

Impact of Retirees on Rural Development: Some Observations from the South of France

D. Vollet, J-M Callois, and V. Roussel

Cemagref and ENITA Clermont UMR Metafor, France

Abstract. Retirees represent a strategic issue for rural areas as their numbers grow in proportion to the total population. In order to assess their impact on economic development, a hybrid model, a mixture of Keynesian and economic base theories, was constructed. It was applied to three communities of the South of France. The model was adapted to estimate the impact of a particularly heterogeneous populations (retirees aging in place, short-distance and long-distance retirees) on their community. To this end, one hundred surveys were carried out with retiree households in order to understand their spatial spending behaviour. We found that the economic impact of retirees differs according to the type of retiree, their numbers and the degree of economic integration of the area. The differences between communities in terms of economic impact of retirees highlight three factors: (1) the role of natural or manmade amenities in retirees' location choice, (2) the determining place of the level of local spending in explaining economic impact, and (3) the significant role of the diversity of the local commercial fabric (especially at the level of subsequent rounds of spending). Attracting retirees presents several challenges. Such a strategy is probably only possible in amenity-rich rural areas. In other areas, more attention should be paid to aging-in-place retirees.

1. Introduction

For the past twenty years, the exodus from the French countryside has dwindled. The population of predominantly rural areas has been growing by 0.1 percent per annum, because of a positive migratory balance set against a negative birth rate. Despite this globally positive evolution, some rural areas of the Massif Central (the large plateau in the centre of France), or the eastern plateaux, continue to lose population. This reduction in population, however, hides the numerous comings and goings of people migrating to and from "departments"¹, including those with few natural attractions (for example the Nièvre) (INRA-INSEE, 1998). In other words, the countryside is attracting new populations, among which retirees are increasingly represented, even in the most isolated

areas where migrations contribute to demographic renewal. Such an evolution invites questions, such as: What are the consequences of these mutations for the rural community, and particularly for the local economy? What is the impact on employment? These questions are being asked not only by policy makers, but also by local leaders and practitioners. Apart from some statistical research, there are not many scientific studies about these questions. Most research is concentrated on more traditional rural sectors such as agriculture, manufacturing, or forestry. A limited number of exploratory studies focus on the impact of retiree migratory movements and rural development in Europe (Courson and Madinier 2000) and North America (Serow 2001; Shields, Stallmann and Deller 1999).

In this article we present an estimation of the economic impact of retirees, carried out in the case of three contrasting communities of the Massif Central. This geographic area is the central part of France, and is characterised by a low economic activity compared with neighbouring regions, an aging population, and

¹ The French state is structured around region and department (administrative divisions). State services feature at both administrative levels and are mainly deployed in regional and departmental *prefectures*. Average figures for a French department are between one and two million inhabitants for an average surface area of around 50 000 km².

outstanding natural amenities, both in terms of landscape and climate.

First, we present the difficulties relating to the study of the impact of retiree migrations, and the specific nature of rural areas in this regard. We then outline the chosen methodology, specify the calculation of multiplier effects and justify the choice of the study areas. Finally, we present and comment on the results obtained.

2 Retirees in rural areas: characteristics and potential impacts

The study of retirement migration presents different problems, not least is the problem of definitions. The phenomenon is difficult to assess, some speak of elderly people, others of retirees. Some take into account a criterion of age but must sometimes introduce differentiations to streamline their analyses. The 55-69 age group tend to leave urban centres to go and live in detached houses, often far from towns. On the contrary, the over-seventies are more likely to want to be close to health and social services (INRA-INSEE 1998). There are others who speak of third and fourth ages. Those who utilize the term "retiree" refer mainly to a situation of inactivity, the retiree being a person who has already worked and is not looking for a job. This is the category on which INSEE (the French institute of statistics) focuses its attention. INSEE has another definition with regard to age: retirees includes people over 53 years old who have no job but are not unemployed, and have previously worked. This definition stresses the fact that their "dispersion may go beyond the sphere of influence of the towns and may be guided by the search for certain rural amenities" (Schmitt and Goffette-Nagot 2000, p 46).

Beyond these problems of definition, which in practice are only marginal, the phenomenon of retiree migration is quite heterogeneous, especially in rural areas. Migrations are unequally distributed and take many forms. Over all the French territory, the population is aging. Thus, the over-sixties in 1999 represented 21.3 percent of the French population, against 19.9 percent in 1990 and 18.5 percent in 1982. This phenomenon is linked to two factors: a drop in fertility and a drop in mortality especially with regard to the elderly. The age distribution of the French population has been altered with an increasingly elderly South of France compared to an increasingly youthful North. This aging phenomenon is increasingly influenced by migrations: in some *départements* the arrival of young retirees contributes to a change in the age pyramid as well as demographic renewal e.g. the Var (15.6 percent of over-sixties are new arrivals), the Alps of Haute

Provence or the Eastern Pyrenees (Courson and Madinier 2000). This phenomenon is not confined to the attractive departments of the south of France, but also affects the departments of the centre or the east of the country. In the Nièvre, one of the 23 French departments that lost population between 1990 and 1999, the migratory balance obscures in and out migrations flows, (36,280 departures, 35,930 arrivals). INSEE speaks of 'an attractive *département* for the over-sixties'. If we look at the birthplace of the new arrivals, we notice that many are returning home. Figures provided by INSEE distinguish homecoming migrations (concerning people born in a zone, but residing outside this zone at the last census) from migrations linked to natural or manmade amenities, implying that these are outsiders who have come to settle in a zone considered as attractive.

The aging process and its consequences differ from one community to another. The most isolated and remote areas grow older, losing population not only by a negative birth rate but also by a negative balance of migration. Other communities have sunnier perspectives, welcoming new retiree populations for many different reasons: proximity to metropolitan areas, tourist attractions (cultural, countryside) or homecoming (Serow 1990). Studies analysing retiree migrants have been centred around the determining factors of migration. For example, taking a linear or log-linear econometric specification, the rate of migration is estimated as a function of certain supposed exogenous variables. Depending on the research, migrations are studied between regions without taking into account their urban or rural character (Kallan 1993; Cribier and Kych 1993; Fokkema, Gierveld and Nijkamp 1996; Cribier 1992), or uniquely seasonal and temporary (including commuters, holiday-makers and retirees (Galvez and McLarty 1996). Other authors prefer to compare the determining factors of migration between urbanized regions and scenic regions (Lin 1997), or else formerly autonomous households that move in with another household (children or in-laws) (Al Hamad and Flowerdew 1997). Sometimes this approach is coupled with a sociological analysis such as that undertaken by Hirschl and Summers (1982) and Woods, Miller, Voth, Song and Jones (1997). Most of the results which captured the attention of these authors concern the characteristics of the place of departure and not of arrival:

- Migration increases with the cost of living, criminality, population density, social status, not owning your own home, building deterioration, ethnic mix among others (Joseph and Halett 1992).

- Small households (generally widows or widowers) are not so much seeking amenities as health and other services, and the proximity of family or friends (Lin 1997).
- The effect of climate and local services is ambiguous (Keefe 1997).

The consequences for the local economy are difficult to analyze. Different parameters are at work. First, there is limited data especially concerning the evolution of retiree spending power. Sociological factors may also play a role. Elderly people often modify their consumer behaviour when they stop working. They turn towards specialized services, such as healthcare. Moreover, in some American states, “the stereotype of wealthy retirees tending to their financial portfolios and buying new homes appears to be real” (Day and Barlett 2000, p 92). Finally, the economic impact of the presence of retirees may depend on the characteristics of the communities concerned: proximity to metropolitan areas may siphon off consumer spending. On the other hand, a wide variety of local services will favour local shopping and will have positive effects on the local economy (Green 2001). The supplementary costs for local communities represented by retirees should however not be overlooked.

Within the framework of this study, we are interested in the economic impact of retirees in terms of local expenditure, a potential cause of induced effects. Fiscal effects are covered by other approaches (Shields, Deller and Stallmann 2001).

3. Literature - economic impact of retirees

The targeted models on the economic impact of the presence of retirees on host communities (less numerous than those analysing the determining factors of their location) attempt a precise analysis of the economic mechanisms at work. As previously mentioned, the mechanisms are varied and can have very different results. Retirees’ expenditures represent an “injection” of funds into the local economy. These funds are used by recipients to purchase other goods and services, to pay wages to employees and to pay taxes to federal, state and local governments. The entire process is referred to as a multiplier effect. A euro of direct consumption is circulated through the regional economy repeatedly, ultimately yielding more euros of total production and consumption. The size of the effects created will depend on the propensity to consume locally of each type of economic agent.

Empirical study of the economic impact of retirees has not yet produced much research in the economic literature. A first series of studies concerns the exploi-

tation of statistical data (macro-economic or demographic), linking economic variables and variables indicating the flow of retirees, and carried out jointly or not with the concept of an econometric model. As an example, Day and Barlett (2000), in a study of 34 Texas counties, show that counties that have become more retiree-oriented have experienced more economic growth. Such growth has brought jobs and new firms to local economies. The greatest impact of retirees appears to be on growth in the financial and real estate sectors. Other contributions are more globally interested in the impact of retirees on the economic activity of communities, for example Li and MacLean (1999), who show that the variations of the population of retirees of Saskatchewan, Canada have a significant impact on the growth of conurbations and service sector activity. On the other hand, Bennett (1996) shows that retirees migrating to the south coast of the United States have a significant impact on the tourism sector, but a negative impact on the environment.

These statistical studies teach us about global evolutions concerning retirees and their impact. Their results rarely enable us to appreciate the specific economic impact of retirees on a community. This is why other authors have thoroughly analysed retiree-spending behaviour. Most studies in this area attempt to estimate the impact of retiree spending by means of a multiplier mechanism. The spatial behaviour of retiree spending has to be analysed, and the multiplier effects linked to the presence of retirees must be estimated. This approach has been chosen for the present article. The way retiree spending generates the effects produced by means of successive waves of spending is measured. The size of the effects produced will depend on the propensity of the people studied to spend locally. Different surveys should be carried out so as to take into account the diversity of situations, especially with regard to previous migrations.

Several formalizations of Keynesian inspiration can be used: economic base multipliers (Harmston 1981; Hirschl and Summers 1982), Keynesian regional multipliers (Happel, Hogan and Pflanz 1988), regional input-output analysis (Siegel and Leuthod 1993), and joint input-output and econometric models (Deller, 1995; Shields, Stallmann and Deller 1999). The latter model type has the advantages of the two types of modelling strategy: sectoral breakdown of the input-output model, and introduction of public policy variables.

Multiplier analysis often involves carrying out surveys of retirees. The questions relating to the collection of data are of two kinds:

- By reason of the heterogeneous nature of the “retiree” category, on what kind of retiree will the impact be estimated?
- On what terms will the necessary data be gathered?

The means of recording spending are varied, for example a log book in which individuals were asked to record their daily expenditures (Serow and Haas 1992), or survey questionnaires distributed at a pre-announced morning coffee meeting (Happel, Hogan and Pflanz 1988). The question of how representative are the samples is often challenging. Some authors (Hodge 1991; Serow and Haas 1992) recommend a sample of five percent as sufficient for extrapolations (on condition that more than 100 surveys are carried out).

The research carried out here, targeted on economic impact in terms of resulting jobs, was inspired by a methodology comparable to this series of studies. Moreover, it attempts to establish differences of impact according to types of retirees. Many authors recommend not analysing the impact of retirees globally but by type of retiree (Stallman 1995). Different categorizations are possible. For example, Serow and Haas (1992) concentrate on newly arrived retirees, while distinguishing retirees seeking particular attractions from those living in institutions and those needing social services. Others concentrate on “local” or aging in place retirees (Hodge 1991; Shields, Stallmann and Deller 1999). The latter underline the heterogeneous nature of the “retiree” category: for instance, some retirees have low mobility and low incomes. In this article, we have systematically studied the different types of retirees according to their geographical origin.

The results of these studies are varied, but in general of comparable order of size. Output multipliers are not a particularly useful concept (except as an indicator of the degree of structural inter-dependency). Usually, economic impact studies are more concerned with income or employment generating effects, and these require income or employment multipliers (Alexander and Whyte 1995). Hodge (1990) finds that a retiree generates about 0.5 jobs with the help of a Keynesian model (income multiplier) in three small communities in Canada. This is a mean ratio of three zones that are relatively different from the point of view of distance from urban centres and type of retiree (migrant or not). In this case, the income multipliers are especially high in the two communities furthest from urban centres. Most other applications use employment multipliers (Serow and Haas 1992; Deller 1995; Shields, Stallmann and Deller 1999; Shields, Deller and Stallmann 2001). Deller (1995) finds that in the

State of Maine every retiree creates on average 0.55 jobs (without distinguishing the types of retiree). For a group of North Carolina communities, Serow and Haas (1992) estimate that each retiree creates about two jobs. But the authors recognize that their survey “cannot be considered representative of the elderly population as a whole” (p 213). In a study incorporating the fiscal and economic impact, Shields, Stallman and Deller (1999) find that low-income elderly households create between 0.2 and 0.7 jobs per retiree. In a similar study of three Wisconsin counties, Shields, Deller and Stallman (2001) estimate that the number of jobs per retiree (in-migrants) is 0.34. In conclusion, estimations based on employment and income multipliers show that every retiree creates on average 0.5 jobs; with the exception of the research of Serow and Haas, (1992) who were confronted with a problem of sample representativeness. Taking into account the distance from a town and the level of income, estimations vary between 0.2 and 0.7 jobs.

The results are however dependant on the scale of observation. At the county level in Tennessee, the studies of Siegel and Leuthod (1993) show that positive direct economic and fiscal impacts far outweighed the negative secondary fiscal impacts, and produced a high total impact. At the state level in Maine, the impact of retirement migration can be substantial (see Deller, 1995). If the costs (linked to retirees as infrastructure investments) were considered, “one might expect a dampening of the multiplier effects” (Deller 1995, p 33).

4. Study areas

The choice of communities was based on the following elements:

- Demographic situation and evolution: size of retiree population / total population, especially homecoming migrations.
- Geographic and spatial situation: accessibility, degree of rurality, distance from the nearest town and from different services, cost of real estate.
- Services and amenities: this includes the qualities that make a place agreeable (lifestyle, landscape, climate). The amenities can play a role in the economic impact of retirees (Green 2001). For some people, beautiful landscapes represent an opportunity for development and a source of jobs: “Areas with high levels of natural amenities have enjoyed growing populations and income levels in the past decade. Much of this growth has come from the immigration of people....”. (Reeder 1998, p 32).

The study of these different elements has helped up to identify 3 communities (see Appendix 1). The location of these three communities is found in Figure 1.

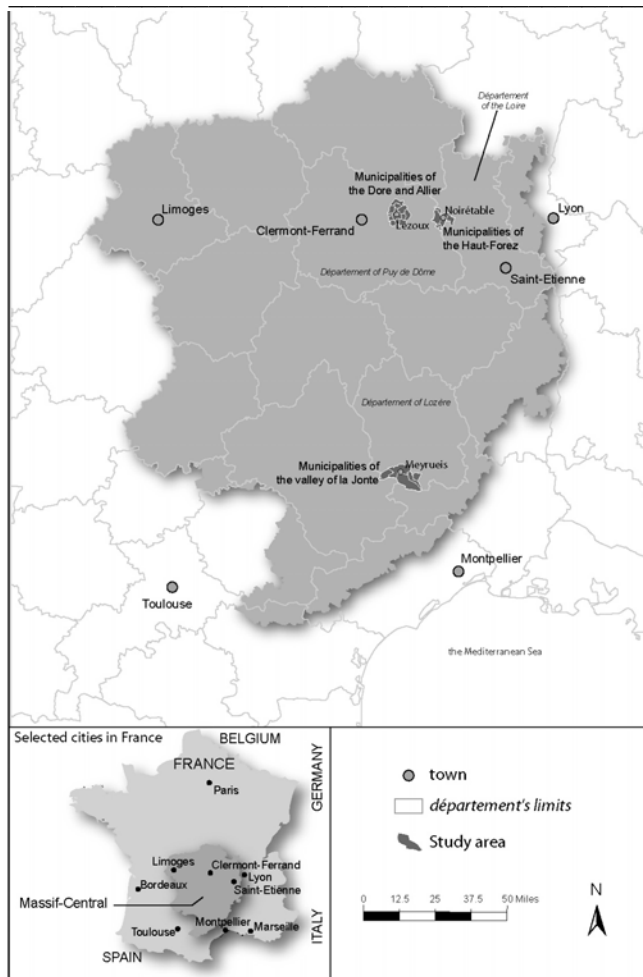


Figure 1. Selected towns used as a study area.

The three communities used are demographically different. The Valley of la Jonte, situated in the south of the Massif central, attracts new populations, among which are many retirees, mainly because of the existence of amenities. External retiree migrants represent 11 percent of the total retiree population. The fact that migrations can develop around environmental or geographical amenities can be seen here (Stallman 1995). Owing to these migrations, the natural balance is slightly positive: + 0.43 percent for the period 1900-1999. On the other hand, the Haut Forez community has an unfavourable demographic evolution: aging of the population - the population in this community is older than in the other two communities (28 percent of the population was retired in 1999, as opposed to 25 percent in the Valley of la Jonte and 22 percent in the Dore and Allier - see Appendix 1). Moreover, there is

a high level of retirees who are aging in place (Hodges 1991; Shields 1999). Aging in place retirees represent 87 percent of all retirees in this community, as opposed to 79 percent in the Valley of la Jonte and 81 percent in the Dore and Allier.

The Dore and Allier community, the most highly populated, has had a favourable demographic evolution. Many retirees from the Massif Central have chosen to live here in order to benefit from the proximity of the Clermont-Ferrand urban centre (see Figure 1) and the presence of many services. This is the reason for the positive migratory balance: + 0.75 percent for the period 1990-1999, whereas the population increased by 0.39 percent between 1990 and 1999.

The three communities are also different economically. The Valley of la Jonte has many economic handicaps: low population density (about two inhabitants per km²), isolation (a long way from big towns) and its physical environment (limestone plateau, agriculturally unproductive). Agriculture still represents 22 percent of total employment. Industrial activity hardly exists: Only one factory in the plastic sector, which represents six percent of total jobs. On the other hand, this community has for several years exploited its tourist potential: 300 hotel rooms, 40 bed and breakfasts, three hikers' hotels, which explains the progression of tertiary employment, now representing 66 percent of total employment (62 percent in 1960).

Today, it is developing its natural advantages in spite of its low population: 1386 inhabitants in 1999, and its small area: six municipalities, five of which have between 50 and 100 inhabitants!

Haut Forez is characterized by economic activity strongly linked to the primary sector comprised of about 160 cattle breeding farms (11 percent of total employment). Manufacturing activity represents: 26 percent of total employment. As for tourism, it is almost completely absent. This community is characterized by demographic and economic decline, due in part to the decline of the agricultural sector, without any tourism development or arrival of new populations.

Dore and Allier is very different from the other two regions in this study. Mostly situated in the Limagne plain, it is close to Clermont-Ferrand, an industrial town famous for its Michelin factories, and the largest town in the Massif Central. Agriculture has always been the principal activity, but now represents only 6 percent of total employment in 1999 (14 percent in 1982). Manufacturing is made up of small units across a range of different sectors: food-processing, metallurgy, plastics technology, and cutlery. Industrial employment represents 28 percent of total employment in 1999. In 10 years, the number of retail firms has been

reduced by 30 percent owing to the phenomenon of people doing their shopping in nearby towns. As for tourism, it is under-developed. This community, whose population is growing, is starting to resemble a large bedroom community focusing on commuter services. Perhaps this explains the presence of retirement homes whose inhabitants want to be near a big town, and at the same time enjoy the advantages of the countryside. There are currently four retirement homes in this community, representing 11 percent of beds in the *département*. This also explains the fact that tertiary employment has progressed in the past few years (49 percent of total employment in 1990, 60 percent in 1999). The community is characterized by demographic and economic dynamism, which is partly explained by its closeness to Clermont-Ferrand.

5. Methods and Data

Estimating the differentiated impact of different categories of retirees must be done in several stages. First, surveys are used to estimate direct effects. Then, indirect and induced effects are estimated by using a specific multiplier for each retiree category. This is a hybrid model, using both Keynesian and economic base theories, adapted to the retirees' population. This process is explained in more detail in the remainder of this section.

5.1 Estimation of direct employment effects

A method of considering the employment influence of this flow of consumption expenditure is to convert retiree expenditure into the number of basic jobs that would be necessary to provide equal local expenditures. This can be done by dividing retiree expenditure in each category by the ratio of sales per local employee in those categories. The number of Full-Time Equivalent (*FTE_i*) employees created by each retiree *i* in sector *j* is obtained by dividing the total retiree local spending (*D_{ij}*) by the ratio average sales per local employee *R_{ij}*.

$$FTE_i = D_{ij} / R_{ij} \tag{1}$$

5.2 Estimation of the multiplier

So as to differentiate the behaviour of retiree spending from that of other agents, a very specific category (see section 1), we have chosen to use the multiplier proposed by Wilson and Raymond (1973), which has often been used by Rioux and Schofield (1990), Gouguet and Nys (1993) and Bourret (1988).

Wilson and Raymond's multiplier has the advantage of differentiating the behaviour of the economic agents studied (in this case, retirees for Vollet and Dion (2001), it was fishermen; Gouguet and Nys (1993) focused on sportsmen) by the first round and then by the whole economy involved. Thus it is particularly adapted to measure the impact of a certain category of population. In poorly integrated regional economies, the first round of spending is decisive. A two-stage approach corresponding to the estimation of the two propensities to spend locally is necessary. The first propensity corresponds to the first round of spending. The second propensity corresponds to the following rounds of spending, whose scope is more limited.

The multiplier is derived from the following expression, which defines the impact of an injection of spending into the local economy as the sum of additional local income created at each round of the expenditure multiplier process:

$$Y = X + m_1 X + m_1 m_2 X + \dots + m_1 m_2^n X \dots \tag{2}$$

Where *Y* is the income impact on the local economy, and *X* is the initial spending injection that accrues as income in the local economy; *m₁* is the proportion of *X* that materializes at the first round of spending as local value added; *m₂* is the average propensity to consume locally, specifically the value corresponding to *m₁* at subsequent rounds of spending in the local economy as a whole.

It follows from equation (2) that Wilson and Raymond's multiplier can be written as (Rioux and Schofield, 1990, p 51) :

$$K_r = \frac{1 - m_2 + m_1}{1 - m_2} \tag{3}$$

with *m₁* being the propensity to consume locally of agents of the first round of spending (estimated with a Keynesian model); *m₂* is the propensity to spend locally for subsequent rounds of spending (estimated with economic base theory).

As in the case of impact analyses concerning a university (Wilson 1977) or a military base (Rioux and Schofield 1990), this specification is well adapted to an impact analysis of retirees. This multiplier "is a hybrid of the two more common multipliers (1/(1- *m₂*) and 1/(1- *m₁*)) offers a superior alternative, because of the high propensity for university-related expenditures to leak out to the local economy relative to leakages from the rest of the economy" (Wilson, 1977, p 45). For example, for Dore and Allier aging in place retirees the

leakage rate for retirees is 0.883 (1-0.117) while it is only 0.81 (1-0.19) for the entire economy.

Estimating the first round of spending is important in poorly integrated economies. As there is a high level of income leaking outside the zone, the subsequent spending rounds play a more limited role. For this reason, we used a survey to estimate the propensity to spend locally corresponding to the first round of spending. In each community, a representative sample of retirees was obtained by using electoral rolls. As in Hodge's research (1991), representativeness of the sample was confirmed by comparing it with recent census data for the community (ages, gender, marital status, residential location). The questions especially revolved around spatial spending behaviour (volume, type and location of spending) but there were also questions about social characteristics of the household, health and accommodation. Usable questionnaires were obtained from one hundred retirees (about six to ten percent in each region). To estimate propensity m_1 , two ratios have to be calculated (Wilson, 1977). First, we compute the percentage of total retiree-related spending inside the local community for each category of expenditure. Second, we estimate the share of local value added in each category. The payroll-to-sales ratio is a convenient proxy for this ratio (Source: National Accounting). Formally, we use the following notations:

- a_{ij} = percentage of total retiree-related spending inside the local community for retiree category i and sector j of expenditure
- d_{ij} = Local spending of retiree category i in sector j
- D_i = total amount of revenues of category i retirees
- b_j = payroll-to-sales ratio in sector j
- S_j = total wages in sector j
- VE_j = sales in sector j

We then have the following relationships:

$$a_{ij} = d_{ij}/D_i \quad (4)$$

and

$$b_j = S_j/VE_j \quad (5)$$

The calculation of m_1 is then made for each retiree category:

$$m_{1i} = \sum_j a_{ij} b_{ij} \quad (6)$$

The summation is made on 7 spending sectors: building (home maintenance), car sales/repair, retail shops, restaurants, recreational activities, hair and beauty treatments and health.

The second propensity, m_2 , is based on economic base analysis as suggested by Wilson (1977) or Dion (1988). Economic base theory divides the economic activities of a region into two components: basic activities, which satisfy a demand exogenous to the study zone, and non-basic activities, which satisfy local demand. Expressed in terms of employment, the elementary formulation of the propensity to spend locally (m_2) is expressed in the following manner:

$$m_2 = \frac{\text{Non basic employment}}{\text{Total employment}} \quad (7)$$

Estimating basic and non-basic sectors can be carried out by different techniques including the assignment method, minimum requirements, and location quotients (Smirnov, 2002).

We have thus retained two methods of estimating m_2 . The first estimation approach uses the assignment method for quantifying basic employment, which consists in considering by *a priori* judgment or by expert statements an entire sector as basic or non-basic (Mulligan and Vias 1996). In our case, agriculture and industry are considered *a priori* as basic sectors. Agriculture and industry only satisfy local demand in a very marginal way in the areas studied (Mulligan and Vias 1996). The whole of the tertiary sector is considered as non-basic.

The second estimation approach uses the location quotient method where the location quotient consists of comparing regional economic structure with that of a geographic level of reference, which includes all sorts of regions. Usually, the national level is used as a reference. The major hypothesis of the location quotient is that in the case of the largest concentration of employment at the regional level, the difference observed between the two geographic levels corresponds to basic employment (Isserman 1980). The location-quotient technique "can work in small areas in which the region is specialized in a relatively small number of activities" (Mac Cann 2001, p 146). To take the urban hierarchy into account, location quotients were estimated by comparison with counties of comparable size of the Massif Central, by using as fine a breakdown as possible (into 16 points) of the nomenclature of activities².

² This approach is particularly appropriate for identifying service-sector exports (Gilmer, 1990).

We were thus able to provide two estimations of the total impact of retirees, using two methods for computing m_2 , based on an estimation of the basic sector either by assignment method or by location quotient. These two techniques are generally considered as the upper and lower limits for estimating a multiplier: "Several authors have found that the location-quotient technique tends to underestimate the level of the regional export activity and consequently, lends an upward bias to export base multiplier estimates" (Krikelas, 1992, p 22). "This finding suggests that determination of the basic sector by ad hoc assignment tends to underestimate the multiplier..." (Vollet and Bousset 2002, p 487).

5.3 Estimation of direct, indirect and induced effects

Total employment full time equivalent (FTE_i) is then multiplied by the multiplier (K_r) in order to obtain the total direct, indirect and induced impact (I):

$$I = FTE_i * K_r \quad (8)$$

In summary, the estimation of the impact of a retiree category on local employment was made in several stages:

- Stage 1: Estimation of direct effect (in jobs)
- Stage 2: Estimation of multiplier effect
- Stage 2a: Estimation of propensity to spend locally for the first round of spending (m_1), implying an estimation of proportion of total retiree spending that is local (a_{ij}) by survey and an estimate of the local value added in each category (b_{ij}) (Source: National accounting).
- Stage 2b: Estimation of propensity to spend locally for subsequent rounds of spending (m_2) with economic base models
- Stage 2c: Estimation of multiplier (K_r) ($K_r = \frac{1-m_2+m_1}{1-m_2}$)
- Stage 3: Estimation of total impact

6. Data analysis and results

6.1 Impact of retirees on local employment

The total impact obtained can be explained by the conjunction of several phenomena, which can be identified by the multiplier formula: total volume of retiree spending (total expenditure), total multiplier effect itself linked to nature, location of local spending (pro-

pensity m_1) and the degree of integration of the local economy (propensity m_2).

Total expenditure is closely linked to the number and type of retiree. The communities were chosen in the first place according to the characteristics of their economy and their retiree population (see Table 1). The differences found between communities can be compared to the differences in spending behaviour of the retiree types: aging in place, long distance migrants, and short distance migrants. Distribution among the different expenditure points (food, entertainment, etc) varies according to the retiree type. These differences especially reflect former habits, whether urban or rural, and even the need to incur expenses with regard to the principal residence. They are not significant, however, above all with regard to the differences between the total number of retirees and the total level of spending among types of retirees. Thus, in the valley of la Jonte, the limited effect of retirees (all categories) on local employment can be explained, in the first place, by the low number of retirees (slightly more than 400, which is three to four times less than in the other communities). However, the smaller size of the zone (and of the number of retirees) is not enough to explain this result. Expenditure per retiree in the different communities according to the type of retiree (Table 2) is a decisive element.

Table 2 shows that long distance migrants represent the retirement category which, in the three communities, spends the most, locally as well as globally. As has already been shown in similar surveys carried out in the USA (Fagan and Longino 1993; Day and Barlett 2000), long distance migrants have a comfortable income or savings compared to other categories, and are thus better able to stimulate local demand.

In the three communities, aging in place retirees are those who spend the least globally. However, short distance migrants have the lowest local spending level, in spite of higher total spending than local retirees. Low total spending of aging in place retirees is often linked to farming or working class origins, implying a small income. On the other hand, local spending is lower for short distance migrants than for the other types of retirees in all the communities. It is only in Haut Forez that the rate of local spending is relatively high (58 percent), but lower than for the other types of retiree. This may simply be explained by the distance of this community from urban centres. In the other two communities, these rates are in the order of 15 percent. They are linked to former consumer habits, given that short distance migrants are often not far from their former home. This behaviour is very different from that observed for external migrants, who spend more locally than the locals, except in Dore and

Table 1: Comparison of the impact on local employment of the three types of retirees between the three zones

Community	Type of retirees	Ratio direct, indirect and induced employment due to retirees/ total employment	Ratio direct, indirect and induced employment due to retirees/ tertiary employment
Haut Forez	Aging in place	[9.3-11.7]	[14.8-18.7]
	Short distance migrants	[0.5-0.6]	[0.7-0.9]
	Long distance migrants	[0.5-0.6]	[0.7-1]
Dore and Allier	Aging in place	[8.6-9]	[15.0-15.6]
	Short distance migrants	[0.7-0.8]	1.3
	Long distance migrants	0.4	0.6
	Total retirees	[9.7-10.2]	[16.9-17.6]
Valley of la Jonte	Aging in place	[3.2-3.4]	[4.5-4.8]
	Short distance migrants	0.1	0.2
	Long distance migrants	0.6	0.8
	Total retirees	[3.9-4.1]	[5.5-5.8]

Source: Surveys Vollet, Callois, Roussel, 2002

Table 2: Total and local expenditure by type of retiree in the 3 communities (in euros)

	Haut Forez		Haut Forez		Dore and Allier	
	Estimation of expenditure/ total retiree	Estimation of expenditure/ local retiree	Estimation of total expenditure/ retiree	Estimation of local expenditure/ retiree	Estimation of total expenditure/ retiree	Estimation of local expenditure /retiree
Aging in place retirees	4,384	3,231	3,834	1,968	4,296	2,764
Long Distance migrants	5,097	4,336	7,554	4,637	9,863	3,074
Short Distance migrants	5,097	2,951	6,157	941	7,645	1,306

Source : Surveys Vollet, Callois, Roussel, 2002

Allier, where urban habits are predominant because of the proximity of the metropolitan area.

If the classification (of expenditure by type of retiree is identical in all the communities, the differences of amounts associated with each type of retiree are

nevertheless not insignificant, except for the category of local retirees. This is due to the fact that different types of community do not necessarily attract the same socio-economic profile: zones that are sought-after for their lifestyle or closeness to the town are

characterized by high real estate prices, so high incomes are necessary.

In summary, general spending behaviour is related to the different types of retirees, long distance migrants being those who spend most locally, short distance migrants spending the least. The amounts spent vary also between communities, thus underscoring income and specific preferences of various types of retirees. Moreover, these differences will be amplified by net expenditure in the different spending rounds, allowing us to arrive at an estimation of the multiplier.

The analysis of the propensity to spend locally concerning the first round of spending (m_1) highlights three elements as shown in Table 3. First, short distance migrant retirees have, in the three zones, the lowest propensity to spend locally in the first spending round. Their migrations are short distance, thus explaining the continuation of spending habits pre-dating migration. Second, external or long distance

migrant retirees have, on average, the highest propensity to spend locally, with the notable exception of Dore and Allier. In this community, the spending leakages of external retirees are greater than those of the other two retirement categories. In this non-urban zone, retirees from outside the region are thus more attracted to urban centres than the others. They prefer to do their shopping outside the zone, at Clermont-Ferrand or Thiers. These towns have a more diversified commercial fabric than Lezoux (the biggest village in Dore and Allier). Finally, aging in place retirees have a very stable m_1 across regions. Sometimes (Dore and Allier), it is even higher than for the in-migrants. These results show that in-migrant retirees only create a lot of jobs in communities where there are quite a lot of shops or services. Stable spending behaviour of aging in place retirees is a reason not to overlook this population category.

Table 3: Comparison of multiplier effects between the three zones according to the type of retiree

Community	Type of retiree	m_1	m_2	Total multiplier effect (K_r)
Haut Forez	Aging in place	0.13	[0.30-0.71]	[1.18-1.45]
	Short distance migrants	0.11		[1.16-1.38]
	Long distance migrants	0.15		[1.21-1.51]
Dore and Allier	Aging in place	0.11	[0.19 -0.28]	[1.14-1.16]
	Short distance Migrants	0.03		[1.04-1.05]
	Long distance migrants	0.06		[1.07-1.08]
Valley of the Jonte	Aging in place	0.10	[0.12-0.27]	[1.11-1.13]
	Short distance migrants	0.03		[1.03-1.04]
	Long distance migrants	0.11		[1.13-1.16]

Source : Surveys Vollet, Callois, Roussel, 2002

The total impact of retirees can also be explained by economic characteristics unique to each community (especially number and diversity of commercial and service activities). The propensity to spend locally linked to subsequent rounds of spending (m_2) is particularly weak in the valley of la Jonte (at least 50% lower than in both other communities). It partly explains (with the exception of the low percentage of retirees in the total population: the very low impact of retirees. The particularly low value of m_2 in the Valley of la Jonte is not only explained by the more limited size of the employment basin. The valley of la Jonte has about half as much employment as the other two communities, but the propensity m_2 is at least 50 percent less. This result highlights the particularly small commercial sector in the Valley of la Jonte. In the same way, in smaller proportions, Dore and Allier is characterized by its relative m_2 weakness compared to the Valley of la Jonte. This seems to be linked to the geographic situation of the village of Lezoux in relation to the towns of Clermont-Ferrand or Thiers (see figure 1 in Appendix). Finally, the average employment multiplier estimations obtained for these three French communities are lower than those obtained with employment multipliers on US communities of comparable size. For example, the three Canadian areas studied by Hodge (1990) have between 5,000 and 12,000 inhabitants.

6-2 Implications for local development strategies

In relation to the implications of the findings for rural policymakers, the results suggest that attracting people may be an effective means of ensuring rural economic growth. Often, retirees "are seen as ideal economic stimuli" (Isserman 1994, p 71). The results obtained may enlighten the policymaker in two ways: on the one hand, the directions to take in order to increase the attractiveness of the community, and on the other hand, concrete actions to be taken to optimize the economic benefits of the presence of retirees.

Policies to make the territories more attractive in the eyes of retirees are possible. Can the territories under research be treated in the same way? Do problems present themselves in the same manner in Haut Forez as in a region highly valued by city dwellers, such as the Valley of la Jonte? The former community remains unattractive despite better accessibility. Its landscape is more monotonous and closed-in, and there is a lot of forest. Most of the inhabitants have low incomes. This must be taken into account in the community strategy, such as construction of low cost housing (village modernisation and restoration, public parks, community

centres). It seems that Haut Forez is already dealing with this problem, having reacted to the closure of numerous service points by creating a "Service House". This was to help people find essential public services locally, without having to travel to big towns. On the other hand, the Valley of la Jonte, because of its climate, attracts many wealthy retirees from outside the region. Local leaders should think about the way they want to attract and keep new retirees, even if retirees often arrive independently of any local official actions. Retiree attraction is partly a word-of-mouth phenomenon (see comparison of "passive approaches" in Washington State and "active approaches" in South Carolina, Reeder, 1998, p 20). However, development of amenities is only an important part of local strategy in zones where amenities abound. As Reeder points out (1998, p 20), "retiree attraction as a strategy for development has a great potential in places with desirable natural amenities". Such a strategy also has its limits, e.g. risk of competition between territories (Serow and Haas, 1992), risk of wasting public money if new retirees' tastes change, or the possibility of undesirable effects, such as an increase in real estate prices, which can inhibit other forms of development (Haas, 1990). In conclusion, it would be wise to introduce differentiated policies, which take into account the specificities of the place for example geographical situation, amenities, or distance from urban centres, as well as the types of retiree living there.

Policies intended to optimize the local consequences of the presence of retirees: proximity of local shops and the presence and diversity of services offered can help avoid leakages towards neighbouring towns. As Harmston pointed out (1981) in a US community (Missouri), leakages (especially in health services) are a particular problem for rural retirement areas in France as well. This second type of strategy is important in keeping aging in place retirees in the less attractive communities for two reasons: aging in place retirees have a relatively high and stable local spending propensity. Shopkeepers, through an appropriate marketing policy (home delivery, diversification of sales points, sale of local produce), can secure the loyalty of their elderly customers. They are often not mobile, and like to conduct business dealings on a human level. Local leaders should also be vigilant about keeping local shops open. The case of the large village of Lezoux is a good example. On average, one inhabitant of this community creates 0.071 building and tertiary jobs. From our surveys, a retiree creates 0.0065 jobs. These figures are much lower than those obtained for rural areas if one looks at the figures relating to the whole French territory. On average, one inhabitant

generates almost twice as much employment as at Lezoux (0.017). This community is characterized by one of the highest evasion rates of the sales sectors of the *département*. This helps to better understand the feeble multiplier effects on the local economy, and one can see the interest for the region in trying to find a solution to this problem.

In the Valley de la Jonte, the propensity to spend locally is also low, which explains the low impact of the presence of retirees on the local economy. Can one imagine a strategy of support for local shopkeepers? This is unrealistic, for the case of the Valley of la Jonte illustrates another question, that of the critical size necessary for the definition of a development strategy. Many practitioners ask the following questions: what scale is pertinent for local public action?

Finally, in order to benefit from economic consequences of the presence of retirees and to improve the effects, it seems that what is most needed is local willpower. Let us not forget that what some like to call 'grey gold' is becoming more and more an important social phenomenon. However, retirement migration can be both 'a boon and a burden' (Haas 1990). This fact cannot be overlooked in the context of an increasingly aging population. Territories increasingly have to integrate this data into their development strategy. The conclusions we have obtained in Europe confirm those of Reeder (1998, p 9) in the USA: "Retiree attraction is not for every community".

However, again it should be noted that in this study we have restricted ourselves to a descriptive analysis of particular rural economies. The more ambitious task of assessing the relative effectiveness of alternative methods for stimulating rural growth would require a more sophisticated framework. In particular, such a framework would need to take into account supply-side factors influencing regional economic development. It is very difficult to make definite conclusions about implications in the long run, due to uncertainty about future trends in Social Security and health care programmes.

7. Conclusions

The impact of retirees is differentiated according to the community. Many factors may explain this differentiation.

In the first place, the level of total and local spending also explains in part this differentiation of the impact on employment. Short distance migrant retirees do not consume much locally as they keep some of their former consumption habits. This largely explains the relatively low impact in Dore and Allier compared to Haut Forez (in spite of a greater number of retirees).

Long distance migrants have much higher levels of total spending than the others. Despite large income leakages to the exterior, their local spending remains higher than that of other retirees, thus demonstrating the local development possibilities of the arrival of this type of population.

Second, the injection of local expenditure into the different rounds of spending also varies greatly according to the community. It is particularly low in the Valley of la Jonte. The smallness of the zone only partly explains this result. The low density of the commercial fabric is the principal explanatory factor here. Conversely, propensity m_2 is higher in Haut-Forez (the village of Noirétable is a small centre with a lively commercial network).

Our results tend to confirm those of Reeder (1998) who states "The extent of these impacts varies depending on the type and quantity of retirees moving in and the nature of the place receiving them". The approach adopted presents a twofold interest. Theoretically, it underlines the pertinence of the choice of Wilson's multiplier. By means of the breakdown into two propensities to spend locally, this hybrid formulation - half Keynesian multiplier and half base multiplier - this allows us to analyse the origin of the variations observed in the total effect: those attributable to the first round of spending (very important in under-integrated economies) and those attributable to the following rounds. This approach represents an alternative to input-output analysis. It is less precise in its description of all the inter-sectoral connections, but it is easier to apply. As Wilson notes (1977, p 42) "input-output multipliers are useful for impact studies but, in most cases, the data, time, and money constraints make their use prohibitive". Despite a certain number of methodological difficulties (estimation of spending volumes) or theoretical difficulties (estimation techniques for basic employment), the estimations provided remain within a relatively limited range.

In terms of local development, it tends to show the development possibilities of rural areas from the viewpoint of a voluntarist strategy of keeping or receiving retiree populations.

Like the other studies of estimation of multiplier effects, these results must be regarded with caution. They do not take into account certain important effects including:

- The possible competition between communities is likely to considerably lessen the potential effects created.
- The possible phenomena of auto-reinforcement of migratory flow, which may lead to very different situations for communities which originally have

similar characteristics (Haas 1990; Woods Miller Voth Song and Tones 1997); The distinction between temporary and definitive migrations (Hogan and Steinness 1996); The nature of public interventions, and their intensity (Keef 1997).

- Above all, they are focused on the benefits, and do not take into account the costs of the presence of retirees, especially the charge weighing on local authorities, the increase in real estate prices, or the negative image which may be reflected by a community with a large number of retirees, as well as conflicts (especially of use) between retirees and economic activities (farming, industry). The findings presented with regard to different local development strategies are still quite small. To be more affirmative, a detailed analysis of the coherence and the pertinence of the actions already set up would be necessary. It would require complementary research.

References

- Alexander, J.M. and T.R. Whyte. 1995. Output, income and employment multipliers for Scotland. *Scottish Economic Bulletin*. 50:25-40.
- Al Hamad, A. and R. Flowerdew. 1997. Migration of elderly people to join existing households: Some evidence from the 1991 household sample of anonymised records. *Environment and Planning A*. 29: 1243-1255.
- Archer, B.H. 1982. The value of multipliers and their policy implications. *Tourism Management*. 54:236-241.
- Bennet, D.G. 1996. Implications of retirement development in high amenity nonmetropolitan areas. *Journal of Applied Gerontology*. 15 (3): 345-360.
- Bourret, D. 1988. *Retombées économiques régionales, guide de l'utilisateur*. Québec: Ministère du Loisir, de la chasse et de la Pêche du Québec.
- Brownrigg, M. and M.A. Greig. 1975. Differential multipliers for tourism. *Scottish Journal of Political Economy*. 21(3):261-275.
- Courson, J.-P. and C. Madinier. 2000. La France continue de vieillir. *INSEE Première*, 746.
- Cribier, F. and A. Kych. 1992. La migration de retraite des Parisiens, une analyse de la propension au départ. *Population*. 3: 677-718.
- Cribier, F. 1992. Vivre ailleurs, vivre autrement, quand les Parisiens se retirent à la campagne. *Gérontologie et Société*. 68: 43-56.
- Day, F.A. and J. Barlett. 2000. Economic impact of retirement, migration on the Texas hill country. *Journal of Applied Gerontology*. 19(1): 78-94.
- Deller, S.C. 1995. Economic impact of retirement migration. *Economic Development Quarterly*. 9(1): 25-38.
- Dorfman, J.H. and D.S. Kraybill. 1992. A dynamic intersectoral model of regional economic growth. *Journal of Regional Science*. 32(1): 1-17.
- Fagan, M. and C. Longino. 1993. Migrating Retirees: A Source for Economic Development. *Economic Development Quarterly*. 7(1): 98-106.
- Farness, D.H. 1989. Detecting the economic base: New challenges. *International Regional Sciences Review*. 12(3):319-328.
- Fokkema, T., J. Gierveld, and P. Nijkamp. 1996. Big cities, big problems, reason for the elderly move? *Urban Studies*. 33: 353-377.
- Galvez, J. and C. McLarty. 1996. Measurement of Florida temporary residents using a telephone survey. *Journal of Economic and Social Measurement*. 22: 25-42.
- Gouguet, J.J. and J.F. Nys. 1993. *Sport et développement économique régional, analyse théorique*. Cas pratique. Paris. Dalloz.
- Green, G.P. 2001. Amenities and Community Development: Strategies for sustainability. *The Journal of Regional Analysis and Policy*. 31(2): 61-75.
- Haas, W.H. 1990. Retirement migration: Boon or burden? *The Journal of Applied Gerontology*. 9(4): 387-392.
- Happel, S.K., T. D. Hogan, and E. Pflanz. 1988. The economic impact of elderly winter residents in the Phoenix Area. *Research on Aging*. 10(1): 119-133.
- Harmston, F.K. 1981. A study of the economic relationships of retired people and a small community. *Regional Science Perspectives*. 11(1): 42-56.
- Hirschl, T.A. and G.F. Summers. 1982. Cash transfers and the export base of small communities. *Rural Sociology*. 47(2): 295-316.
- Hodge, G. 1991. The economic impact of retirees on smaller communities, concepts and findings from three Canadian studies. *Research on Aging*. 13 (1): 39-54.
- Hogan, T. and D. Steinnes. 1996. Arizona Sunbirds and Minnesota Snowbirds: Two species of the elderly seasonal migrant genus. *Journal of Economic and Social Measurement*. 22: 129-139.
- INRA-INSEE. 1998. *Les campagnes et leurs villes*. Cours et caractère.
- Isserman, A.M. 1980. Estimating export activity in a regional economy: A theoretical and empirical analysis of alternative methods. *International Regional Science Review*. 5 (2): 155-184.
- Isserman, A.M. 1994. State economic development policy and practice in the United States: A survey

- article. *International Regional Science Review*. 16(2): 49-100.
- Kallan, J.E. 1993. A multilevel analysis of elderly migration. *Social Science Quarterly*. 74: 403-416.
- Keefe, J.M. 1997. The likelihood of combining employment and helping elderly in rural and urban areas among Canadian regions. *Canadian Journal of Regional Science*. 20 (3): 367-385.
- Krikelas, A.C. 1992. Why regions grow : A review of research on the economic base model. *Economic Review*. 77(4): 16-30.
- Li, P. and B. MacLean. 1999. Changes in the rural elderly population and their effects on the small town economy: The case of Saskatchewan 1971 -1986. *Rural Sociology*. 54(2): 213-226.
- Lin, G. 1997. Elderly migration: household versus individual approaches. *Papers in Regional Science*. 76(3): 285-300.
- Mulligan, G.F. and A.C. Vias. 1996. An assessment of the assignment method in economic base analysis. *The Review of Regional Studies*. 26:265-284.
- Reeder, R.J. 1998. Retiree-attraction policies for rural development. *Agriculture Information Bulletin*, (US Department of Agriculture, New-York).
- Reeder, R.J., M.K. Schneider, and B.L. Green. 1993. Attracting retirees as a development strategy. In: *Economic Adaptation: Alternatives for Nonmetropolitan areas*. D.L. Barkley (ed.). Boulder (Colorado): Westview Press.
- Richardson, H.W. 1985. Input-output and economic base multipliers: Looking backward and forward. *Journal of Regional Science*. 25(4): 607-661.
- Rioux, J.J.M. and J.A. Shofield. 1990. Economic impact of a military base on its surrounding economy: The case of C.F.B. Esquimalt, Victoria, British Columbia. *Canadian Journal of Regional Sciences*. 13(1): 47-61.
- Schmitt, B. and F. Gofette-Nagot. 2000. Définir l'espace rural ? De la difficulté d'une définition conceptuelle à la nécessité d'une délimitation statistique. *Economie Rurale*. 257: 42-66.
- Serow, W.J. 1990. Economic implications of retirement migration. *The Journal of Applied Gerontology*. 9(4): 452-463.
- Serow, W.J. 2001. Retirement migration counties in the south-eastern United States: Geographic, demographic and economic correlates. *The Gerontologist*. 41: 220-228.
- Serow, W.J. and W.H. Haas. 2001. Measuring the economic impact of retirement migration: The case of Western North Carolina. *The Journal of Applied Gerontology*. 11 (2): 200-215.
- Shields, M., S.C. Deller, and J.I. Stallmann. 2001. Comparing the impacts of retiree versus working-age families on a small rural region: An application of the Wisconsin Economic Impact Modelling System. *Agricultural and Resource Economics Review*. 30(1): 1-31.
- Shields, M., J. Stallmann, and S. Deller. 1999. Simulating the economic and fiscal impacts of high and low income elderly on a small rural region. *Review of Regional Studies*. 29(2): 175-196.
- Siegel, P. and F. Leuthold. 1993. Economic and fiscal impacts of a retirement/recreation community: A study of Tellico Village. *Tennessee Journal of Agricultural and Applied Economics*. 25(2): 134-147.
- Siegel, P., F. Leuthold, and J.I. Stallmann. 1998. Planned retirement/recreation communities are among development strategies open to amenity-rich rural areas. *Rural Development Perspectives*. 10(2): 8-14.
- Smirnov, O. 2002. Measuring self-sustainability of economic development at the county level. *Annals of Regional Science*. 36: 683-696.
- Stabler, J.C. and L.V. Saint Louis. 1990. Embodied inputs and the classification of basic and non basic activity: Implication for economic base and regional growth analysis. *Environment and Planning A*. 22: 1667-1675.
- Stallman, J. and L.L. Jones. 1995. A typology of retirement places: a community analysis. *Journal of the Community Development Society*. 26(1): 1-14.
- Vias, A.C. and G.F. Mulligan. 1995. Disaggregating economic base multipliers in Arizona communities. Department of Geography and Regional Development, Tucson, AZ.
- Vollet, D. and Y. Dion. 2001. Les potentialités des modèles de la base pour guider la décision publique. *Revue d'Economie Régionale et Urbaine*. 2: 179-196.
- Vollet, D. and J-P Bousset. 2002. Use of meta-analysis for the comparison and transfer of economic base multipliers. *Regional Studies*. 36(5): 481-494.
- Wilson, J.H. and R. Raymond. 1973. The economic impact of a university upon the local community. *The Annals of Regional Science*. 7(2): 130-142.
- Wilson, J-H. 1977. Impact analysis and multiplier specification. *Growth and Change*. 8: 42-46.
- Woods, M., W. Miller, D. Voth, B. Song, and L. Jones. 1997. Economic impacts of in-migrating retirees on local economies. *Journal of the Community Development Society*. 28(2): 206-224.

Appendix 1. The main economic and demographic characteristics of the three communities

Community	Demography						Employment (% by sector)							
	Pop 90	Pop 99	Natural balance 90-99 (%)	Migratory balance 90-99 (%)	Retirees/ Total Pop	Aging in Place Retirees/ Total Retirees	Agriculture		Manufacturing		Tertiary		Construction	
							1990	1999	1990	1999	1990	1999	1990	1999
Haut-Forez	3,744	3,583	- 0.59 %	+ 0.11 %	28 %	87 %	16	11	32	26	43	57	9	6
Valley of la Jonte	1,395	1,382	- 0.53 %	+ 0.42 %	25 %	79 %	18	22	12	6	62	66	8	6
Dore and Allier	13,039	13,656	- 0.35 %	+ 0.75 %	22 %	81 %	14	6	28	28	49	60	9	6

Source: Population Census, 1990,1999