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An Impact Assessment of the Young Farmers Scheme Policy on Regional Growth in Greece

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Abstract: Generation renewal in farming is an urgent matter for European policy institutions that strive to maintain social cohesion and improve economic development in rural areas. Aids to young Europeans to enter the agricultural business sector have been available since 2000 to counter the negative effect of an aging rural population. This study examines for the first time the impact of the Pillar II policy measure for generation renewal on regional economic growth. The well-established input–output method was selected to estimate the income and employment effects of the policy measure, and it served as a concrete impact analysis tool. Within the AGRICORE project study for the Young Farmers Scheme in Greece, two input–output models were constructed for Thessaly and Central Macedonia, the two most agriculturally oriented regions (NUTS-2 level), to estimate multipliers and elasticities for an ex-post impact analysis of the payments of Measure 6.1 "Start-Up Aid for Young Farmers" for the CAP 2014–2020 period. Results indicate that regional output and employment are significantly benefited from the generation renewal policies while income generation is positive but at a lesser extent. Furthermore, indirect jobs created in rural areas equal to 20% of the direct employment expressed as the number of new entrants. Consequently, the Measure proves to stimulate regional output, refresh the agricultural population and enhance rural employment, and it can be a useful tool for policy makers to support rural welfare and maintain social and economic cohesion.

Keywords: generation renewal; policy impact; young farmers; input–output model; common agricultural policy; rural development

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1. Introduction

The aging population in Europe is a significant problem that affects not only social and healthcare services but also economic resilience and food security. Since agriculture is the only provider of food inputs, the age mosaic of this sector is vital for continuous and unobstructed output generation.

Therefore, the European Union undertakes specific aids to foster generation renewal in rural Europe through Pillar II direct payments for the establishment of young farmers below 40 years old. The Young Farmers Scheme is an EU-wide policy measure that attempts to counter the shortage of young farmers and to secure long-term sustainability of the primary sector [1]. At this point, Zagata and Sutherland (2015) [2] separate young farmers from new entrants (in the form of farmers under 40 years old) and they argue that this shortage is mostly prevalent in countries with small-scale holdings such as Portugal, Italy, and Greece. The importance of generation renewal is recognized by European institutions as the related CAP measures attempt to assist new entrants to overcome entry barriers, secure farm sustainability, and achieve farm succession particularly for remote and rural areas [3].

However, recent studies pinpoint generation renewal as a major problem for European agriculture and the factors that motivate young Europeans to become and remain farmers are widely examined [4–8].

Although novel literature regarding the Young Farmers Scheme has been oriented toward success factors of the Scheme, a handful of scholars analyze the impact of the Scheme in rural growth both at national and regional levels. Benefits of the Scheme include farmers' income increase [5] and farm holding survival [9], farm productivity [10], multi-directional efficiency [11], and social sustainability indicators such as employment [12].

It is apparent that relevant literature neglects the wider economic effects of the Scheme and it concentrates on issues directly linked to the agricultural sector. As rural development policies do not explicitly target the primary sector but other non-farm agents that improve rural prosperity, multi-sectoral models are needed to capture the full economic impact of such policies [13].

General equilibrium methodologies are the most commonly applied by scholars for–CAP impact analysis [14], with input–output and CGE modelling being the most popular. The effects of CAP measures in rural Europe are examined by [15], while other studies focus on inter-regional [16] and regional economic activities [17–20] in Greece, particularly for output and income and employment growth.

In this study, the impact of the Young Farmers Scheme on rural growth in two Greek Regions (NUTS-2) is examined. Two input–output models were constructed for Thessaly, an agriculture-based economy in central Greece and Central Macedonia that is the largest agricultural producer in Greece, to assess the impact of Young Farmers Scheme payments on income and employment growth for the 2016–2021 implementation period.

The study includes an overview of the input–output model and its use for policy assessment in rural areas, the datasets used to construct the models, and the steps to do so. Next, the regions under study are presented, followed by the results section. Lastly, a discussion of the research outcomes is presented, and the concluding section summarizes findings of the paper and provides recommendations for further investigation.

This study attempts to fill a gap in the literature regarding the effect of Young Farmers Scheme payments on regional economic growth. Researchers so far have explicitly focused on sectoral impacts and the current paper aims to assess the wider economic effects of the policy measure for rural economies.

2. Materials and Methods

Impact assessment modelling adopts many perspectives that are either monothematic and focus on a single sector or that have a wider view that concentrates on the whole economy. The original input–output model introduced by Leontief utilizes National Accounts and household or employment data to estimate the distributional effects of an exogenous intervention (positive or negative) in the form of final demand (government spending, investment). This feature allows policy makers to have a spherical view of a targeted policy on an economy.

2.1. Input–output Overview and Multipliers

The symmetric Input–Output (I/O) table is the basis of the model and represents a square matrix where the rows stand for the distribution of output of each sector to the rest of the economy and the columns stand for the inputs required for each sector to produce its output. The economic production process is linked linearly to exogenous demand and it can be estimated through the Leontief inverse matrix [21].

The classic Leontief inverse matrix is utilized as a benchmark for the calculation of multipliers [22]:

$$x = Ax + y \Leftrightarrow x = (I - A)^{-1} y, \ |I - A| \neq 0 \quad (1)$$

where x is the vector of total gross output, $(I - A)^{-1}$ is the Leontief inverse matrix that illustrates the total requirements (direct and indirect) of an economy to produce its output, and y is the vector of total final demand.

The column sums of the Leontief inverse matrix account for the output multipliers.

$$OM_j^I = \sum_{i=1}^{n} \ell_{ij} \tag{2}$$

The output multiplier estimates the change of total output of an economy as a result of a unit monetary change of final demand for a given sector j.

Income and employment multipliers, known as Type I multipliers, can be estimated accordingly by involving the direct income and direct employment coefficients:

$$DIEj = \frac{Hj}{Xj} \tag{3}$$

where $DIEj$ is the direct income coefficients vector, H_j the household income vector, and X_j the total output for a given sector j.

$$IM_j^I = \left(\sum_{i=1}^{n} \ell_{ij} \times DIE_j \right) / DIE_j \tag{4}$$

The Type I income multiplier can be interpreted as the change of total income in the economy as a result of an exogenous change in the final demand of a given sector j. Likewise, the Type I employment multiplier can be estimated by substituting the income with an employment vector.

2.1.1. Input–Output Elasticities

However, as multipliers do not consider the relative size of each sector, which may mislead policymakers, input–output elasticities have been estimated [23] to provide a complete outlook of the economic structure and the growth potential of a particular parameter (output, income, employment). Elasticities measure the effect of an exogenous shock in percentages; hence, the output elasticity estimates the percentage change of total output in the economy as a result of a 1% change in the final demand of a given sector j. Output elasticity can be estimated according to the formula:

$$OE_{xyj} = \sum_{i=1}^{n} \ell_{ij} \left(Y_j / X \right) \tag{5}$$

where OE_{xyj} is the output elasticity for a given sector j, X is total output of the economy, ℓij is the Leontief matrix element, and Y_j the final demand of a given sector j. In this fashion, income and employment elasticities can be estimated as below:

$$IE_{xyj} = \left[\sum_{i=1}^{n} \left(H_i / X_j \right) \ell_{ij} / \left(H_j / X_j \right) \right] \left(Y_j / X \right) \tag{6}$$

where IE_{xyj} is the income elasticity for a given sector j, H_i the household income of sector j, X_j total output for sector j, ℓij is the Leontief matrix element, Hj/Xj the direct income coefficient for sector j, Y_j the final demand for sector j, and X is the total output of the economy. As with output, income elasticity estimates the percentage change of total income in a study area as a result of a 1% change in the final demand of a given sector j. The respective employment elasticity is estimated by substituting the income with employment elements.

2.1.2. Multipliers and Impact Analysis

The popularity of the input–output approach relies on the use of multipliers for impact assessment of exogenous shocks to the economy. In terms of CAP impacts and subsequently the Young Farmers payments, the post-multiplication of sectoral multipliers (output, in-

come, employment) with respective change of the final demand provides estimations for total economic effects. The equation below indicates how to estimate such effects for total output generation in the study area as a result of a change in the final demand of a sector (in our case the payments of the Young Farmers Scheme):

$$\Delta X = OM_j^I \times \Delta FD_i \quad (7)$$

where ΔX is the total output of the economic change due to a change in the final demand of a given sector j, $OM^I{}_j$ is the output multiplier for sector j, and ΔFD_i is the change in the final demand of sector j. Similarly, the effect on income and employment can be estimated by using the respective multipliers. The same process is followed for elasticities by substituting accordingly.

2.2. Regional I/O Model Construction and Dataset

As I/O tables are usually available at the national level, regional tables are mechanically constructed using primary and secondary data for calibration of the original I/O table. The GRIT technique combines survey and secondary data to convert national I/O tables and to produce representative regional tables [24]. It is widely used as regionalization technique [18,20,25,26], especially for CAP impact analysis.

To apply the GRIT technique, a standard procedure has been developed by Mattas et al. (2009) [27] that uses FLQ, an employment-based ratio. The FLQ ratio proposed by Flegg, Webber, and Elliott (1995) [28] was utilized in this study as it is considered very efficient [29,30] since it incorporates, likewise to I/O elasticities, the size of the region under study.

The 2015 National I/O table for Greece, consisting of 64 sectors, is the most recently available and it was used to apply the GRIT technique. According to the magnitude of industries, the national table was aggregated to 30 sectors for Thessaly and 56 sectors for Central Macedonia. The employment data of each Region for 2019 were derived from the National Statistics Service to calibrate the national table and produce the two regional models. Data for the amount of payments for the Young Farmers Scheme for both Regions were obtained from the respective regional authorities for use in the impact analysis. The 2016 call and related payments were selected as they were already completed by the Ministry of Rural Development and Food.

2.3. Profiles of Study Areas

The two regions (NUTS-2 level) were selected as they share the largest amount of Greek agricultural output and the most entrants under the Young Farmers Scheme (see Figure 1). Moreover, they were selected as a benchmark for the development of an agent-based tool funded by the Horizon2020 AGRICORE project that aspires to improve model policies dealing with agriculture in the European context.

Agriculture is a main employer in both regions with 20.8% of total employment being farmers in Thessaly and 12.9% of total employment being farmers in Central Macedonia. Especially for Thessaly, the primary sector accounts for almost 12% of total gross added value, while Central Macedonia reports a moderate 6.5%, still higher than the national average of 4.36% (see Table 1).

Table 1. Basic rural economic indicators in Thessaly and Central Macedonia, Greece.

Region	GVA	Primary GVA	Employment	Agricultural Employment
Thessaly	8.143	976	253.248	52.753
Central Macedonia	21.800	1399	642.691	82.913
Greece	158.762	6.926	3.911.030	434.203

Source: (ELSTAT, 2019) [31].

Figure 1. Thessaly and Central Macedonia boundaries in Greece.

The Region of Thessaly is one of the 13 administrative Regions of Greece and it produces 5% of the national GDP. It is an agriculture-based economy located in central Greece and it demonstrates significant output and added-value in the primary sector, which is three times higher than the national average. The most significant crops in terms of output are cotton, durum wheat, maize, fruit and vegetables, cattle, and sheep and goats [32] (see Table 2).

Table 2. Economic output of the agricultural sector in Thessaly and Central Macedonia, Greece.

Crop/Animal	Greece	Central Macedonia	Thessaly
Durum Wheat	1.64%	3.37%	1.96%
Maize	2.39%	2.84%	3.30%
Rice	0.54%	2.10%	0%
Cotton	6.55%	9.50%	12.77%
Vegetables	13.41%	3.55%	22.60%
Fresh Fruit	13.70%	33.85%	15.60%
Cattle	1.66%	1.89%	2.23%
Sheep & Goats	2.92%	1.35%	2.43%
Pigs	1.54%	0.94%	1.70%
Poultry	3.02%	2.80%	0.65%

The Region of Central Macedonia is the second largest administrative area in Greece in terms of population and economic magnitude, and it produces 14.28% of the national GDP. Its agricultural structure is more or less similar to Thessaly, with minor deviations particularly for some crops such as rice and livestock breeding such as poultry and a demonstrated expertise in fresh fruit production (apples, peaches, apricots, cherries, etc.)

Both regions manifest an agricultural orientation that focuses mainly on dynamic cultivations such as fruit and vegetables, with a considerable share on cotton production. Animal output is less determinant in total agricultural output with poultry in Central Macedonia and sheep and goats in Thessaly leading production.

2.4. Young Farmers Scheme in Greece

The Young Farmers Aid Program aims to increase the competitiveness of agricultural holdings through age renewal and the creation of farmer entrepreneurs who, with the end of the support, will have adequate supplies and sustainable holdings. During the third period of implementation for the Young Farmers Scheme, since its initial launch in 2000, the Rural Program of Greece: Development of Agricultural Holdings and Businesses includes Measure 6.1: "Start-Up Aid for Young Farmers". The first call was in 2016 (8837/14-10-2016) and it was later amended in 2018 (5824/5-7-2018). Up to this point, 16.900 applications have been submitted and 15576 have received approval [32].

"New farmers" could be defined as a group that includes young farmers (under 35 or 40 years old) who are also new entrants in agriculture. In the current programming period 2014–2020, beneficiaries of the new entrants' scheme must be: less than 40 years old, head of an agricultural holding for the first time, and possess the occupational skills for submitting and implementing a business plan for the development of their farming activity [33].

Regional authorities for agricultural development (DAOK) are responsible for implementation and monitoring of the Measure. Business plans (3- or 4-year duration) are submitted by applicants and, should they be accepted according to criteria set by the MRDF, the local DAOK is responsible for the successful completion of the plan.

In Thessaly there are 1810 beneficiaries or new entrants for the 2016 call that received €34,043,000 in payments. Central Macedonia displays a larger amount of payments with €57,753,000 and 3383 beneficiaries [34].

3. Results

Multipliers and elasticities of the key industries for each Region are presented in two separate sub-sections below and a third sub-section is dedicated to impact analysis of the Pillar II measure. The use of multipliers (Table 3) implies a different perspective for the economic structure of both regions against the elasticities (Table 4).

Table 3. Multipliers of the Region of Thessaly.

Sector	Output	Income	Employment
Agriculture, hunting & related services	1.492	1.839	1.223
Food products, beverages, and tobacco	1.827	1.880	3.397
Textiles, wearing apparel, and leather	2.836	4.078	2.964
Wood, paper, printing	1.920	2.363	1.982
Textiles, wearing apparel, and leather	2.836	4.078	2.964
Petroleum, pharmaceuticals	1.881	3.490	3.546
Rubber and other non-metallic	2.020	2.323	2.076
Electric, electronical, and other equipment	1.828	3.651	2.841
Motors and transport equipment	1.609	3.247	2.901
Furniture; other manufactured goods	1.905	3.122	1.724

3.1. Multipliers and Elasticities for the Region of Thessaly

The results for the Region of Thessaly indicate an economy that is reliant on manufacturing for potential growth, especially for prosperity indicators such as income and employment.

Textiles and leather products are the most significant sector of the local economy with multipliers that generate four times more income (4.078) and almost three times more jobs (2.964) when an exogenous stimulus increases final demand by one million euros for these products. Furthermore, the petroleum, pharmaceuticals, and chemicals sector is another important industry for all economic indicators as expected, and it generates almost 3.5 times more income (3.490) and jobs (3.546). The food, beverages, and tobacco sector

is also vital for the local economy as it generates almost double the output (1.827) in the whole economy and it provides almost four jobs per million euro spent in the sector.

Table 4. I-O elasticities of the Region of Thessaly.

Sector	Output	Income	Employment
Agriculture, hunting & related services	0.052	0.065	0.043
Food products, beverages, and tobacco	0.106	0.098	0.160
Petroleum, pharmaceuticals	0.047	0.081	0.084
Motors and transport equipment	0.027	0.093	0.079
Trade	0.084	0.063	0.060
Transport, warehouse, postal services	0.062	0.073	0.062
Accommodation and food services	0.074	0.090	0.070
Real estate activities and imputed rents	0.208	0.206	0.294
Public administration and defense services	0.069	0.060	0.067
Health and Social work	0.042	0.039	0.039

Agriculture marks relatively low multipliers with 1.492 for output (ranked 19th), 1.839 for income (ranked 15th), and 1.223 for employment (ranked 24th) among all 30 sectors. However, the elasticities significantly change the potential for growth in Thessaly (see Table 4) with the tertiary sectors emerging as the most prolific contrary to manufacturing industries.

Input–output elasticities reveal a different view of the economic potential of Thessaly and the key sectors that contribute to its development. Contrary to multipliers where manufacturing industries were dominant, the tertiary sector emerges as a notable factor for development with real estate, trade, accommodation and public administration services ranking as top-10 industries.

The food, beverages, and tobacco sector is the most balanced, and it ranks second in all three parameters. Therefore, a 1% increase of the final demand for the sector will induce a 0.047% increase of total output, a 0.098% increase of total income, and a 0.16% increase of total employment in Thessaly. Other remarkable sectors include real estate activities, ranking first among all 30 sectors, where a 1% demand expansion of the sector will provide an increase of 0.208% of total output, 0.206% of total income, and 0.294% of total employment in the study area. Petroleum, pharmaceuticals, and chemicals and the public administration sectors are among the most influential in the region.

Agriculture, in terms of elasticities, signifies a larger growth potential when an exogenous rise of final demand occurs. Total output in the economy increases by 0.052% (ranking 7th), total income by 0.065% (ranking 11th), and total employment by 0.063% (ranking 10th). This is a notable finding for the impact analysis presented in Section 3.3.

3.2. Multipliers and Elasticities for the Region of Central Macedonia

Analogous deviations among multipliers and elasticities appear also in the Region of Central Macedonia (see Tables 5 and 6.) The I-O multipliers are dominated by manufacturing industries but some tertiary sectors, particularly transportation, demonstrate high growth potential. It is noteworthy that I-O elasticities ranking in Central Macedonia is akin to those in Thessaly, namely the true growth potential lies in food, beverage and tobacco; real estate; and public administration services.

Since Central Macedonia is the second largest region in Greece and it produces almost 15% of the GDP (three times higher than Thessaly), it is less dependent on interregional imports than Thessaly and it demonstrates better economic efficiency. The petroleum, pharmaceuticals, and chemical sector is disaggregated here according to the national I/O table, as the region is more advanced and it incorporates more industries. Specifically, the presence of a petroleum refinery offers an advantage and it is present in the multiplier outcomes.

Table 5. Multipliers of the Region of Central Macedonia.

Sector	Output	Income	Employment
Agriculture, hunting & related services	1.892	2.713	1.286
Mining and quarrying	2.011	3.140	4.485
Textiles, wearing apparel, and leather	2.584	2.674	2.588
Paper and paper products	2.419	2.791	3.359
Coke and refined petroleum products	2.018	4.490	4.499
Chemicals and chemical products	2.345	2.554	3.181
Pharmaceutical & preparations	2.356	3.143	2.730
Computer, electronic, and optical products	2.643	4.489	4.580
Motor vehicles, trailers, and other equip	2.255	4.950	4.299
Air transport services	2.318	4.476	4.477

Table 6. I-O elasticities of the Region of Central Macedonia.

Sector	Output	Income	Employment
Agriculture, hunting & related services	0.032	0.047	0.022
Food products, beverages, and tobacco	0.132	0.102	0.127
Petroleum, pharmaceuticals	0.047	0.081	0.103
Motors and transport equipment	0.019	0.094	0.057
Water transport services	0.009	0.236	0.055
Air transport services	0.006	0.159	0.123
Accommodation and food services	0.074	0.083	0.058
Real estate	0.120	0.118	0.182
Public administration and defense services	0.065	0.053	0.058
Health and Social work	0.045	0.036	0.035

Computer, electronic, and optical products is another notable sector ranking first in terms of output generation (2.643), fifth in income expansion (4.489), and fourth in job creation (4.580). Agriculture is a significant contributor to income generation as it ranks 5th among all sectors with 2.713 million euros generated in the local economy when there is an increase of one million of final demand for its output.

Nonetheless, elasticities again depict a divergent aspect of the growth potential for Central Macedonia. Food, beverages, and tobacco is the most influential sector as when 1% of exogenous demand occurs, the sector increases the regional output by 0.132% and the regional income by 0.102%, and it creates 0.127% more jobs. Transport services present similar effects for social indicators with a 0.236% increase of total income for water transports and 0.159% for air transports.

It should be noted that in both regions, agriculture is not an important sector in terms of multipliers, but the consideration of elasticities provides a more robust perspective for decision-makers. Moreover, the food, beverage, and tobacco sector is directly linked to agricultural activities as it obtains inputs to produce its output, therefore enhancing the role of agriculture in the regional economy. The next section presents the socio-economic impacts of the Young Farmers Scheme payments for the local economies.

3.3. Impact Analysis of the Young Farmers Scheme

As previously stated, impact analysis is achieved through multiplier and elasticities utilization. The exogenous shock caused in the economy refers to the payments made to beneficiaries of the Young Farmers Scheme. The amounts for the 2016 call total €57,753,000 for Central Macedonia and €34,043,000 for Thessaly [33]. The final demand for agricultural products was estimated at €786,102,220.8 for Thessaly and €971,816,914 for Central Macedonia, respectively. Total output, income, and employment in the study areas are presented in Table 7 below:

Table 7. Basic indicators of economy for Thessaly and Central Macedonia regions.

Sector	Outcome	Region of Thessaly	Region of Central Macedonia
Agriculture	Payments	€34,043,000	€57,753,000
	Beneficiaries	1810	3383
	Final Demand	€786,102,220.8	€971,816,914
Total economy	Output (millions)	€22,556.63	€57,891.46
	Income (millions)	€3,155.718	€8328.198
	Employment (people)	256,574	642,284

An impact analysis based on multiplier effects indicates that the total output in Thessaly increased by €50,792,196, total income by €62,605,077, and 42 new jobs were created in the area. In this fashion, Central Macedonia benefited by €109,268,676 in total production, by €156,683,889 for total income, and 74 new jobs were created (see Table 8).

Table 8. Multiplier impact analysis of the Young Farmers Scheme in Thessaly and Central Macedonia regions.

Impact	Outcome	Region of Thessaly	Region of Central Macedonia
Total economy (multiplier effect)	Output growth	€50,792,196	€109,268,676
	Income generation	€62,605,077	€156,683,889
	Jobs created	42	74

The evidence for Thessaly and Central Macedonia regions suggests that the payments of the Young Farmers Scheme equal to 4.33% of final demand for Thessaly and 5.94% for Central Macedonia, respectively (Table 7).

Consequently, I-O elasticities are interpreted as in Table 9 where a 4.33% increase of final demand for agriculture in Thessaly increases total output by 0.225% in the regional economy. Following the same approach for the other elasticities, the effects of the Scheme are estimated.

Table 9. Elasticities impact analysis of the Young Farmers Scheme in Thessaly and Central Macedonia regions.

Total economy (elasticities)	Output elasticity	0.225%	0.190%
	Income elasticity	0.282%	0.279%
	Employment elasticity	0.186%	0.131%
Total economy (elasticity effect)	Output growth	€50,752,417.5	€109,993,774
	Income generation	€8,899,124.76	€23,235,672.42
	Jobs created	477	841

Although total output for both Regions is similar to the multiplier results, income elasticities generate on average 86% less income for the study areas. However, employment is much higher as 477 new jobs were created in Thessaly versus just 42 based on the multiplier approach and 841 new jobs were available in Central Macedonia versus the 74 initially estimated by the multipliers.

As multipliers based on location quotients are overestimated [35], I/O elasticities are more reliable in terms of identifying the key sectors in an economy [23,36], and they express the effect of final demand on the economy.

4. Discussion

Previous studies have assessed the economy-wide effects of CAP instruments on the Region of Central Macedonia [20,37], demonstrating divergence for multipliers and elasticities to the current study. Nonetheless, this is attributed to the use of the 2010 National I/O table and older employment data compared to this research that utilized the 2015 table and 2019 employment data. Certainly, the structural changes, final demand, household

income, and employment rates are completely different in the new table as it is the first published in the post-crisis period for Greece. Moreover, CAP impact scenarios are different among studies as recent literature focuses on the cumulative effects of Pillars I and II rather than explicit assessment of a policy measure. It is noteworthy that agriculture in Central Macedonia is considered an important sector and it entails the largest distributional and cumulative effects [17].

On the contrary, there is scarce evidence of a CAP impact analysis for the Region of Thessaly and scholars are either focused on parts of the Region [38,39], single sectors [40,41], or their focus is natural resource-oriented [22,25,42]. Of those, Gkatsikos et al. (2022) [22] provide an economy-wide view for Thessaly and study a Pillar II measure for irrigation advances. Findings in such papers corroborate the importance of agriculture in this rural economy, particularly for income and employment generation.

However, the economy-wide impacts of generation renewal measures are neglected in relevant literature even at a pan-European level, with just one study for the Polish economy present [3]. Empirical evidence of a CGE model in Poland validates that Pillar II support to Young Farmers contributes to employment growth though at a lesser extent than Pillar I payments. The primary sector and the food industry benefited the most from the Young Farmers payments: regional employment increased by 0.17% for the primary sector and by 0.19% for the food sector, and positive effects on education (0.08% increase) and public administration (0.09%) were noted. Yet, the study does not segregate impacts on rural and urban areas.

The results of the current research imply that the Young Farmers Scheme is a critical contributor to regional growth, especially for output and employment. Payments from the Measure generated directly and indirectly €84,795,417.5 and 2287 new jobs for the Region of Thessaly and €167,746,774 and 4224 jobs for the Region of Central Macedonia.

In Thessaly, direct employment is equal to the beneficiaries (1810) and indirect jobs were estimated at 477 corresponding to 20.85% of total jobs created. The Region of Central Macedonia benefited from 3383 new farmers and an added 841 jobs created in the local area corresponding to 19.91% of total employment growth. The Scheme demonstrates a lesser effect on income generation for rural areas. Specifically, the Region of Thessaly benefited by €8,899,124.76 and Central Macedonia gained €23,235.672.42 for income in its local economy.

On average, Measure 6.1 "Establishment of Young Farmers" for the Rural Development Program 2014–2020 of Greece added 20% more jobs to the initial beneficiaries of the policy measure distributed to the rest of the economy and it has shown itself to be a significant tool for rural employment growth.

5. Conclusions

This research examined for the first time the socio-economic impacts of the Young Farmers Scheme policy in two regions in Greece. So far, literature has neglected the rural welfare effects of generation renewal policies which this paper attempted to address. Two regional I/O models were constructed to identify the key sectors of the study areas and to estimate multipliers and elasticities to assess the impacts of the policy measure. The empirical evidence suggests that generation renewal policies support rural economies notably for output production and employment increase, while income generation is benefited at a minor scale. Especially for rural Greece, the indirect jobs created in rural economies due to payments from the Scheme equal to 20% of the number of new entrants (beneficiaries).

Rural economies, especially those that endure depopulation, can benefit from this policy measure as it supports local GDP and it creates jobs not only for the agricultural sector but the whole economy. The study results confirm that the Young Farmers Scheme is a useful tool to create more jobs for regional, agriculturally oriented economies. It is suggested that an increased budget for the Scheme will bolster economic production, enhance regional employment, and revive rural populations.

Nonetheless, the study comes with the limitations of the input–output approach that does not capture dynamic changes as in a computed general equilibrium model. Income

generation, including its circulation within the economy, is not fully addressed and it demonstrates poorer results in comparison with output and employment. The use of a Social Accounting Matrix (SAM) would assist policy makers to identify the total income generated in the economy and to estimate the distributional effects of Young Farmers Schemes, particularly at the regional level.

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