow and Agricultural Diversification (6.5%)</td>
<td></td>
</tr>
<tr>
<td>84 Grow and Non Agricultural Diversification (15%)</td>
<td></td>
</tr>
<tr>
<td>50 Grow and Agricultural/Non Diversification (9%)</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 3. Process of categorization of past strategies.
Fig. 4. Process of categorization of future strategies.

Table 3
Average values for farms classified according to implemented strategies.

<table>
<thead>
<tr>
<th></th>
<th>Conventional growth</th>
<th>Stable</th>
<th>Agricultural diversification</th>
<th>Non-agricultural diversification (NAD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total NAD</td>
</tr>
<tr>
<td>Age of owner</td>
<td>46.4</td>
<td>55.3</td>
<td>50.2</td>
<td>49.3</td>
</tr>
<tr>
<td>Number of family members</td>
<td>4</td>
<td>2.9</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>Income from other external activities</td>
<td>19.8</td>
<td>23.8</td>
<td>27.2</td>
<td>45.4</td>
</tr>
<tr>
<td>Production stratum</td>
<td>6.7</td>
<td>3.9</td>
<td>6.4</td>
<td>5</td>
</tr>
<tr>
<td>Income from pensions</td>
<td>11.1</td>
<td>35.4</td>
<td>15.7</td>
<td>12.8</td>
</tr>
<tr>
<td>Current number of livestock units</td>
<td>46.1</td>
<td>13.9</td>
<td>34.2</td>
<td>20.7</td>
</tr>
<tr>
<td>Grape production (tonnes)</td>
<td>15</td>
<td>8.2</td>
<td>18.9</td>
<td>11.5</td>
</tr>
<tr>
<td>Number of farms</td>
<td>310</td>
<td>249</td>
<td>135</td>
<td>240(+)</td>
</tr>
</tbody>
</table>

(*) 18 farms do both types of NAD.

related to product quality improvement and differentiation. Farmers performing this type of diversification are aged in their 50’s, have a family of 3.5 members and a high production level.

Where agricultural income is partially replaced by other resources is called here Non-agricultural diversification strategy (NAD), which has often been called off-farm and on-farm pluriactivity (Figure 1). There are 240 farms engaged in a Non-agricultural...
diversification strategy (NAD), among which we have identified two subtypes that can appear in the same farm (18 farms). Linked NAD was identified in 56 cases. As stated in section 2, here, activity diversification is produced by using the farm’s own resources for non agricultural productions, including environmental services.

A non-linked NAD strategy was implemented by households – 202 cases – where any of the following situations are found: half of the members work outside the farm; agricultural income is below 30% of total income; or, in the last 5 years, any member had left the farm to perform other profitable activities. Therefore, this strategy is a diversification of family income resources.

The main differences between these two strategy subcategories concern the farm’s size and its dependency on external income resources. Farms implementing diversification connected with farm activity belong to a higher production stratum and most of them – 71% – invested some money in the past five years.

Most of the farms that implemented NAD, particularly non-linked diversification, are located in Pontevedra, where part-time wine production is frequent (90 cases). This strategy is also widely followed on Ourense mountain (41% of farms), where pluriactivity connected with the farm is more visible (15.4% of farms implementing this strategy are located in this area).

4.2. Types of farms and past diversification strategies

Table 4 summarizes the main outcome of the analysis of strategies based on the type of farm as identified by the cluster.

Nearly half of the farms included in the growth strategy belong to the High agricultural activity group, and another quarter belongs to the Medium agricultural activity group. This combination of characteristics allows us to identify the so-called productivist farms that feature a conventional growth and intensification strategy.

Considering the hard adjustment process these areas went through during the past decade (Sineiro Garcia et al., 2006), the data demonstrate an alarming trend: during the last 5 years, 45% of farms did not show any improvement nor did they increase their production (strategy of stagnation).

Seventy percent of farms with a strategy of stagnation are included in the Medium agricultural activity and Off-farm activity groups. Approximately, 40% of these farms are located on Mountain Ourense, and most of them are small livestock farms (5.7 livestock units per farm). These farms must conduct other activities to survive, or they just keep livestock breeding as a hobby for the elderly (hobby farms) or a side business. This area is marginal in terms of population dynamics and economic activity. Another 30% of these farms are located on the coast of Pontevedra and comprise part-time wine-growing holdings. This area is more dynamic, and here, there are many employment opportunities outside the farm.

Remarkable are the group of farms in the Medium agricultural activity stratum following a strategy of stagnation (82 of 157). These holdings are primarily focused on bovine production – both for milk and meat – have relatively young owners compared with the average age of the surveyed area (52 years) and belong to a production stratum that could be deemed as medium-low (17 livestock units per holding on average). These farms have not grown in the last several years because they have reached their limit with their current resources.

According to the analysis of diversification strategies, AD is not very important – 24% of all holdings – even though data showed that their territorial impact is remarkable. Specifically, Pontevedra (wine-growing holdings) and, to a slight extent, mountain Ourense (extensive bovine breeding) alone concentrate 71% of all cases. In the case of mountain Ourense, most of the diversification involves income support associated with the conservation of autochthonous breed cattle included in agri-environmental schemes.

In addition, the importance of NAD is also significant because it occurs in 43% of the cases, making an important portion of all of these farms economically viable. This pattern is typical of holdings where a majority of income comes from off-farm activities.

Nevertheless, some other high and medium activity farms also show this pattern. In the half of these cases, diversification is connected to the farm’s own resources, and several differences can be found. High agricultural activity holdings conducting this strategy are around 15% of the whole cluster. These are dynamic, large farms (92 livestock units on average) with young owners (42 years old on average). Nearly 90% of all cases fall under some strategy of growth.

Ten percent of holdings in the Medium activity group conduct some type of linked NAD. Here, holdings devoted to beef production (60%) located in most cases on Mountain Ourense are found. This strategy is likely to continue in the future because 67% of farms follow a strategy of growth. Owners are slightly older than the previous group (47 years), with more dependants on pensions (25% of total income), and the farm size is limited (just over 16 livestock units).

Considering the entire sample, only 10% said they had implemented some NAD linked to the holding, but this is particularly true on mountain Ourense where 45% of holdings developing linked NAD are located. The reason for this location is probably because of existing forest services, given the sustainable demand for these services.

As for non-linked NAD, this is concentrated in the cluster called “off-farm activity”. This fact is logical considering the definition given to clusters and strategies. However, analysis of the data revealed two interesting aspects. First, a high territorial concentration exists: 43% of the cases belonging to this group are wine farms located in Pontevedra, where this activity is sometimes shared with other tasks. Twenty-five percent of the cases are located on Ourense Mountain, where extensive livestock allows time for off-farm activities. There is a connection between this model of diversification and the holdings’ main productive activity. Second, most of these holdings (48%) fall under a strategy of stagnation, meaning that farming is secondary to these holdings, which have not made any investments in the last 5 years.

Connecting geographical areas with farm clusters and diversification patterns, a multiple correspondence analysis (MCA) was performed. The following categories’ joint diagram (Fig. 5) can be read as a map indicating the connections among variables included in the analysis. The relation among variables is closer moving away from the origin. If these variables were placed in groups around the coordinate axis, inertia would decrease, and this result should mean a greater independence between variables.

Farms with past strategies of stagnation on the left are clearly separated by the vertical axis from those that grew on the right. Furthermore, territories where there is a clearly different product specialization are separated by both axes. The horizontal axis marks wine-growing holdings of Coast Pontevedra (CP) up, from livestock farms down. The vertical axis divides beef specialized on mountain Ourense on the left from areas specialized in milk production on the right.

Fig. 5 shows how holdings located in the inner areas of Coruña (IC) and the Coast of Lugo-Asturias (CLA) – the bottom-right quadrant of Fig. 5 – are mainly focused on medium to high agricultural activity (groups 1 and 2 in the cluster). Therefore, the holdings are associated with higher income levels (60 to >120 thousand euro) and younger owners (A1 and A2). Here, the strategy of growth (G) is the associated strategy, and there is no association whatsoever with any agricultural or non-agricultural diversification activities (DAD or DNAD). As shown in the previous section, the lack of association does not mean that there are not any holdings in these areas that follow diversification, but it does mean that this activity is not significant. These areas specialize in milk production, an activity.
a) CATEGORY’S VARIABLES

<table>
<thead>
<tr>
<th>CODE</th>
<th>LABEL</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC</td>
<td>Inner Coruña</td>
<td>122</td>
</tr>
<tr>
<td>MO</td>
<td>Mountain Ourense</td>
<td>162</td>
</tr>
<tr>
<td>CLA</td>
<td>Coast Lugo-Asturias</td>
<td>150</td>
</tr>
<tr>
<td>CP</td>
<td>Coast Pontevedra</td>
<td>125</td>
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<table>
<thead>
<tr>
<th>CODE</th>
<th>LABEL</th>
<th>FREQUENCY</th>
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<tbody>
<tr>
<td>AFA</td>
<td>Average Farming Activity</td>
<td>157</td>
</tr>
<tr>
<td>HFA</td>
<td>High Farming Activity</td>
<td>165</td>
</tr>
<tr>
<td>R</td>
<td>Recession</td>
<td>62</td>
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<tr>
<td>OPA</td>
<td>Other Profitable Activity</td>
<td>175</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>CODE</th>
<th>LABEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>Growth</td>
</tr>
<tr>
<td>DG</td>
<td>Not Growth</td>
</tr>
<tr>
<td>AD</td>
<td>Agrarian Diversification</td>
</tr>
<tr>
<td>DAD</td>
<td>Don’t agrarian diversification</td>
</tr>
</tbody>
</table>

b) GRAPHICAL REPRESENTATION

![Multiple correspondence analysis of past strategies.](image)

c) DISCRIMINATION MEASURES

<table>
<thead>
<tr>
<th>Dimension 1</th>
<th>Dimension 2</th>
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</thead>
<tbody>
<tr>
<td>Total active</td>
<td>2.9</td>
</tr>
<tr>
<td>% of Variance (Inertia)</td>
<td>41.4</td>
</tr>
<tr>
<td>0.4</td>
<td>0.3</td>
</tr>
<tr>
<td>0.8</td>
<td>0.7</td>
</tr>
<tr>
<td>0.4</td>
<td>0.1</td>
</tr>
<tr>
<td>0.8</td>
<td>0.5</td>
</tr>
<tr>
<td>0.5</td>
<td>0.0</td>
</tr>
<tr>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>0.3</td>
<td>0.1</td>
</tr>
<tr>
<td>0.7</td>
<td>0.5</td>
</tr>
<tr>
<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>0.6</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Fig. 5. Multiple correspondence analysis of past strategies.
that limits holding resources to any other side activities. The average income in these areas makes it less necessary to develop other source of revenue.

On the contrary, holdings located on mountain Ourense (MO) are associated with a strategy of stagnation (DG) (no investments in the last 5 years) and older farmers. These characteristics are why these farms can be connected with the cluster where holdings with declining agricultural activity and poor income are included. In this case, no connection with any type of diversification strategy is evident, and the age of the owners might explain the lack of initiatives. Nevertheless, mountain Ourense is also associated with Medium agricultural activity holdings. Although in this group some holdings that perform diversification activities are found (i.e., breeding of endangered species), they are not large enough and do not indicate any clear association.

Finally, on the upper-left quadrant are farms mainly specialized in wine-growing (OPA), which are located on Coast Pontevedra (CP). This type of product specialization allows additional part-time work. In addition, other jobs outside the farm can be found easily in the dynamic economic environment. Therefore, the associated cluster is holdings that conduct off-farm activities. This cluster is connected with non-agricultural diversification (NAD).

4.3. Future strategies

Performing the same analysis for the activities farmers might be eager to develop in the future (Fig. 6), a clear connection can be found between the most dynamic and specialized holdings owned by young people and the willingness to diversify their activity. Nevertheless, another factor bears on this connection; most holdings where the owners are young specialize in dairy production. The diversification model they say they are ready to implement is an agricultural one, particularly on higher production strata. This preference means a change regarding previous developments because in the past, this group of holdings implemented strategies of growth instead of diversification. This declared willingness for the future considers the prospects for the development of milk markets; sharp drops in prices and the dismantling of quota policies are foreseen. Thus, in most cases, farm managers are ready to implement diversification that concerns quality strategies. This choice means a partial or total holding restructuring to obtain certifications of quality, to reduce distribution channels, to sell under the farm’s own brand and to introduce new crops. This strategy also intends to reduce feed costs.

In contrast, holdings with medium or other profitable agricultural activities will go further in their strategies of non-agricultural diversification because they are no longer interested in agricultural diversification though they were in the past. As shown when past strategies were analysed, these areas are associated with middle-aged owners who become reluctant to keep investing in new farm activities. Still, the variable that matters in selecting future strategies is territory, which is closely connected with product specialization.

On one hand, holdings with a stable past strategy are located mainly in the area of Mountain Ourense, where agricultural activity is declining and income is low. These holdings show a future of moving away from farming or reducing agricultural activity. On the other hand, holdings that either do not know what their future will be or where the owner will retire shortly with a successor are holdings that perform other profitable activities. As previously indicated, these farms are wine-growing holdings located in Pontevedra.

In summary, the so-called productivist farms, with a High level of agricultural activity that have grown in recent years, are located in areas specialized in milk production and are a quarter of the total survey.

A troubling 45% of farms have not undertaken any type of recent improvement. This fact characterizes an aging and low dynamic rural area. In this group, another quarter of the farms are marginal and will soon end any activity, with a high average farmer’s age and limited size of the properties.

Non-agricultural diversification has an important weight in the total survey but different types of diversification have different implications for the farms’ future. Non-linked is present in the 36% of cases and signals stagnation or even the future disappearance of farms without succession. It is interesting to note that among farms with medium agricultural activity, a more dynamic group comprising only one-fifth of the total survey is identified. These farms presented some strategies for growth or diversification connected with both agricultural and non-agricultural activity.

5. Discussion and conclusion

Focusing on the analysis of main drivers that lead to diversification strategies, the results are consistent with most of the published literature. These factors could be classified as internal—concerning farm characteristics and farmer attitudes—and external—regarding the context in which farming is practiced.

Among internal factors, size has demonstrated a positive effect on diversification in analysed farms, as McNally (2001) Shucksmith and Herrmann (2002) or McNally and Weiss (2005) have suggested. Analysing future strategies, this influence seems to be even stronger, supporting Wilson’s (2008) view that farms that in the past had developed a conventional growth strategy show a greater willingness to initiate complementary activities in the future. These farms have younger owners and the highest incomes confirming the hypothesis that larger farms have more resources to devote to other activities (McNally, 2001; Shucksmith and Herrmann, 2002).

Current uncertainties in the milk market could be influencing the interest in diversification for the future, to reduce the risks associated with their farm business (McNally, 2001; Madrelieux et al., 2015). The abolition of the milk quota system in 2015 will create a new context for economic operators, who have been dealing with milk quotas for some 30 years.

By contrast, Vergara et al. (2004) suggests that the holding’s total income or its variability is negatively connected with the willing-

Table 4

<table>
<thead>
<tr>
<th>Groups</th>
<th>Conventional growth strategy</th>
<th>Stable</th>
<th>Agricultural diversification</th>
<th>Non agricultural diversification (NAD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High agricultural activity</td>
<td>147 (89.1%)</td>
<td>18 (10.9%)</td>
<td>38 (23.0%)</td>
<td>42 (25.5%)</td>
</tr>
<tr>
<td>Medium agricultural activity</td>
<td>75 (47.8%)</td>
<td>82 (52.2%)</td>
<td>40 (25.5%)</td>
<td>32 (20.4%)</td>
</tr>
<tr>
<td>Off-farm activity</td>
<td>86 (49.1%)</td>
<td>89 (50.9%)</td>
<td>51 (29.1%)</td>
<td>163 (93.1%)</td>
</tr>
<tr>
<td>Activity in recession</td>
<td>2 (3.2%)</td>
<td>60 (96.8%)</td>
<td>6 (9.7%)</td>
<td>3 (4.8%)</td>
</tr>
<tr>
<td>Total</td>
<td>310</td>
<td>249</td>
<td>135</td>
<td>240 (*)</td>
</tr>
</tbody>
</table>

(*) 18 farms do both types of NAD.

Please cite this article in press as: García-Arias, A.-I., et al., Farm diversification strategies in northwestern Spain: Factors affecting transitional pathways. Land Use Policy (2015), http://dx.doi.org/10.1016/j.landusepol.2015.08.011
Age is also an important internal factor, particularly when analysing statements on future strategies. Here, the work of McNamara and Weiss (2005) provides empirical evidence in the same direction. In the present analysis, older owners have no intention of initiating new activities in the future, and this has been their strategy for the last five years as shown by the analysis of past strategies. Middle-age farmers introduced some diversification in their holdings in the past, but they will not do so in the future, and farmers who had jobs outside the farm will keep these jobs.

Farming style is also a factor that facilitates one or another kind of diversification. Extensive beef cows and wine production are less demanding in work than milk production. Farming style is also connected with territory, an external factor.

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External factors provide constraints or opportunities to diversify. Previously, it has been mentioned that ‘territory’ or ‘location’ has an influence on the tendency to diversify. If the economic environment offers more job opportunities compatible with farming, then it will be easier for owners and their families to find occupations outside their holdings (Vergara et al., 2004). For example, wine producers in the more dynamic area of Pontevedra (CP) are in this situation. As we have seen at the results section, their cluster is connected with non-agricultural diversification (NAD) and is consistent with other results showing that part-time jobs make it easier to perform this type of activities (Ilbery et al., 1997; McNamara and Weiss, 2005). However, AD is also connected with these holdings because of the implementation of strategies to improve quality under the Protected Designation of Origin. Jongeneel et al. (2008) find a significant connection between holdings localized in the North of Holland and their tendency to engage in multifunctional activities. When a given location has landscape, natural and cultural elements, farmers can take advantage of these resources to initiate activities related to nature preservation or rural tourism (Pfeifer et al., 2009). This situation is not the case of the few farms that implemented AD connected with environmental services on Ourense Mountain. This territory is the origin of endangered indigenous cattle breeds, which are protected by the authorities through agri-environmental schemes. Among farms that obtain subsidies for raising endangered breeds in this area, only several of them think that this is an option for future diversification whereas for most of them, it represents only a complement to their income. The level and type of diversification is considerably lower than on British farms, where post-productivism theory was developed. Except for off-farm work, the impact of diversification on income is also significantly lower. In addition, some of these activities are not based on the entrepreneurial spirit of the owner but rather on a demand induced externally because they correspond to stimuli as assistance (endangered breeds) or to public programs such as projects for the forest and environmental services.

However, from this case study it can be learned that these connections between strategies and territory are mainly related to territorial concentration of the various agricultural activities developed in previous decades. Production specialization and territory are closely connected.

This study can contribute to the debate on transitional theory and the concepts of post-productivism and resilience pathways from a European southern perspective. Thus, we can say that the factors affecting the decision of diversifying for farms are as well the factors affecting resilience pathways at farm level: natural (territory), political (policy developments), economic (income), social/personal (age) and cultural factors (farming styles).

The discussion has emphasized how factors driving diversification identified in the literature are also present in the studied area. Nevertheless, the nature and main drivers of diversification are different from those in northern European regions.

The study quantifies diversification in the areas where structural adjustments have been undertaken with delay and are still recent. This study also shows how productivism is the most followed strategy on farms that survive as shown by other recent studies (Moreno-Pérez et al., 2011). However, some differences in the willingness to diversify have been found depending on internal factors such as the production style, farm and farmer characteristics, as well as on external factors such as territory, demographic tendency and policy measures. Thus milk quotas, under the CAP, contributed to the success of productivist strategies meanwhile rural development measures have shown less effectiveness in promoting multifunctional pathways.

The new period of the EU Rural Development Policy (2014–2020) offers to regions a better degree of freedom to design strategies that are more territorially focused (Zasada et al., 2015). This is a very important feature for southern Europe regions in which several studies have shown the necessity of developing a more effective policy aiming at agricultural diversification (Boncini et al., 2014).

Again, an important component of diversification is associated with the conservation of endangered cattle breeds, an external opportunity provided by agri-environmental policy. Tourism, typical farm production, direct-selling or on-farm shops do not have any significance in contrast with other European countries.

In conclusion, the trend to diversify in the studied area seems to be more dependent on the type of product specialization than on the farm's size, income or the age of the owners, which can be caused by the most frequent types of non-agricultural diversification found. At the same time, external factors such as territory or policy appear to be key factors for encouraging these processes.

Finally, it must be emphasized that when fieldwork was conducted, the 2008 economic downturn was not evident and had not yet reached its peak. Therefore, it could be assumed that the farmers’ perception of their future today could even be more pessimistic than ever before.

**Uncited references**

Paniagua Mazorra (2001) and Paniagua Mazorra (2007)

**Acknowledgements**

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**References**


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