THE ROLE OF RURAL TOURISM ON THE DEVELOPMENT OF RURAL AREAS: THE CASE OF CYPRUS

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Abstract

Rural areas in the European Union are currently undergoing significant economic and social changes, mostly induced by the international trade liberalization and the strengthening of the role of rural development policy. There is an increasing awareness of the need to accompany changes in rural areas through the diversification of their economic base that seems to be the only answer to their socio-economic survival. Rural tourism has been considered a means of achieving such economic and social development due to its capacity to generate local employment and stimulate external investment into the communities. Within this context, the objective of this paper is to investigate the economic role of tourism on the development of rural areas in Cyprus. Tourism economic impact assessment is based on a constructed input-output table for rural Cyprus followed by a tourism-centered multiplier analysis. Model results suggest that tourism creates significant backward linkages in the rural economy of Cyprus and offers great potential for improving economic activity.

Keywords: rural tourism; rural development; rural areas typologies; input-output analysis; demand and supply driven multipliers

JEL Classification: C67, D57, R58
1. Introduction

Rural areas are vital to the European Union (EU) as they cover almost 91% of the territory and hold over 59% of the population. Though economic activity tends to concentrate in urban areas, rural regions generate 17% of the gross value added (GVA) and provide 22% of the employment (European Commission, 2011). Rural areas are currently undergoing significant economic and social changes, mostly induced by the international trade liberalisation, the development of information and communication technologies and the strengthening of rural development policy. They are confronted simultaneously with significant weaknesses and new challenges and opportunities. It is widely accepted that farming no longer forms the ‘backbone’ of rural economies and its contribution to the GDP formation and employment in most rural regions is in relative decline (OECD, 2009). Although rural depopulation remains important for most parts of the countryside, others are experiencing an inflow of people to retire or to develop new ‘non-traditional’ businesses (Copus and Noguera, 2010). Society formulates new expectations on the role of countryside while the rise of environmentalism has led to increasing interest over natural resource use and development. ‘Traditional’ rural societies are receiving more attention and rural space has transformed from a production only to a production and consumption space.

Within this context, the major strategic priority of the European rural development policy is to promote employment and improve the conditions for growth in rural areas. Raising economic activity and employment rates in rural regions can be achieved through the diversification of their economic base creating thus a better territorial balance, both in economic and social terms. More specifically, the Rural Development Programmes (RDPs) and Leader Initiatives aim to support the economic activity in rural areas via the improvement of public infrastructure and the development of a climate of entrepreneurship for the generation of small and medium size business.

Rural tourism has long been considered a means of such diversification of the rural economy. Tourism is the major part of the shift in the economic base of rural societies (Brandth and Haugen, 2011) promoting thus rural vitality and sustainability (Hall et al., 2003). The synergies and interrelationships between tourism, agriculture and the other sectors of economic activity are increasingly important with many different players getting involved. Rural tourism has become a ‘development tool’ for many communities seeking to diversify their economies due to its capacity to generate local employment, stimulate external investment into the communities and supplement traditional industries (Yiannakis and Davies, 2012; MacDonald and Jolliffe, 2003). Sharpley and Vass
(2006) have identified the long tradition of rural tourism in Europe and stressed its capacity to solve economic and social problems into rural areas.

Tourism’s economic and employment potential for rural areas depends heavily on the ‘linkages’ it builds with the other sectors of the rural economy. The building of such interrelationships and synergies with local sectors such as agriculture, food processing, construction, transportation and other services minimizes the ‘leakages’ of tourism growth outside the regions and strengthens production at local level. Within this context, the purpose of this paper is to analyze the economic role of rural tourism on the rural development of Cyprus. The input-output technique is used to estimate rural tourism linkages with the other local sectors of economic activity through the calculation of both demand-driven and supply-driven multipliers.

2. But what is rural tourism?
Rural tourism is not a new phenomenon in Europe. However, in recent years the market has become more sophisticated and discriminating and there has been an increasing interest in tourism as a valuable vehicle for much needed diversification of the rural economy (European Commission, 2000). As far as the definition of rural tourism is concerned, it is difficult to find a clear and universal one due to its multifaceted nature (OECD, 1994b). Lane (1994) and Reichel et al. (2000) define rural tourism as the tourism that is located in rural areas while Gannon (1994) as ‘a range of activities, services and amenities provided by farmers and rural people to attract tourists to their area in order to generate extra income for their businesses’. The term ‘rural tourism’ has been adopted by the European Commission for tourism as the means to describe and explain all the touristic activities in rural areas and villages (European Commission, 2000). But in almost every case of rural tourism package the central point is how ‘rurality’ is defined?

The need for a definition for rurality is an old issue faced by policy makers for many years. Although rural areas have been analysed in many countries for decades, there is neither a harmonised definition of what is rural nor an official regional typology (European Commission, 2007). According to OECD’s view there is no simple definition of rural and an appropriate choice shall depend on the analytical purpose or on the policy problems that have to be solved (OECD, 1994a). The most appropriate definition of rural depends on the aspect of the social, economic and natural part of the environment the particular policy wishes to influence (Hill, 2005). Hoggart et al. (1995) argued that there is little chance of reaching consensus on what is ‘meant’ by rural for two reasons. First,
agreement on the very notion of ‘rural’ is lacking and second, different cultural, demographic, environmental, political and socioeconomic conditions in EU lead their residents to emphasize different attributes as key characteristics of their rurality. The difficulty in defining what is meant by ‘rural’ is shown in the fact that rural is commonly defined not on its own terms but in opposition to urban. Many national statistical systems, including Cyprus, first define what is urban and then simply define rural as non-urban.

By reviewing national definitions of rural, the most common criteria that dominate in the debate on rurality are: (1) population criteria (density and size); (2) land uses, and its dominance by agriculture and forestry; (3) "traditional" social structures and issues of community identity and heritage (OECD, 1994b). The only internationally recognised definition of rural areas is based on the OECD methodology (OECD 1994a; 2007). The OECD rural typology is based on population density and distinguishes three groups of regions: ‘predominantly rural’, ‘intermediate rural’ and ‘predominantly urban’. The European Commission has consistently used the OECD methodology to define rural areas (European Commission, 2007). However, since 2010, the European Commission agreed on a new typology of ‘predominantly rural’, ‘intermediate’ and ‘predominantly urban’ regions, based on a variation of the previously used OECD methodology. The method builds on a simple approach to create clusters of urban grid cells with a minimum population density of 300 inhabitants per km² and a minimum population of 5000. All the cells outside these urban clusters are considered as rural. (Eurostat, 2011).

3. Definition of rural areas in Cyprus
The definition of ‘rural’ in Cyprus is based upon a dichotomous (rural-urban) concept. The Statistical Service of Cyprus defines rural areas as ‘all areas outside urban agglomerations of the district towns covered by the Local Town Plans as defined by the Department of Town Planning ’ (ESPON, 2003). Although, the results of this methodology are considered as imperfectly reflecting the rural character of areas, Cyprus has been using this definition mainly for continuity and comparison reasons.

In this study, rural areas of Cyprus are defined based on the OECD regional typology (OECD 1994a; 2007). The OECD methodology is based on a two-step approach. The first criterion identifies rural communities according to population density. A local community is defined as rural if its population density is below 150 inhabitants per km². The second criterion classifies regions according to the percentage of population living in rural communities. Thus, a region is classified as:
predominantly rural: if more than 50% of its population lives in rural communities

intermediate: if between 15% and 50% of its population lives in rural communities

predominantly urban: if less than 15% of its population lives in rural communities.

The rural areas in Cyprus, according to OECD criteria, are presented in the Table 1 and represent almost 86% of the territory and 22.4% of population. For example, in Paphos district rural areas cover almost 95.5% of the territory and hold over 36.6% of the population. All districts of Cyprus are characterized as ‘intermediate rural’ as 15%-50% of population lives in rural areas (population density < 150 persons/km²).

From the analysis it seems that the methodology used by the Statistical Service of Cyprus overestimates rural population almost by 9% compared to OECD criteria.

Table 1. Classification of Cyprus districts according to the OECD criteria

| Rural areas | | Non rural areas | |
|-------------|------------------|------------------|
| | Population (%) | Area (%) | Population density (persons/km²) | Population (%) | Area (%) | Population density (persons/km²) |
| Nicosia | 20.4% | 83.8% | 37 | 79.6% | 16.2% | 752 |
| Limassol | 14.1% | 88.0% | 23 | 85.9% | 12.0% | 1012 |
| Larnaca | 28.9% | 83.4% | 39 | 71.1% | 16.6% | 476 |
| Paphos | 36.6% | 95.5% | 19 | 63.4% | 4.5% | 697 |
| Famagusta | 36.0% | 56.1% | 80 | 64.0% | 43.9% | 182 |
| Total | **22.4%** | **86.0%** | **31** | **77.6%** | **14.0%** | **651** |

Source: Authors’ calculations

Although determining what belongs to tourism industry is a complex process open to different interpretations, within this study the rural tourism industry includes the hotels and restaurants sectors that are located in the rural regions defined above.

4. Methodological aspects of input-output analysis

A full assessment of the economic impacts of rural tourism requires that the linkages between tourism and the other sectors of the rural economy are clearly identified. Having established these linkages, policy makers are then in a better position to consider specific interventions that can raise economic activity in rural regions. Input-output analysis is recognized as the most suitable quantitative technique for studying such interdependence of production sectors in an economy (Giannakis and Efstratoglou, 2011). By disaggregating the total economy into a number of interacting sectors, input-output analysis
provides an impressive tool for sectoral investigations and impact analysis. Although the well-known limitations of the technique, i.e. do not take into account resource constraints, ignore price adjustments, inputs are used in fixed proportion without any substitution of inputs (Miller and Blair, 2009; Dwyer et al., 2004), input-output analysis has been used extensively for assessing tourism impacts either on national (Archer, 1995; Archer and Fletcher, 1996; Henry and Deane, 1997) or regional economies (Chhabra et al., 2003; Kim et al. 2003).

4.1. Demand-driven input-output multipliers

A significant feature of multiplier analysis in an input-output context is its ability to disaggregate the effects of a stimulus in economic activity. In this context, the increase in final demand for the product of a sector by one unit, creates three major effects on output, income and employment. These are:

a) the direct effect, which represents the immediate output, income and employment effects on sector \( j \), caused by a unit increase in final demand for the output of sector \( j \);

b) the indirect effect, which reflects the 'second and subsequent-round' output, income, and employment effects on the economy (i.e. on sector \( j \) and its input-providing sectors), caused by a unit increase in final demand for the output of sector \( j \);

c) the induced effect, which represents the output, income, and employment effects on the economy, induced by household spending of income generated in the production process, as a result of a unit increase in final demand for the output of sector \( j \).

Consequently, Type I and Type II multipliers can be calculated as (Richardson, 1972):

\[
\text{Type I multiplier} = \frac{\text{Direct and Indirect Effects}}{\text{Direct Effects}}
\]

\[
\text{Type II multiplier} = \frac{\text{Direct, Indirect and Induced Effects}}{\text{Direct Effects}}
\]

In general, Type II multipliers often overestimate economic impacts (Miller and Blair, 2009). The constructed input-output table for rural Cyprus is open with respect to households and Type I output and employment multipliers are estimated.
4.2. Supply-driven input-output multipliers

As presented above, the final demand input-output multipliers assess total impacts in each sector due to exogenous changes in the elements of final demand. In the usual form of the standard demand-side input-output model, the final demand elements, $F$, are the exogenous components.

\[ X = AX + F \]  
\[ (I - A)X = F \]  
\[ X = (I - A)^{-1} F \]

where,

$I$: the identity matrix

$A$: an nxn matrix of technical coefficients

$X$: an nx1 vector of gross outputs

$Y$: an nx1 vector of final demand

Changes in the $F_j$ come as a result of forces that are outside the model (e.g., government purchases, changes in consumer tastes), and it is the effects of these changes on the economy’s gross outputs, $X$, that are quantified through the input-output model. Often however, policies or uncontrollable factors induce exogenous changes in total outputs of sectors. Since what is exogenously altered is the gross output of sectors, the use of final demand multipliers induces bias and inflates the results (Papadas and Dahl, 1999; Johnson and Kulshreshtah, 1982). In such cases, a mixed type of input-output model is appropriate, in which final demands for some sectors and gross outputs for the remaining sectors are specified exogenously (Miller and Blair, 2009).

Using subscript 1 to denote the sectors whose outputs are to be exogenised and subscript 2 for those sectors whose outputs are endogenously determined, the basic equation of input-output analysis (2) can become:

\[ (1 - a_{i1})X_1 - a_{i2}X_2 = F_1 \]
\[ -a_{2i}X_1 + (1 - a_{22})X_2 = F_2 \]  
\[ (1 - a_{i1})X_1 - a_{i2}X_2 = F_1 \]
\[ -a_{2i}X_1 + (1 - a_{22})X_2 = F_2 \]
Rearranging the above equations in order to isolate the exogenous variables \((X_1, F_2)\) on the right-hand side and the endogenous variables \((X_2, F_1)\) on the left, with matrix partitioning (4) can become:

\[
\begin{bmatrix}
-a_{12} & -1 \\
(1-a_{22}) & 0
\end{bmatrix}
\begin{bmatrix}
X_2 \\
F_1
\end{bmatrix}
= \begin{bmatrix}
-(1-a_{11}) & 0 \\
0 & 1
\end{bmatrix}
\begin{bmatrix}
X_1 \\
F_2
\end{bmatrix}
\]

(5)

Let \(M = \begin{bmatrix}
-a_{12} & -1 \\
(1-a_{22}) & 0
\end{bmatrix}\) and \(N = \begin{bmatrix}
-(1-a_{11}) & 0 \\
0 & 1
\end{bmatrix}\)

Then (5) can be expressed as

\[
\begin{bmatrix}
X_2 \\
F_1
\end{bmatrix} = M^{-1}N\begin{bmatrix}
X_1 \\
F_2
\end{bmatrix}
\]

(6)

In this scenario, \(X_2\) and \(F_1\) are unknown while \(X_1\) and \(F_2\) are exogenously determined. If, as in the present study, the interest is in the impact of exogenous changes in the output of a given sector, it can be assumed zero changes in exogenously specified final demands, i.e., \(\Delta F_2 = 0\) (Johnson and Kulshreshtah, 1982; Papadas and Dahl, 1999; Steinback, 2004). Thus, if \(F_2\) is set to zero, the suggested multiplier matrix from (6) stems from exogenous output changes and can be used to determine the impact of an exogenously specified \(X_1\) on \(X_2\). The solution procedure is the same for any square set of linear equations. So, in an \(n\)-sector economy, if \(k\) sectors are exogenised, the multiplier matrix is of dimension \((n-k, k)\) and the \(ij^{th}\) element shows the change in sector \(i\)’s output due to a unitary change in sector \(j\)’s output.

4.3. Regionalisation process

With respect to the construction of a regional input-output table the various approaches can be broadly categorized as ‘survey’, ‘non-survey’ and ‘hybrid’ (Richardson, 1972). The ‘survey’ approach relies on collecting primary data through various survey methods. The advantage of this approach is that it does not assume similarity between regional and national production functions. The ‘non-survey’ approach involves the representation of the regional economy through the modification of national technical
coefficients. However, the ‘non-survey’ methods do not provide satisfactory substitutes for the ‘survey’ approach as the constructed regional tables are not free from significant error (Richardson, 1972). In response to this problem, a ‘hybrid’ approach involves the application of ‘non-survey’ techniques to estimate an initial regional transactions matrix. Then, entries in this matrix relating to key sectors are replaced by survey-based estimates. One of the most well-known hybrid techniques is GRIT (Generation of Regional Input-Output Tables).

4.3.1 The GRIT approach
The GRIT technique was developed and originally applied by Jensen et al. (1979) and has been widely used for rural economic analysis (Johns and Leat, 1987; Psaltopoulos and Thomson, 1993; Tzouvelekas and Mattas, 1999; Ciobanu et al., 2004; Giannakis and Efstratoglou, 2011). According to Jensen et al. (1979), GRIT system was developed ‘…to provide an operational method, free from significant error, for regional economic analysis’. A mechanical procedure is initially applied to adjust national tables by using an employment-based Cross Industry Location Quotient (CILQ) or Simple Location Quotient (SLQ) to the corresponding elements of the national direct requirement matrix, followed by the insertion of ‘superior’ data from survey or other sources. As a result, GRIT includes the advantages of both ‘survey’ and ‘non-survey’ techniques.

5. Analysis and results
5.1 The construction of the rural Cyprus input-output table
The construction of the rural IO table was based on the Cypriot supply and use tables for the year 2007, which are the latest available (CYSTAT, 2013). Eurostat (2008) distinguishes four basic models for the transformation of supply and use tables to symmetric input-output tables. The first two models are based on technology assumptions and generate product-by-product input-output tables while the other two models are based on assumptions of fixed sales structures and generate industry-by-industry input-output tables. The four basic transformation models are based on the following assumptions (Eurostat, 2008; Steenge and Van De Steeg):

– **Model A**: the product by product IO table based on the product technology assumption
– **Model B**: the product by product IO table based on the industry technology assumption
– **Model C**: the industry by industry IO table based on the fixed industry sales structure assumption;
– **Model D**: the industry by industry IO table based on the fixed product sales structure assumption.
The constructed national IO table is of the industry-by-industry type based on the sales structure assumption. Each product is assumed to have its own specific sales structure, irrespective of the industry where it is produced while the term ‘sales structure’ is defined in terms of the proportions of the output of a product in which it is bought by the intermediate and final destinations. For further technical details of the method, see Thage (2002; 2005), Thage and Ten Raa (2006), Eurostat (2008).

The initial scheme of 59 sectors of economic activity was aggregated into 19 sectors in order to reconcile the discrepancy between employment data available at the rural and national level, respectively. GRIT regionalization technique described above was used for the construction of the rural input-output table. Mechanical estimates of rural input-output coefficients were superiorized through a survey of 65 local businesses specific to certain sectors of the rural economy and specifically to agriculture, food processing, trade and tourism. The selection of the sampled sectors was based on two criteria: (a) the significance of these sectors for the regional economy and (b) the existence of strong intersectoral linkages with the tourism sector (Czamanski and Malizia, 1969).

5.2. Demand-driven input-output multipliers

Based on the constructed input-output table for rural Cyprus, Table 2 indicates output and employment multipliers and coefficients. The Type I output multipliers express the regional significance of the backward linkages of each industry. The multiplier for the Tourism sector is amongst the highest (5th in rank), indicating strong linkages with the rest sectors of the rural economy. So, an increase of 1 million euro in final demand of the Tourism sector will increase the total (direct and indirect) output in the rural areas of Cyprus by 1.44 mil euro. The ranking of sectors shows that the highest direct and indirect increase of gross output generated by an increase of 1 million euro in final demand is observed in the Trade sector (3.13) followed by the sectors of Constructions (1.60), Electricity (1.59) and Food Processing (1.57).

Direct employment coefficients (DECs) show that an additional 1 million euro of output from the labour-intensive Tourism sector creates 23 jobs in the industry. Increased output has also a high direct job impacts on Trade (110 jobs), Education (23 jobs), and Other Services (23 jobs) which are labour-intensive industries. On the other hand, increased output in capital-intensive sectors such as Chemical and Plastic Products (1 job), Machinery and Equipment (2 jobs), Electricity (3 jobs), and Food Processing (5 jobs) seems to create a lower number of direct new jobs. Direct and indirect employment coefficients (DIECs) are high for industries such as Trade (121 jobs), Tourism (26 jobs),
Other Services (26 jobs), and Education (24 jobs). Type I employment multiplier for Tourism industry is amongst the lowest (1.15) indicating weak backward effects. This is mainly due to the high direct employment linkages of the industry, rather than to the indirect employment effects which are rather low. On the other hand, linkages are significant in the case of Food Processing (1.92) and Transportation (1.76).

Table 2. Output and employment multipliers and coefficients for rural Cyprus

<table>
<thead>
<tr>
<th>Economic Sectors</th>
<th>Type I Output Multiplier</th>
<th>Rank</th>
<th>DEC</th>
<th>Rank</th>
<th>DIEC</th>
<th>Rank</th>
<th>Type I Employment Multiplier</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Agriculture</td>
<td>1.36</td>
<td>11</td>
<td>10</td>
<td>8</td>
<td>12</td>
<td>9</td>
<td>1.29</td>
<td>9</td>
</tr>
<tr>
<td>2. Mining</td>
<td>1.21</td>
<td>15</td>
<td>5</td>
<td>13</td>
<td>7</td>
<td>15</td>
<td>1.27</td>
<td>10</td>
</tr>
<tr>
<td>3. Food Processing</td>
<td>1.57</td>
<td>4</td>
<td>5</td>
<td>15</td>
<td>9</td>
<td>12</td>
<td>1.92</td>
<td>1</td>
</tr>
<tr>
<td>4. Textile</td>
<td>1.09</td>
<td>19</td>
<td>3</td>
<td>16</td>
<td>3</td>
<td>17</td>
<td>1.13</td>
<td>18</td>
</tr>
<tr>
<td>5. Wood and Paper</td>
<td>1.42</td>
<td>9</td>
<td>7</td>
<td>11</td>
<td>10</td>
<td>11</td>
<td>1.41</td>
<td>7</td>
</tr>
<tr>
<td>6. Chemical and Plastic Products</td>
<td>1.09</td>
<td>18</td>
<td>1</td>
<td>19</td>
<td>2</td>
<td>19</td>
<td>1.24</td>
<td>13</td>
</tr>
<tr>
<td>7. Metal and non-Metal Products</td>
<td>1.43</td>
<td>6</td>
<td>5</td>
<td>14</td>
<td>8</td>
<td>14</td>
<td>1.56</td>
<td>4</td>
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<tr>
<td>8. Machinery and Equipment</td>
<td>1.10</td>
<td>17</td>
<td>2</td>
<td>18</td>
<td>2</td>
<td>18</td>
<td>1.25</td>
<td>12</td>
</tr>
<tr>
<td>9. Electricity, Gas and Water</td>
<td>1.59</td>
<td>3</td>
<td>3</td>
<td>17</td>
<td>4</td>
<td>16</td>
<td>1.70</td>
<td>3</td>
</tr>
<tr>
<td>10. Construction</td>
<td>1.60</td>
<td>2</td>
<td>12</td>
<td>6</td>
<td>16</td>
<td>6</td>
<td>1.34</td>
<td>8</td>
</tr>
<tr>
<td>11. Trade</td>
<td>3.13</td>
<td>1</td>
<td>110</td>
<td>1</td>
<td>131</td>
<td>1</td>
<td>1.20</td>
<td>14</td>
</tr>
<tr>
<td>12. Tourism</td>
<td>1.44</td>
<td>5</td>
<td>23</td>
<td>4</td>
<td>26</td>
<td>2</td>
<td>1.15</td>
<td>15</td>
</tr>
<tr>
<td>13. Transportation</td>
<td>1.42</td>
<td>7</td>
<td>7</td>
<td>10</td>
<td>8</td>
<td>13</td>
<td>1.76</td>
<td>2</td>
</tr>
<tr>
<td>14. Banking - Financing</td>
<td>1.27</td>
<td>14</td>
<td>5</td>
<td>12</td>
<td>8</td>
<td>13</td>
<td>1.47</td>
<td>6</td>
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<tr>
<td>15. Real Estate</td>
<td>1.42</td>
<td>8</td>
<td>8</td>
<td>9</td>
<td>11</td>
<td>10</td>
<td>1.49</td>
<td>5</td>
</tr>
<tr>
<td>16. Public Administration</td>
<td>1.32</td>
<td>12</td>
<td>12</td>
<td>7</td>
<td>15</td>
<td>7</td>
<td>1.24</td>
<td>11</td>
</tr>
<tr>
<td>17. Education</td>
<td>1.15</td>
<td>16</td>
<td>23</td>
<td>2</td>
<td>24</td>
<td>4</td>
<td>1.07</td>
<td>19</td>
</tr>
<tr>
<td>18. Health</td>
<td>1.40</td>
<td>10</td>
<td>17</td>
<td>5</td>
<td>19</td>
<td>5</td>
<td>1.14</td>
<td>16</td>
</tr>
<tr>
<td>19. Other Services</td>
<td>1.27</td>
<td>13</td>
<td>23</td>
<td>3</td>
<td>26</td>
<td>3</td>
<td>1.14</td>
<td>17</td>
</tr>
</tbody>
</table>

DEC: Direct Employment Coefficients
DIEC: Direct and Indirect Employment Coefficients

5.3. Supply-driven input-output multipliers

To assess the impact of the Tourism sector on the rural economy of the Cyprus from the supply side, it is necessary to exogenize the output of the Tourism sector based on the methodology described above in paragraph 4.2. Table 3 presents the ‘supply-driven’ multipliers of the Tourism sector for the rest sectors of economy. Each element shows the output change of the $i^{th}$ sector due to the exogenous change of the output of the Tourism sector while the sum of the column’s elements shows the total
impact of the exogenous change of the output of Tourism by one unit on the rural economy’s output. In other words, if the output of Tourism sector increases by 1 million euro, the output of the other sectors will increase by 0.4318 million euro.

In our case, one of the basic objectives of the Axis 3 of the Cyprus RDP in order to enhance the quality of life in rural areas and the diversification of the rural economy is the increase of the number of visitors in rural areas by 200,000 and subsequently the increase in the output of the Tourism sector by 5%, i.e. by 38 million euro, by the end of the current programming period 2007-2013 (Ministry of Agriculture, Natural Resources and Environment, 2007). This increase in the output of the Tourism sector will increase the output of the rest rural economy by 16.4 million euro. The analysis of multipliers indicates also the strong linkages of the Tourism industry with the industries of Food Processing and Agriculture that can format a strong basis for the development of the rural economy.

**Table 3. Supply-driven multipliers of Tourism to rural economy**

<table>
<thead>
<tr>
<th>Economic Sectors</th>
<th>Supply Multipliers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Agriculture</td>
<td>0.0749</td>
</tr>
<tr>
<td>2. Mining</td>
<td>0.0007</td>
</tr>
<tr>
<td>3. Food Processing</td>
<td>0.1686</td>
</tr>
<tr>
<td>4. Textile</td>
<td>0.0050</td>
</tr>
<tr>
<td>5. Wood and Paper</td>
<td>0.0209</td>
</tr>
<tr>
<td>6. Chemical and Plastic Products</td>
<td>0.0219</td>
</tr>
<tr>
<td>7. Metal and non-Metal Products</td>
<td>0.0131</td>
</tr>
<tr>
<td>8. Machinery and Equipment</td>
<td>0.0119</td>
</tr>
<tr>
<td>9. Electricity, Gas and Water</td>
<td>0.0323</td>
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<tr>
<td>10. Construction</td>
<td>0.0134</td>
</tr>
<tr>
<td>11. Trade</td>
<td>0.0022</td>
</tr>
<tr>
<td>13. Transportation</td>
<td>0.0089</td>
</tr>
<tr>
<td>14. Banking - Financing</td>
<td>0.0141</td>
</tr>
<tr>
<td>15. Real Estate</td>
<td>0.0224</td>
</tr>
<tr>
<td>16. Public Administration</td>
<td>0.0002</td>
</tr>
<tr>
<td>17. Education</td>
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</tr>
<tr>
<td>18. Health</td>
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</tr>
<tr>
<td>19. Other Services</td>
<td>0.0209</td>
</tr>
<tr>
<td><strong>Total Output of Regional Economy</strong></td>
<td><strong>0.4318</strong></td>
</tr>
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</table>
6. Conclusions

Rural areas in Cyprus have been traditionally faced with significant structural constraints but at the same time, certain features that have caused their isolation have contributed to their status as areas of natural beauty, unspoilt environment and rich cultural heritage. In these areas, rural tourism and related activities could be considered as the main axis of a rural development strategy that can protect the fragile socio-economic fabric in the short run, and create sustainable development in the long run. Rural tourism creates strong backward linkages with the rest sectors of the rural economy in terms mainly of output generation consisting thus a very important means for diversifying economic activities in rural Cyprus. More specifically, its capacity to create strong interrelationships and synergies with food manufacture and agriculture promotes rural vitality and strengthens the production capacity at local level. The economic importance of rural tourism in Cyprus appearing through the input-output multiplier analysis provides strong empirical evidence for the above statement. Therefore, it is necessary the policy makers to take considerably into consideration rural tourism dynamics when designing rural development policy interventions. Considering also that, the European policy initiatives aiming at strengthening the viability of rural areas have as central point the protection of natural resources, it is essential to extend the basic input-output technique in order to encompass the environmental dimensions of rural tourism.

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