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Farmers' Attitudes to the Pricing of Natural Resources for Sustainability: GAP-Şanlıurfa Sampling of Turkey

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Received: 25 June 2019; Accepted: 22 August 2019; Published: 26 August 2019

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Abstract: This research aims to evaluate farmers' attitudes to the pricing of natural resources, mainly water and soil resources, in GAP-Şanlıurfa-Turkey. It will also define farmers' willingness to accept pricing for the sustainability of resources and explore the potential factors that contribute to such willingness. The data comes from a sample of 1105 farmers in Şanlıurfa who were chosen by a simple random sampling method and participants were interviewed face to face by questionnaires. The logistic regression is used for analysis. The results indicate that 40% of the farmers have a positive attitude to the pricing of resources for protection and sustainability. The most affecting factors are the location of the farmers, the number of agricultural manpower at the household, land amount, ownership status, income derived from agriculture, and livestock. The average willingness-to-pay amount was calculated in USD as $48.8/ha. Where public finance is insufficient to meet the demands, the willingness-to-pay amount may be used in co-investments. In this way, both the financing problem can be overcome and the ownership rate of the users can be increased. Therefore, the results could be helpful for decision- and policy-makers to develop strategies for the sustainability of resources for GAP-Turkey and areas with similar socioeconomic characteristics.

Keywords: agriculture; water and soil resources; farmers' behavior; willingness to accept; willingness to pay

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1. Introduction

Every individual and society live in a natural environment that can simply be defined as the environment in which they live and interact with each other [1] and which consists of living and nonliving assets that affect the development, prosperity, and economy of individuals and countries. The economic activities of individuals affect the ecology, environment, and natural resources, and are in turn affected by them [2]. Many studies are indicating the existence of increasing demand and pressure on ecology, environment, and natural resources in terms of quantity and quality based on many factors but mostly due to population growth rate, urbanization, industrialization, expanding agricultural irrigation, and climate change, all of which affect the socioeconomic structure of societies [3–8]. These pressures, which are mainly caused by human activities, generally occur on soil and water resources [2,9] and creates difficulties for food supply [10] where sources are main factors, at least, for food security. There are basically two ways of eliminating these pressures and meeting the demand: either the number and amount of natural resources, particularly soil and water resources, will be increased, which is not possible due to the existence of limited resources, or the amount of usage is controlled and efficient usage is ensured for the sustainability of the resources. The second solution can be achieved through awareness, incentives, support, additional regulations, and pricing. Pricing has begun to be used as a tool in regulating the efficient use of natural resources for sustainability purposes where it is important to establish accurate and acceptable prices for the users [11]. At the same time, fair and effective pricing can be used as an innovative additional resource for projects where public investment financing problems exist, while it can be used as a tool for adopting the users for best management practices (BMPs) too. On the other hand, pricing can also be considered as a social balance element in preventing unfair competition between beneficiary and nonbeneficiary. The attitudes, perceptions, and perspectives of the individuals who use natural resources to gain importance can vary according to the users and societies due to different socioeconomic conditions. Information about natural resources comes from many different sources: the implementation of new approaches does not take place in a vacuum but must be established in specific ecological and social contexts [12] for applicable and acceptable innovative policies. Farmers have been developing different agricultural production systems based on their needs throughout the centuries, mostly without the help of formalized scientific approaches and extension services. It is important to know what farmers consider and know about sustainable strategies or how they perceive it [12] for effective usage of natural resources, especially soil and water resources, in rural areas.

2. Background

2.1. Barriers to Sustainable Agriculture: Pricing and Public Support

In the research area, farmers are engaged in agricultural activities based on natural resources, which are increasingly degrading and decreasing. On the other hand, there are problems with the fair use of resources especially in irrigation water among the farmers. At the same time, farmers in dry farming areas expect the completion of agricultural irrigation investments and irrigation will begin in their areas. More financial resources are needed to make these investments and there are already insufficiencies in the public budget. To fulfill this expectation, the users have to participate in these investments at the rate of their solvency. The State is aware of all these situations and tries to make some arrangements to satisfy the expectations and also ensuring the sustainability of the resources. It can be said that the expected benefits have not been achieved from many regulations to ensure sustainability due to the reasons for local opposition, such as nonadoption by users and local politicians, etc., by the State. It is necessary for policy-makers, who are government and public employees, to know the attitudes of local users to these issues and the factors affecting them in terms of management planning. Local support is essential to ensure sustainability in natural resource management. Therefore, there is a need for best management practices (BMPs) in the researched area to adopt the farmers to BMPs by the state and meet the demands for the sustainability of agriculture wherein the obligation of pricing will emerge. Therefore, both the willingness to accept (WTA) and the willingness to pay (WTP) based on solvency become important and play a vital role in the State adaptation policies by the farmers for the sake of the sustainability of natural resources and also meet the demands of the users who are the farmers.

Cobbinah [13] conduct research to determine local attitudes towards natural resource management in the rural area of Ghana, and stated that the beneficiaries' life concerns were effective in this regard. The research concluded that the positive attitudes towards conservation were largely influenced by the getting of socioeconomic benefits from it, in terms of employment, income, and involvement in management. Prokopy et al. [14] conducted a 25-year review of literature based on categories of attitude, awareness, capacity, and farm characteristics on the adoption of BMPs by the farmers in United States of America (USA). According to the results, it was determined that capital, income, education, farm size, access to information, environmental awareness, and usage of social networks contributed positively to the adoption rates. The research concluded with the emphasis on the need for additional studies for BMPs in terms of proximity to rivers and streams for adoption in water and animal husbandry issues. In their study, Helling et al. [15] stated that the effects of climate change on local agricultural systems can be reduced by the participation of farmers in adoption programs to BMPs, in which the risk and profitability perception of the farmer is important for participation. They suggested that the incentives to be made to ensure maximum participation in adoption should be determined based on local costs. Conner et al. [16] investigated the reasons for the lack of participation in the conservation incentive program to adopt the BMPs offered by United States Department of Agriculture (USDA) to prevent environmental degradation threatens the long term resiliency of the agriculture and food system in the USA based on the WTA. It was determined that the reason for the low participation was that the public incentives remained below the desired compensation and implementation costs by the farmers.

For the public policies to be implemented to ensure the sustainable use of natural resources to provide the expected benefits and participation, it is essential to determine the factors and payment amounts that farmers can accept and participate in. Therefore, this research will fill the vacuum in this regard, and will lead decision-makers and policy-makers.

2.2. The Research Area

The Southeastern Anatolia Project (GAP, its Turkish acronym) is a multisectoral regional development project that is being conducted in the second least developed region in the southeastern part of Turkey where nine provinces exist that cover almost 11% of the country in terms of population and area [17]. The GAP Region has both 25% of the water potential and 20% of the economically irrigable land of Turkey. The distribution of natural resources, mainly water, and soil is uneven in the GAP Region. Water sources are generally located in mountainous areas and in the north to upper northeast parts, and plains are mostly placed in the southern parts. The GAP aims to use the resources of the region, mainly water and soil resources, to increase the income level and quality of life, eliminate regional disparities, and contribute to the objectives of economic development and social stability at the national level. There are 22 dams, 19 hydropower units with 1.822 million hectares (ha) of irrigation areas together with a $32 billion project budget, which is the biggest in Turkey [17]. And also, it is one of the biggest irrigation projects in the world [18]. The GAP Master Plan aims to turn the Region into an "Agriculture and Agro-Based Export Center". It is expected that irrigated agriculture will result in 3- to 7-fold of increase in income based on crop type as compare to dry agriculture and 2- to 4-fold of employment increase depending on the season in the GAP Region [19]. As of the end of 2018, 31% of agricultural areas are under irrigation, 8% of them under construction and 61% in planning and project phase in the GAP Region [19]. When the GAP is completed, it will provide a 4.5-fold increase in income and employment opportunities for 3.8 million people [19]. On the other hand, more public investment is required for the completion of the GAP. There are inadequacies in this regard and additional investment resources that require innovation are needed.

The GAP Region has a semi-arid climate and the slope decreases from the north towards the south and that their rainfall decreases and temperature increases, therefore droughts increase that result in an increase in water demand of the farmers. Water is the key to sustainable development in the arid and semi-arid regions [20], and dehydrated soil does not have much meaning and importance. The research is conducted in the Şanlıurfa which is located, between 37°08′ N and 38°46′ E, at the south part of the GAP Region and has a border with Syria at the south. The location of Turkey, GAP, and Şanlıurfa are given in Figure 1.

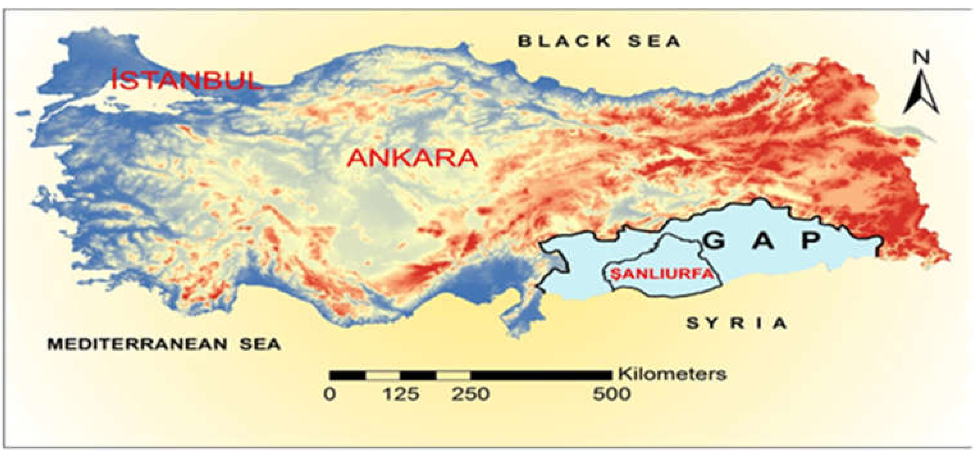

Figure 1. The location of Şanlıurfa and the Southeastern Anatolia Project (GAP) region in Turkey.

Şanlıurfa is the eighth most crowded city in Turkey and the second most crowded city in the GAP, with a population of 2.036 million and a growth rate of 2.52% in 2018, which was about twice the national average and accounted for 22.6% of the GAP Region's population [17]. The average altitude of Şanlıurfa from sea level is 518 m with a yearly average long-term (1927–2018) precipitation of 388 mm, of which 78% falls from December to March; the mean number of rainy days were 103, with high evaporation, and the annual average temperature is 18 °C [21,22]. Şanlıurfa has a mostly semi-arid climate, and while long-term average rainfall has been decreasing, both long-term average temperature and evapotranspiration have been increasing. The agricultural area of the GAP Region is 3.11 million ha, while the agricultural area of Şanlıurfa is 1.18 million ha, which is 38% of the GAP Region and the livestock potential of Şanlıurfa is 22.5% of the GAP Region [17]. Currently, 54.5% of the irrigated areas in the GAP Region are in Şanlıurfa. The main living source of Şanlıurfa is agriculture. Mostly, dry farming is carried out in the northern parts of Şanlıurfa, while gravity irrigation is used in the southern parts and pumping irrigation in the southeast and southwest parts which are shown in Figure 2.

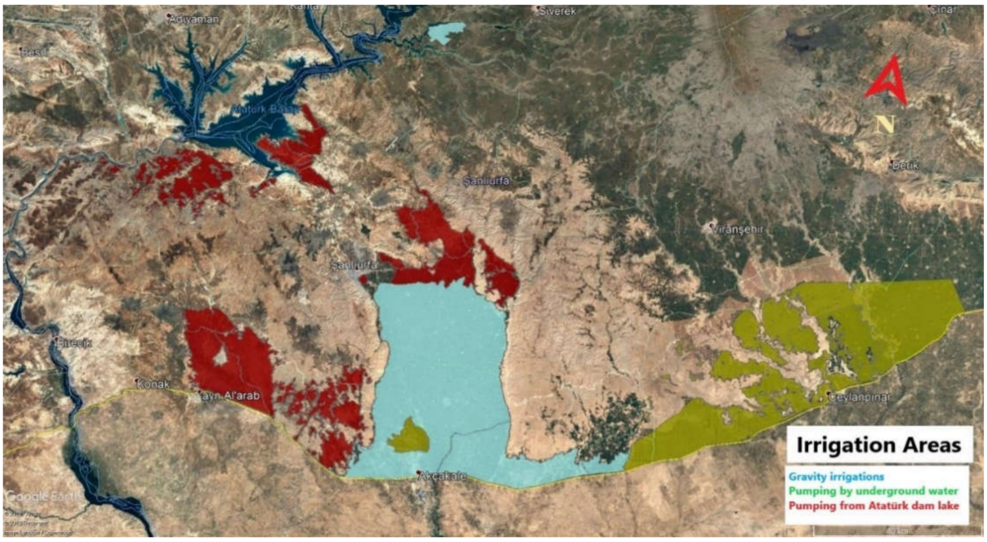

Figure 2. Current irrigation areas of Şanlıurfa.

Almost all employment, trade, and industries are based on agriculture in Şanlıurfa. These figures simply indicate the importance of farmers' attitudes towards the use of natural resources, which are mainly soil and water, for sustainability in GAP-Şanlıurfa, Turkey. At present, there is no specific pricing for the protection of natural resources for sustainability in Turkey. It cannot be said that a fair and effective implementation exists for pricing to the protection of natural resources in Turkey. Pricing is applied according to the user pays and the polluter pays principles without taking into account the positive and negative externalities in Turkey. The large majority of water charges in agricultural irrigation are determined depending on the product type and sown area as a fixed price regardless of how much water used. In other words, the volumetric usage-based payment could not be extended. Agricultural areas are classified according to whether they are in the irrigation area or not by the state in Turkey. The registered farmers in Şanlıurfa are located in the areas of gravity irrigation by 26.5%, pumping irrigation by 24.8%, and dry farming by 48.7%. The farmers engaged in gravity irrigation pay ~5% of their income from irrigated agriculture as water fees, while those who in pumping irrigation area has been paying ~2.6-fold more and the farmers in irrigated areas, regardless of the source and type of irrigation, have the willingness to pay ~72% higher than the current price in case of water shortages [23]. Every area has its conditions in terms of attitudes, perceptions, and behaviors based on the socioeconomic structure. This research was aimed at determining the factors affecting the attitudes of the farmers to the pricing of sustainability of natural resources, mainly water and soil resources, in GAP-Şanlıurfa, Turkey.

2.3. Expectations from the Research

Prior to the research, it is expected that regarding the age, education level, the number of households, agricultural manpower, farming experience, income derived from agriculture, livestock, property ownership status, agricultural credit usage, and the agricultural land amount variables of the farmers' increase, the attitudes of the farmers both towards the willingness to accept and willingness to pay more likely will increase for the pricing of natural resources for sustainability. It is expected that there will be a linear and positive relationship between them. On the other hand, if in the case of nonagricultural manpower and additional income, besides agriculture variables of the farmers', increase, the attitudes of the farmers both towards the willingness to accept and willingness to pay more likely will decrease. It is expected that there will be a linear and negative relationship between them. As a result, it is aimed and expected to determine the importance and superiority of these variables.

3. Materials and Methods

3.1. The Materials of the Research

The data of this research was obtained from the Şanlıurfa farmers who were 59,681 according to the state registration system of farmers in 2018 which corresponds to 2.6% of the number of farmers registered in Turkey. Turkey, to ensure the continuity of agricultural production, a kind of non-reimbursement payments are made to farmers in some certain products that vary according to the regions and the years. For farmers to benefit from these supports, they must be registered with the state farmer registration system based on some formal procedures. During the research, villages in irrigated and dry farming areas were visited. There were face-to-face interviews were conducted with the farmers who accepted to participate in the survey. Questionnaires that were prepared previously were used in these interviews. In this sense, 1105 interviews were conducted with the farmers. The sampling volume was determined with a 99% confidence level and a 4% margin of error based on sample size and tolerable sampling error table [24] so that using 1029 interviews would be adequate; 1105 were used. This sampling volume for interviews is the largest volume of research in this field in GAP-Şanlıurfa. Interviews were conducted in 2018 and local pollsters, which are usually students or graduates of the college, who have experience in conducting surveys, known by the local people and speak local languages, and self-employed, were used to increase the credibility of the results obtained.

3.2. The Methods Used in the Research

The Odds, Omnibus, Wald, Cox and Snell R^2, Nagelkerke R^2, and Hosmer–Lemeshow fit tests were used at the analysis of logistic regression in SPSS. Logistic regression uses maximum probability estimation at multiple regressions that try to find estimates of parameters that make the data most likely observed. The Odds ratio is a measure of the magnitude of the effect between an exposure and a result that is based on the possibility of being or not being in the logistic regression. The Omnibus test is a general test that serves to find prevalent significance between parameters' variance when examining the same type of parameters. The Nagelkerke and the Cox and Snell R^2 values specify the amount of variance explained by the model. The Hosmer–Lemeshow fit test is used if there are continuous and discontinuous predictors present at the same time that compares the predicted frequencies to the observed frequencies. Insignificances and lower values represent good compliance with the data and, consequently, good compliance of the overall model. More detailed information about the model and the tests used in this research is available from works by the authors of [9,25–28].

4. Results

4.1. The Results of the Descriptive Statistics

All surveys were conducted with male farmers due to the cultural structure of the research area, and 92.3% of them were married. The average exchange rates are 1$ = 4.82 Turkish Liras (TL) in

2018 [29]. The demographic descriptive statistics of the research are given in Table 1 and the descriptive statistics of the variables related to the subject investigated are given in Table 2.

Table 1. The descriptive statistics of the demographic variables of the research.

Variable	Description (of Farmer's)	Mean	Standard Deviation
Location	if in the dry farming area 1, if in the pumping irrigation area 2, if in the gravity irrigation areas 3	1.99	0.699
Age	Age (year)	44.38	11.420
Education	literate 1, primary school 2, secondary school 3, high school 4, university 5	2.50	1.141
Marital	if single 1, married 2, widowed 3	1.95	0.270
Household	The household number of the farmer's family	7.13	3.753
Agrwork	The household number of agriculture workers	3.43	2.270
Nonagrwrk	The household number of nonagricultural workers	0.64	1.045
Experience	Farmer's experience of farming (year)	22.48	11.735
Land	Amount of land cultivated by the farmer (Hectare)	18.48	30.660
Ownership	Ownership status of the farmer's property: if own property 1, renter 2, shareholder 3, a few of them 4	1.88	1.459
Income	Average annual agricultural income (TL/year)	33,518.08	53,210.019
Livestock	If the farmer is doing livestock 1, if not 0	0.65	0.477
Addincome	If the farmer has nonagricultural income 1, if not 0	0.39	0.489
Credit	If the farmer is using agricultural credit 1, if not 0	0.29	0.454

Table 2. The descriptive statistics of the other variables of the research.

Variable	Description (of Farmer's)	Mean	Standard Deviation
Protection	It is necessary to protect the natural resources: Yes 1, No 2, No opinion 3	1.15	0.515
Availability	Natural resources are available to accommodate the needs of everyone: Yes 1, No 2, No opinion 3	1.83	0.848
Respnsibilty	Individuals are responsible for the protection of natural resources: Yes 1, No 2, No opinion 3	1.23	0.607
Pricing	Pricing is necessary for the sustainability of natural resources: strongly disagree 1, disagree 2, Unbiased 3, agree 4, strongly agree 5	3.36	1.353
Ifpricing	If natural resources are priced, farmers use them more carefully: strongly disagree 1, disagree 2, Unbiased 3, agree 4, strongly agree 5	2.85	1.468
WTA	Farmer's WTA pricing for the protection of natural resources? No 0, Yes 1	0.40	0.490
WTPamount	Farmers' WTP for the sustainability of the resources (TL/ha)	235.20	184.660

An overwhelming majority (92.3%) of the farmers who participated in the survey believe that natural resources, soil and water resources, should be protected. Forty-six percent of them believe there are enough natural resources for everyone if effective and efficient usage is achieved. Twenty-five percent of them believe that natural resources are not enough for everyone's needs and 29% of them have no opinion about it; 86.3% of farmers believe that individuals are primarily responsible for the protection of natural resources, 52.4% stated that pricing is necessary for sustainability, and 37.7% believe that farmers will use more efficient methods if natural resources are priced. Forty percent of farmers have a WTA for the protection of natural resources. On the other hand, all farmers participating in the survey have varying rates of WTP, even if they do not accept pricing. Their land amount is less than those who accept payment. One of the most important indicators of WTA and WTP is the ability to pay of the users what they declare. Many studies are indicating the importance of WTA, WTP, and the ability to pay in environmental and resources economics [9,11,30–33].

4.2. The Results of the Models

The model predicted with a verification rate by 59.9%, classifying all of the farmers as "yes" to WTA for pricing that is a dependent variable at step 0 that is a beginning block. The variables statistics are located in step 0, and the results are shown in Table 3. The level of significance in Table 3, $p < 0.01$, indicates that all of the independent variables contribute to the model meaningfully.

Table 3. The coefficients of variables in the equation.

		B	Standard Error	Wald	df	Significance	Exp(B)
Step 0	Constant	−0.402	0.061	42.825	1	0.000 ($p < 0.01$)	0.669

Then the next step was run and the model coefficients of the Omnibus tests are given in Table 4. The Omnibus Tests' chi-squared values indicated the presence of a statistical significance between the dependent variable and independent variables at the level of $p < 0.01$ in the model.

Table 4. The Omnibus tests of the model coefficients.

		Chi-Square	df	Significance
Step 1	Step	464.043	28	0.000 ($p < 0.01$)
	Block	464.043	28	0.000 ($p < 0.01$)
	Model	464.043	28	0.000 ($p < 0.01$)

The summary of the model is given in Table 5. The Cox and Snell and Nagelkerke R^2 values show the amount of variance explained by the model. The variance of WTA to pricing for sustainability (the dependent variable), that is, for soil and water resources, was explained to be 34.3% by the Cox and Snell and 46.3% by the Nagelkerke R^2.

Table 5. The Model summary.

Step	−2 Log likelihood	Cox and Snell R^2	Nagelkerke R^2
1	1024.120	0.343	0.463

The result of the Hosmer and Lemeshow test is presented in Table 6. The test evaluated the compatibility of the logistic regression model as a whole and showed that the result was insignificant ($p > 0.10$); that means the existence of a sufficient level of model–data fit.

Table 6. The Hosmer and Lemeshow test results.

Step	Chi-Square	df	Significance
1	11.964	8	0.153

The results of the classification table obtained by the model are shown in Table 7. The overall verification percentage is increased from 59.9% to 77%; which indicates which variables made significant contributions to the model.

Table 7. The classification table at step1.

	Observed		Predicted		
			WTA for pricing		Percentage Correct
			No	Yes	
Step 1	WTA for pricing	No	554	108	83.7
		Yes	146	297	67.0
	Overall Percentage				77.0

Initially, more variables used in the model are given in the descriptive statistics, and significant ones among the others are selected after the first run in terms of the level of contribution to the model. This is due to the increased demand for the robustness and reliability of the estimates [34]. Location, age, education level, household number, number of agricultural, and nonagricultural workmanship, income and additional income besides agriculture, livestock, and agricultural credit usage are selected as the most appropriate variables for the model. The model is run once again and the obtained results are presented in Table 8. The interpretations are done according to the logistic regression results. Table 8 is based on the Odds ratios where less than one-unit change shows the presence of a negative relationship between the sub-variable and reference group, which means having less WTA for pricing. On the other hand, more than one-unit change indicates the presence of a positive relationship between them, which means having more attitude than their reference group.

Table 8. The coefficients of variables in the equation.

Variables	B	S.E.	Wald	df	Sig.	Exp(B) Odds Ratios
Ref. Gr. (Location at gravity irrigation)			91.158	2	0.000 [a]	
Gr.1 (Location at dry farming area)	3.682	0.392	88.414	1	0.000 [a]	39.736
Gr.2 (Location at pumping irrigation)	2.651	0.357	55.234	1	0.000 [a]	14.171
Age	0.042	0.013	11.405	1	0.001 [a]	1.043
Ref. Gr. (University graduate)			12.766	4	0.012 [b]	
Gr.1 (Literate)	−0.585	0.396	1.628	1	0.094 [c]	0.603
Gr.2 (Primary school graduate)	0.173	0.332	0.273	1	0.601	1.189
Gr.3 (Secondary school graduate)	0.196	0.358	0.300	1	0.584	1.217
Gr.4 (High school graduate)	0.597	0.346	2.981	1	0.084 [c]	1.817
Household	0.089	0.047	3.632	1	0.057 [c]	1.093
Agricultural manpower at household	0.589	0.113	26.930	1	0.000 [a]	1.801
Non-agri. manpower at household	−0.014	0.028	0.269	1	0.604	0.986
Experience	−0.004	0.011	0.111	1	0.739	0.996
Land amount	−0.002	0.001	8.707	1	0.003 [a]	0.998
Ref. Gr. (Ownership status of a few)			24.536	3	0.000 [a]	
Gr.1(Own property)	1.858	0.405	21.005	1	0.000 [a]	6.408
Gr.2 (Renter)	0.862	0.284	9.228	1	0.002 [a]	2.367
Gr.3 (Shareholder)	1.274	0.410	9.675	1	0.002 [a]	3.576
Income from agriculture	0.000	0.000	60.449	1	0.000 [a]	1.000
Additional income besides agriculture	0.252	0.214	1.387	1	0.239	1.287
Agricultural credit usage	0.238	0.190	1.973	1	0.092 [c]	1.269
Livestock	1.201	0.174	47.410	1	0.000 [a]	3.322

[a–c] Orderly indicates the degree of statistical significance level of 0.01, 0.05, and 0.10.

5. Discussions

There is a statistically significant relationship between the location of the farmers and their attitudes to pricing ($p < 0.01$). All farmers surveyed in the research area live in a place where they do agriculture. In this sense, the location of the farmer is the meant that where he is living, settlement area, and doing farming, either in irrigated (gravity or pumping) agriculture or dry agriculture (rainfall) areas. In other words, location directly affects farmers' access to water and the amount of water charges they will pay. The living standards and income of the farmers are directly affected by their location, either positively or negatively. The residence place has a significant effect on natural resources protection [35]. The farmers in the field of dry farming have a more positive approach to pricing for the sustainability of natural resources, particularly soil and water resources, according to the reference group that is located in the gravity irrigation area. Agriculture is always difficult in dry farming areas where the ability to produce crops is restricted with less rainfall without irrigation. The average rainfall of Şanlıurfa was 388 mms for the years between 1927 and 2018 [22]. The farmers in dry farming are aware that they need sustainable natural resources and environment for a better life and financial strength and have 39.7 of more Odds ratio as compared to the farmers in gravity irrigation areas where water is almost always available when needed. The result is significant at the level of $p < 0.01$. The farmers located at pumping irrigation areas have 14.2 of more Odds ratio as compared to the reference group. They lack enough water for farming and get water costlier than the reference group. The result is statistically significant at the level of $p < 0.01$. There is a statistically significant relationship between the age of the farmers and their attitudes to pricing ($p < 0.01$). Each unit increase in the age of the farmers affects attitude positively by 4.3%. As the age of the farmer increases, the attitude to pricing also increases positively. This is related to the experience of past years for a sustainable income and a better life, depending on the aging of the farmer. In the years ahead, farmers sought safer and more sustainable resources for better living conditions. Some studies concluded that age is an important factor on attitudes, behaviors, and expectations, such as age increases, safety, and life concerns, also increase [36,37]. On the other hand, another study showed that age had a significant impact on natural resources and younger ones' view natural resource protection as being more important than natural resource use [35].

There is a statistically significant relationship between education levels and attitude to pricing ($p < 0.05$). Education level is an important indicator of awareness and protection of natural resources positively [9,35,38], but unexpected results have been obtained in this research between the subgroups and the reference group. The literate farmers have an attitude of 39.7% of less likely to support pricing negatively as compared to the reference group that is made up of the farmers who are university graduates. It is marginally significant ($p < 0.10$) and that is the expected result. Primary school graduates have an attitude of less likely to support than secondary school graduates, and secondary school graduates have an attitude of less likely to support than high school graduates. The results between the subgroups are reasonable and consistent with expectations. However, the result of them being compared one by one with the reference group does not coincide with expectations. The primary, secondary and high school graduates have greater odds ratios of 1.19, 1.22, and 1.82, respectively, as compared to the farmers who are university graduates that are unexpected results. The research area was revisited to determine the cause of these results; 8.2% of the farmers who participated in the survey were university graduates, and almost all of them had income besides agriculture, another job besides farming and another house in the city center. Their income expectations based on agriculture were lower than those of the other farmers who have no other works than agriculture. Therefore, from the perspective of livelihood, the university graduates had less concern and approached the pricing more negatively. In this regard, the result is consistent.

A marginally significant relationship exists between the number of people in the household and attitude to pricing ($p < 0.10$); when the number of households increases by one unit, attitude to pricing increases by 9.3%. People living in rural areas have more crowded families. So, the importance of the environment in which they live is important to them for livelihood endeavors. There is a statistically significant relationship between the number of agricultural manpower at a household and attitude to pricing ($p < 0.01$). Agricultural activities in rural areas constitute the main source of livelihood. Family members can work both on their farms and in other farming businesses as a laborer; when the number of agricultural manpower at a household increases by one unit, attitude to pricing increases by 80.1%. Significant correlations were found between the number of people in a household and having sustainable and safe income activities in the rural areas of Şanlıurfa [9,11]. There is a negative relationship between the number of nonagricultural manpower at a household and an attitude to pricing. A one-unit increase in the number reduces by 1.4% the attitude to pricing, which is expected due to income from nonagriculture. There is a negative correlation between farming experience and attitude to pricing. A one-unit increase in the experience results in a reduction in the attitude by 0.4%. This was an unexpected result, although the impact was rather small. The farmers were visited again to reveal the reason for this outcome. It was revealed that, through years of experience gained, they have learned to reduce the impact of problems. Many studies concluded that experience affected attitudes to nature, natural resources and the environment [39–43]. There is a negative relationship between the amount of land and attitude to pricing. It is statistically significant at the level of $p < 0.01$. A unit increase in the amount of land can cause a decrease of 0.2% on attitude. This was an unexpected result again, although the impact rate was rather small. Since payments will increase based on the land amount, more payment will affect the prosperity of the farmers adversely. The point overlooked here by the farmers is that their income level depends on the amount of land.

There is a statistically significant relationship between ownership status of land and attitude to pricing at a significance level of $p < 0.01$. Property owners have a 6.4-fold greater odds ratio as compared to reference groups composed of multiple ownership statuses such as own property, renter, and shareholder. The renters and shareholders have 2.4- and 3.6-fold greater odds ratio, respectively, as compared to the reference group. There is a significant level of $p < 0.01$ between subgroups and the reference group. The highest attitude has emerged in the property owners, followed by the shareholders. Property owners need more sustainable resources than people in other groups who have the opportunity to travel to other places for different works when their income decreases. This is not so easy for property owners. A statistically significant correlation exists between income from agriculture and attitude to pricing at a level of $p < 0.01$. A unit increase has the effect of one-fold greater odds ratio on attitude to pricing in a positive way. Additional income, with the increased ability to pay, also affects attitudes. A one-unit increase has the effect of 1.3-fold of greater odds ratio on attitudes in a positive way. There is a marginally significant relationship between agricultural credit usage and attitude to pricing at a level of $p < 0.10$. Although this result may seem unexpected, there is a need for a sustainable income to pay off loan debts. This can be ensured only by having safe sources based on the resources from farming. These are the expected results and have been consistent. Income is a necessity for payment. Some studies showed that income is an important factor on the attitude of individuals [44,45] and has a direct effect on WTP [9]. There is a statistically significant relationship between livestock and attitude to pricing at a level of $p < 0.01$. A unit increase of livestock effects attitude by 3.3-fold of the odds ratio. Livestock is not only a source of nutrition and food but also an important source of income to the farmers in rural areas. One of the important factors in livestock is feed cost. To get income from animal husbandry, feed costs must be low. Feeding in a natural environment is both healthier and cheaper if the natural environment has enough fodder and its capacity is not being used excessively. Some studies have emphasized the importance of feeding in the natural environment for livestock and the effects of this on the environment and natural resources [46,47].

6. Conclusions

Demand and pressure on natural resources, especially on water and soil resources, are increasing mainly due to human activities that affect the natural environment, and are also affected by it [11]. Although natural resources have a capacity for self-renewal, this ratio is often limited. It is important to ensure the sustainable use of natural resources today and in the future; that can be achieved through the effective use of resources. Along with many factors that will enable the fair and efficient use of resources, pricing has become a major tool in recent years. So, it is necessary to determine the factors affecting attitudes to pricing: the ability to pay as well as WTA and WTP of the users for fair and effective policies for the sustainability of natural resources. This research showed that 40% of farmers have a positive attitude to pricing, in other words, WTA to pay for the sustainability of resources, water and soil resources, in GAP-Şanlıurfa, Turkey. The most affecting factors are the location of the farmers, the number of agricultural manpower at the household, land amount, ownership status of the farmers, income derived from agriculture, and livestock. The effect of these factors on the attitudes of the farmers towards pricing is $p < 0.01$.

Community support is essential in the fair and effective management of natural resources. However, public policies are many times faced with local resistance due to livelihoods considerations, especially in developing countries [13]. The way to achieve this is by knowing the attitudes and perceptions of the users on management practices. Farmers' attitudes towards policies and practices highly impact their decisions on adaptation and change [48]. The most striking result of the research is that all of the farmers have WTP at different levels, including farmers who refuse to accept pricing and believe that protection and sustainability should be handled by the state. These farmers are the poorer ones, as compared to the farmers who have WTA. Their average land amount is 11.7 ha, the average income is 31,550 TL/year, and their WTP amount is 204.9 TL/ha, which are less than 80%, 15%, and 36%, respectively, from those who have WTA. This result is quite meaningful and shows that all farmers are aware of the necessity of the protection of natural resources which are soil and water resources. The consistency of the declared WTP is checked, whether it exceeds the ability of farmers to pay or not. The average income of the farmers was calculated as 1814 TL/ha based on agriculture and declared WTP amount was 235.2 TL/ha (48.8 $/ha), which is 12.97% of their income per hectares based on agriculture. The results showed that farmers can pay. If nonagricultural incomes are also added to agricultural incomes, it is obvious that this rate will be even lower.

There is growing concern about the sustainable use of natural resources [49], especially of soil and water resources, as well as effective protection policies. Globally, water is used mostly in agriculture [50,51] and degradation of soil increases due to excessive and incorrect agricultural irrigation. Further research is needed to meet future uses and expectations and to enable users to adapt to new policies [52]. Hence, proactive policies and approaches are needed to ensure sustainability, especially in agriculture. Therefore, the farmers' attitude is an important factor for efficient policies. These outcomes are important for decision and policy-makers for the sustainability of natural resources for today and future needs. New institutional economics and transaction effects, in particular, are highly relevant to public policy performance [53]. The results obtained from economic models constitute stock variables in monetary investments [54], and can be used to produce policies. Mostly, high-cost public investments may be required for the sustainability of natural resources. In cases where the sources of public finance are insufficient, the amounts based on WTA and WTP may also be used in investments. In this way, the financing problem can be overcome and the ownership rate of the users increased. Boosting the sense of ownership in the users raises the efficiency of the investment in the cost–benefit analysis. On the other hand, these results could also be applied in ensuring the effective and fair distribution of the uses of natural resources by the State, acting on the principle that the polluter and the user should pay. In this way, investments will be made for the protection of resources and this investment will be shared by the users for sustainability. This will benefit all parties and is simply might be called a win–win theory. This research is one of the first of its kind for GAP-Şanlıurfa, Turkey.

Funding: This research received no external funding.

Acknowledgments: The author would like to thank the anonymous reviewers for their contributions to the development of this manuscript, making it more understandable and legible.

Conflicts of Interest: The author declares no conflict of interest.

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