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The Choice to Go Organic: Evidence from Small US Farms

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Abstract

This research examined small farmers' operational choice in converting to organic farming in the Southern region of the United States. A logistic model fitted to survey data from responses of 456 produce growers found the key determinants of the conversion choices of farmers and offered quantitative impacts of the major influential factors retained in the fitted model. Among them, barriers to the conversion were linked to farmer's age, risk aversion, years of farming, and the lack of education as well as low yield of organic farming; nevertheless, the model also revealed the existence of stimuli reflecting on access to farmers markets, peer exemplars, and operational scale. The confluence of variables retained partially explained a slow but steady conversion to organic farming in the United States. Besides the broad implication for policy making in the agricultural sector, this study found that organic farming was closely tied to small farms and organic farming could be a back road to the future of small US farms.

Keywords

Organics, Barriers, Produce, Organic Farming, Small Farms

1. Introduction

Recent years witnessed substantial growth in sales of US organic food [1] [2] [3]. The annual growth rate of organic food sales between 1990 and 2017 reached a double digit ranged from 12% to 21%, far outpaced the growth of products conventionally produced [2]. In 2106, the total sales of organic products had grown to $47 billion [4].

The fast-expanding US organic market was partially attributed to the strong demand due to an increasing number of consumers' preference for buying and

consuming organic foods. The niche market had embraced as high as 69% of US consumers [5] and they were willing to pay the premium prices for organic products [6] [7] [8] [9] [10]. The driving forces behind include growing concerns about health, valuing food safety, environmental shepherd, and animal welfare [11] [12]. The conversion to organic foods was particularly significant in consumers' favor for organic produce [7] [10] [13].

While the solid demand for organic products unfolded in both domestic and international food markets, the supply side revealed a relatively stagnant growth within the United States. Overall, organic production has not kept pace with the growth in demand, organic farms are struggling, and organic handlers are challenged for procuring enough [7] [14]. At the very upstream of supply chain, organic farming remains a tiny share, accounting for about 0.55% of the total US farm land [15].

The shortage of supply along the organic chain has been much in evidence for years in the United States. When it comes to the major barriers, studies point to low yields, higher costs, unstable product quality, the cost of certification, price premiums, imports, limited organic inputs, and the lopsided competitions [6] [16] [17] [18]. Some others render explanations with focuses on psychological and sociological costs [19], on uncertain legislative environment [1], on security of marketing channels [20] [21], on input constraints [22], and the perceptions of farmers [23]. While the varieties of investigations did cover a broad area, the results are mixed. The lack of consensus regarding the influential factors and their impact on organic conversion calls for more quantitative analyses based on good survey data, and some studies based on econometric models step forward to quantitatively address the choice of farmers on the conversion to organic production and reached conclusions that related organic farming to the age and gender of operators, farming acreages, levels of education, and urban-raised farmers, which did not fully resonate with some early analyses, but provided a more informative vision [21] [24] [25] [26]. Despite the progress, a closer look at the limited studies finds a problem of small sample size, which is linked to problematic estimates of impacts in spite of their significance in statistics. This is a well-recognized issue to many, but has a tendency to repeat itself due to the predicament in organizing interviews and collecting data. Consequently, conflicts remain even in this category of studies. The situation merits more studies with the well-designed survey instruments and relatively large samples to ensure more accurate and consistent estimates of the impacts of influential factors in the small-farmers' decision-making on the conversion to organic production.

This study has its focus on the choice of small farmers in the conversion to organic production and is aimed to identify the factors of the influence and validate their impacts on farmers' decision on the conversion to organic production. Based on a large survey data in the Southern region of the United States, the authors examined farmer's attitude, perception, farms characteristics, features of the local community, social demographic factors, and so forth. The re-

sults supplemented some conclusions of early studies and offered a deeper understanding of choices of farmers in the conversion to organic farming in the United States. A broad survey and econometric modeling featured this study make the analysis ready to the empirical application and bring about the important implications for understanding the complex organic conversion process and for making workable and effective polices to support the small farms in the United States.

2. Data

The data used in this study came from a broad interview with small farmers in Southern region of USA in 2014. The information collected covered organic practices adopted, societal and demographics of operators; characteristics of farms; farmers' beliefs, attitudes, and perceptions related to organic farming practices, and so forth. A large sample of farmers from a population of total 4818 farms in Georgia were randomly selected and interviewed. The instruments used in the interview were designed by faculty members of Fort Valley State University and the field work of the survey was administered by the Burruss Institute of Kennesaw State University. Farmers who respond to the screening question, "Do you produce fruits and vegetables?" with a "yes" were retained in the sample. The qualified interviewees were contacted multiple times to obtain an effective sample size. About 2404 farmers were contacted, with 456 farmers going through the survey, which gave a return rate of 18.9%. The instruments encompass a broad spectrum of questions pertinent to production practices, social demographics, individual attitude, beliefs, perceptions, as well as the characteristics of farms. The organic production in the survey may take the form of the USDA certified, certification exempt, or transitioning farms. The interview were conducted by trained personnel following the well-established procedures, which insures the veracity of data collected. However, it is also in evidence that some self-selection biases occurred due to the fact that the higher level of education were associated with organic producers and they were inclined to finish the survey retained in the sample, which make the organic operations in the sample high than the overall percentage in Georgia farms in 2012 Census of Agriculture. The defect may constrain the effort to reach a general extrapolation beyond the survey data. In Table 1, the variables covered in the survey and the corresponding preliminary statistics were reported to provide a profile of small farmers in the Southern region of states.

3. Research Methods

We approached farmers' choice of organic farming and potential factors of influence with the help of the logit regression model. After comparative study on the logit, the probit, and the linear probability models, being alike in ways in analyzing categorical data [27] [28] [29], we first exclude the linear probability model for its bias and inefficiency [28] [30]. The logit and probit models are

Table 1. Selected variables and frequency.

Variable	Description	Percent (%)*	Variable	Description	Percent (%)*
	Pure farming type			Gross farm sales	
Farm Type	0 = Conventional	39.85	Farming Income	0 ≤ $50,000	62.41
	1 = Mixed Farm	29.18		1 = 50,000 - 100,000	18.05
	2 = Pure Organic	29.95		2 ≥ $100,000	19.55
	Age of farmer			Use farmers market	
	0 = 30 & Younger	6.06	Marketing at Farmers Market	0 = Not	56.19
	1 = 31 - 40	8.59		1 = Yes	43.07
Age of Operator	2 = 41 - 50	17.68		Find reliable buyers	
	3 = 51 - 60	29.04	Perception of Consumer as Barrier	0 = Not a barrier	54.02
	4 = 61 - 70	23.48		1 = Minor barrier	29.31
	5 = Over 70	14.90		2 = Major barrier	16.67
	Yrs. farming exp.			Need successful exemplar	
Years of Farming	0 = 0 - 5 years	10.82	Need Exemplar to Follow	0 = Disagree	44.68
	1 = 6 - 11 years	10.82		1 = Agree	55.32
	2 = 12 & more years	78.36		Organic has lower yield	
	Work off-farm or not		Organic Yield as Barrier	0 = Disagree	35.19
Off-farm Work	1 = No	59.90		1 = Agree	64.81
	2 = Yes	39.61			
Level of Education	Years of education				
	0 = H.S. & less	23.87			
	1 = Greater than H.S	74.13			

*The percentage sum of each variable may not equal 100 due to the responses of unknown or inapplicable information.

arguably equivalent, only many investigators prefer the former for easy interpretation of parameters. For the sake of comparability, we used the logit model hereof. Since rich documents related to the logit model are readily available in the literature [31] [32], the authors just present a model brief in the context of this investigation, rather than a thoroughgoing model discussion in the coming section.

Following [31], we assumed a random variable Y_i taking one of three discrete values indexed as 1, 2, 3, representing three operational choices: pure conventional, mixed, and pure organic operation respectively. Let

$$P_{ij} = \Pr\left(Y_{ij}\right) \qquad (1)$$

Denotes the probability that the ith response choice falls in the jth category. So, P_{i1} represents the probability that the farmer i choose to do conventional farming. It was assumed that log-odds of choice j of respondent i with reference to the choice 1 follows a linear relation as described in Equation (2).

$$\eta_{ij} = \log \frac{p_{ij}}{p_{i1}} = \beta_0 + X'\beta_j \quad \text{for } j = 2, 3 \tag{2}$$

where β_0 is a constant, and β_j is a vector of regression coefficient for $j = 2$ and 3.

The model above is analogous to a simple logistic regression model, except that the probability distribution of the response is multinomial instead of binomial and two equations are estimated instead of one. The equations contrasted each of categories 2 and 3 with the choice 1, whereas the simple logistic regression is just a contrast between success and failure. In the support of SAS software, two models were fitted with the likelihood maximization method. The coefficient vector β_j is associated with a set of explanatory variables and measures the change in log odds for a one-unit increase in X_i. The odds ratio derived is the change in ratio of the odds for a one-unit change in X_i [33].

In order to have an easier and intuitive interpretation of the impact from each factor, the probability of each choice was estimated. Then, the marginal impact of each factor on probability of a choice were able to be derived from the three equations below:

$$\Pr(Y = 1) = \frac{1}{e^{X\beta^{(1)}} + e^{X\beta^{(2)}} + e^{X\beta^{(3)}}} \tag{3}$$

$$\Pr(Y = 2) = \frac{e^{X\beta^{(2)}}}{e^{X\beta^{(1)}} + e^{X\beta^{(2)}} + e^{X\beta^{(3)}}} \tag{4}$$

$$\Pr(Y = 3) = \frac{e^{X\beta^{(3)}}}{e^{X\beta^{(1)}} + e^{X\beta^{(2)}} + e^{X\beta^{(3)}}} \tag{5}$$

As usual, the most challenging part of modelling is associated with model selection among many alternatives. In this study, we adopted the approach of Purposeful Selection of Variables [34], which usually retains important confounding variables and result potentially in a slightly richer model. We began our model fitting by a univariate analysis of all variable relevant. Any variable with a significant univariate test at 0.25 level was selected as a candidate for the multivariate analysis. In an iterative process, covariates are removed from the model if they are non-significant and not a confounder. Significance is evaluated at the 0.1 level and confounding as a change in any remaining parameter estimate greater than 15% as compared to the full model. A change in a parameter estimate above the 15% indicates that the excluded variable was important in the sense of providing a needed adjustment for one or more of the variables remaining in the model. At the end of this iterative process of deleting, refitting, and verifying, the model contains significant covariates and confounders. Then, we took into account of any variable not selected for the original multivariate model and added them back one at a time, with all significant covariates and confounders retained earlier. In such a way, other variables which, by themselves, were not significantly related to the outcome but became an important contributor in the presence of other variables will be included in the final model.

All variables that are significant at the 0.1 level were put in the model, and the model was iteratively reduced as before but only for the variables that were additionally added. Following the steps above, we obtained a final version of model as organized and presented in Table 2 and Table 3. The former is in terms of log odds and the latter in terms of probability.

Table 2. The maximum likelihood estimates of the farmers' choice logit model.

Parameter	q1	Estimate	Standard Error	Wald Chi Square	Pr > ChiSq
Intercept	Mixed	2.32	1.08	4.62	0.03
Intercept	Pure	4.44	1.19	13.95	0.00
Farmers market	Mixed	0.59	0.37	2.55	0.11
Farmers market	Pure	2.23	0.44	25.29	<0.0001
Reliable buyer	Mixed	0.38	0.35	1.14	0.29
Reliable buyer	Pure	−0.60	0.43	1.98	0.16
Need exemplar	Mixed	−0.72	0.37	3.79	0.05
Need exemplar	Pure	−2.01	0.44	20.95	<0.0001
Impact of low organic yield	Mixed	−0.11	0.40	0.08	0.78
Impact of low organic yield	Pure	−0.95	0.43	4.81	0.03
Liability related to organic	Mixed	0.18	0.36	0.26	0.61
Liability related to organic	Pure	−0.71	0.42	2.77	0.10
Operator age (31 - 60 vs 30 or less)	Mixed	−1.46	0.93	2.46	0.12
Operator age(31 - 60 vs 30 or less)	Pure	−2.45	1.01	5.92	0.02
Operator age (61 or above vs 30 or less)	Mixed	−1.35	0.99	1.87	0.17
Operator age (61 or above vs 30 or less)	Pure	−2.73	1.10	6.13	0.01
Farming years	Mixed	−0.01	0.01	1.80	0.18
Farming years	Pure	−0.04	0.01	10.34	0.00
Level of education	Mixed	−0.26	0.43	0.37	0.54
Level of education	Pure	0.86	0.57	2.28	0.13
Off-farm work	Mixed	−0.19	0.38	0.25	0.62
Off-farm work	Pure	−0.43	0.43	0.97	0.32
Medium size farm vs small	Mixed	−0.44	0.45	0.96	0.33
Medium size farm vs small	Pure	−0.33	0.52	0.39	0.53
Large size farm vs small	mixed	−1.37	0.46	8.95	0.00
Large size farm vs small	Pure	−2.48	0.69	12.78	0.00

*Note: Triple, double, and single asterisks indicate significance at the 1%, 5%, and 10% level, respectively. Mixed = organic and Conventional, Pure = all organic, and Con = Conventional, Likelihood Ratio (Pr < ChiSq) < 0.0001.

Table 3. Probability and marginal impact of influential factors.

		dy/dx	Std. Err.	z	P > |z|	[95% conf. Interval]	
Farmers Market	_predict						
	1	−0.1962	0.0565	−3.4700	0.0010	−0.3070	−0.0854
	2	−0.0717	0.0605	−1.1900	0.2360	−0.1903	0.0468
	3	0.2679	0.0517	5.1800	0.0000	0.1665	0.3693
Reliable buyers	_predict						
	1	−0.0088	0.0509	−0.1700	0.8620	−0.1086	0.0910
	2	0.1143	0.0552	2.0700	0.0380	0.0062	0.2224
	3	−0.1055	0.0467	−2.2600	0.0240	−0.1969	−0.0140
Rule of exemplar	_predict						
	1	0.1879	0.0531	3.5400	0.0000	0.0839	0.2919
	2	0.0278	0.0572	0.4900	0.6270	−0.0844	0.1400
	3	−0.2157	0.0490	−4.4000	0.0000	−0.3116	−0.1197
Low yield of organic	_predict						
	1	0.0638	0.0558	1.1400	0.2520	−0.0455	0.1731
	2	0.0553	0.0595	0.9300	0.3520	−0.0613	0.1720
	3	−0.1192	0.0505	−2.3600	0.0180	−0.2181	−0.0202
High liability of organic	_predict						
	1	0.0182	0.0517	0.3500	0.7250	−0.0831	0.1195
	2	0.0875	0.0558	1.5700	0.1170	−0.0219	0.1969
	3	−0.1057	0.0476	−2.2200	0.0260	−0.1990	−0.0125
Age of operator (3160 vs 30 or less)	_predict						
	1	0.2285	0.0822	2.7800	0.0050	0.0674	0.3895
	2	−0.0293	0.1103	−0.2700	0.7900	−0.2454	0.1868
	3	−0.1992	0.0973	−2.0500	0.0410	−0.3899	−0.0085
Age of operator (61 or above vs 30 or less)	_predict						
	1	0.2285	0.0822	2.7800	0.0050	0.0674	0.3895
	2	−0.0293	0.1103	−0.2700	0.7900	−0.2454	0.1868
	3	−0.1992	0.0973	−2.0500	0.0410	−0.3899	−0.0085
		dy/dx	Std. Err.	z	P > |z|	[95% conf. Interval]	
Years of farming	_predict						
	1	0.0036	0.0014	2.5000	0.0120	0.0008	0.0063
	2	0.0006	0.0016	0.4000	0.6920	−0.0025	0.0037
	3	−0.0042	0.0013	−3.1200	0.0020	−0.0068	−0.0016

Continued

Education level	_predict						
	1	−0.0094	0.0673	−0.1400	0.8880	−0.1413	0.1224
	2	−0.1159	0.0747	−1.5500	0.1210	−0.2624	0.0306
	3	0.1254	0.0574	2.1800	0.0290	0.0128	0.2379
Off- farm work	_predict						
	1	0.0413	0.0539	0.7700	0.4430	−0.0643	0.1470
	2	−0.0017	0.0573	−0.0300	0.9770	−0.1140	0.1107
	3	−0.0397	0.0460	−0.8600	0.3880	−0.1298	0.0505
Medium size farm vs small	_predict						
	1	0.0650	0.0675	0.9600	0.3350	−0.0673	0.1972
	2	−0.0554	0.0711	−0.7800	0.4350	−0.1947	0.0838
	3	−0.0096	0.0608	−0.1600	0.8750	−0.1288	0.1097
Large size farm vs small	_predict						
	1	0.3069	0.0778	3.9500	0.0000	0.1545	0.4593
	2	−0.0999	0.0742	−1.3500	0.1780	−0.2453	0.0456
	3	−0.2071	0.0651	−3.1800	0.0010	−0.3346	−0.0795

Note: dy/dx for factor levels is the discrete change from the base level. _predict 1 is the probability of conventional farming; _predict 2 is the probability of the mix of conventional and organic farming; _predict 3 is the probability of pure organic farming.

4. Results and Discussions

The fitted models reported in Table 2 and Table 3 are significant at the 1% level in terms of AIC, BIC, and Score statistics. Ten variables were retained at the 10% significant level, reflecting the responses to the following survey questions: "Do you use farmers market as a marketing outlet?"; "Do you find reliable buyers for your organic products?"; "Do you start organic farming by following some successful peers?"; "Do you believe organic farming is more prone to lower yield than that of conventional farming?"; "Do you believe that more liability incurred in organic farming?"; "Do you have an off-farm job?"; "What is the size category of your farm?"; in addition, questions related to age, years of farming experience, and years of education of the major operator were identified as independent variables of influence in the decision making process of farmers. The following discussion will be on important impact of each identified factor in the finalized model.

4.1. Marketing Channels and Their Impacts

The marketing channel is identified as a key factor on farmers' conversion decision. We were attentive to the long list of marketing channels, including farmers market, roadside stands, directly to consumers, wholesale markets, processors,

restaurants, food stores, and schools. The access to farmers market was retained in the model as a significant factor. Producers who sell on farmers market had a 26% increment of probability in converting to organic farming in comparison with those with no access. Similarly, the accessibility reduced the likelihood of farmers remaining in conventional farming by 19.6%. The impact is the largest among all influential variables, which implies the vital role of the farmers market for organic products. Farmers market could relate organic products to other value-added attributes such as freshness and locally produced, which enable an easy claim on premium price. In addition, farmers market tends to tolerate the unstable and inconsistent supply in both quantity and quality of organic products. The absences of other market channels in the model may not necessarily mean they are less importance, rather it likely reflected a reality that they were perceived by organic farmers as inaccessible or less accessible at the time of our survey.

4.2. Reliable Buyers

Finding reliable buyers was identified as a major barrier from a long list of potential ones including price premium, distance to organic markets, handling costs, and competition with non-organic products, and access to capital through lenders. Farmers with the concern was 10% less likely to convert to organic farming. The result seemed contradict the claim on a great demand for organic products. The solution to the puzzle is that existence of a great demand for organic products showed an unbalanced spatial structure and could not be extrapolated into areas not adjacent to metropolis. Confined to limited access to chain retailers, small farmers turned to the "thin" farmers markets for their products, in which finding reliable buyers turns out to be difficult and full of uncertainty.

4.3. Lower Yield of Organic Farming

Farmers held a perception of lower yield of organic farming is 11.92% less likely to convert to organic farming. The low yield of organic farming is not just perception, but a fact in many areas, due to the lack of high-quality seed, organic fertilizer, and effective pests and weeds sprays. The perception of low organic yield is across all farmer types [14] [35]. The perception of lower yield could easily explain farmers' behavior of withholding converting to organic farming.

4.4. Uncertainty and Risk Factors

A risk factor weighed in on farmers' decision on converting to organic farming, reflecting in whether farmers intend to covert to organic farming until they witness a peer's success. Those with a "Yes" composed a group of risk aversion and they were 21.57% less likely to convert to organic farming. The result was in align with previous studies in that farmers' adoption of new practices are most influenced by information from other farmers [28] [36] [37]. Currently, there

are a small cohort of organic farming exemplar for others to imitate. Given most farmers are risk aversion, a small cohort of exemplars were the barrier for organic conversion.

4.5. Farming Experience

Using farmers group of 0 - 5 years' farming experience as a reference group, farmers of 6 - 11 years' experience have a chance of conversion 19.9% lower, and farmers of 12 years or more, the drop reached 24.2%. The estimates showed farmers were more likely to stick to conventional farming the longer they stayed in the business, partially due to a steep learning curve [32] [35]. The longer farming experience made them less likely to learn and shift toward a new approach of organic farming.

4.6. The Perception of High Liability Entailed in Organic Farming

There isn't much evidence to verify the veracity of the claim of high liability, but the perception came up with a distinct adverse impact. Farmers concerned about the higher liability in organic farming is 10.57% less likely to convert to organic farming. The conception likely came from the yield uncertainty due to damage from pests and/or weeds [38] [39], which easily results in default on loan and other financial responsibility that must be cushioned with more debts. Consequently, the perception of high liability discouraged farmers to steer their production to organic farming.

4.7. The Production Scale of Farms

The size of a farm matters and negatively impacts the conversion. As the production scale increases, the chance of conversion become smaller. In this sample, the chance of conversion for large farms is 20.71% lower than their smaller counterparts. some previous studies that organic production poses great managerial challenge due to the intensive labor demand in dealing with diseases, pests, applying fertilizer, and handling marketing [35], and constraints on substitution of capital for labor. As a result, production scale was deemed as an uncontentious barrier to the organic conversion.

4.8. The Age of Farmers

In the conversion to organic, the age of producers is another barrier. Table 3 shows that the probability of the conversion dropped substantially as producers become older. With the base group of 30 or young, the age group 31 - 60 has a probability of 20% lower in adopting organic farming, and the group 61 or older has a drop of 24%. It makes sense that the shorter planning horizons for older farmers offered less time to recapture investment costs and capture the long-term benefits. In addition, it was claimed that as one ages, the avoidance of risk becomes more important than expected future higher returns [40]. The conversion to organic farming also demands the time and efforts to assimilate

organic knowledge and methods, and likely expose farmers to lower yields and non-premium price in the transition period [14] [35] [41] [42], and these surely weigh in on farmers decision on organic farming.

4.9. Education

Education wedged its influence in organic farming in a complex way. The chance of conversion is 13% higher for farmers who had education of technical school or higher than farmers with just high-school diploma or lower. This conformed a previous claim that farmers with some college education had higher odds of adopting organic farming [41] [42]. However, the impact of education was not observed in conventional farmers and those with mixed enterprises. The lack of observations on mixed enterprise group may be the root of the result.

4.10. Off-Farm Job

While some results of this study bear resemblances to previous studies, there are some noteworthy differences identified. The impact of off-farm job is one of them. Our model was not in supportive of the claim that there exists an inverse relationship between working off-farm and the adoption of organic farming because off-farm job reduce the availability of labor and hence impedes organic farming practices [23] [42] [43] [44]. On the contrary, the impact of off-farm jobs in our model lead to an increased likelihood of organic conversion, which may reflect the influence of the enhanced risk tolerance due to extra income from off-farm jobs. The absence of off-farm job variable led to substantial changes in parameters of other variables in the model, so it, though less significant in statistics, was retained in the model. The further clarification hinges on the future studies with more observations and elaborated instruments related off-farm job.

5. Summary and Conclusions

Analysis of the large survey in the Southern states came up with a few contributing factors in farmers' choice of conversion to organic production. The pool of factors comprise barriers and stimuli, each of them have been discussed in detail in the previous section. In view of potential impacts and the efficient way of improve the adoption of organic farming, the four factors of risk aversion, the age of operators, and the size of farms, and marketing channels deserve further elaboration.

Organic farming is still at its early stage, there exist tremendous uncertainty in both production and marketing process. For most risk version farmers, an acceptable way to follow was doing by the top dog. Nevertheless the exemplars available at this stage are quite limited. A way to increase farmers' expose to and know those successful frontrunners is to organize more workshops and training. Land grant universities and USDA agencies such as FSA and RMA could play a more active role in helping farmers overcome the risk barrier.

The age of operators and its adverse impact certainly deserve multiple looks. From 2012 census data, about 62% of farmers were 55 or older, which was 17 years older than the age of average American workers. Old operators was significant less likely to go organic. While it isn't realistic to expect a change of age structure shortly, it makes sense to support young farmers in land requisition and in tax relief. Currently, the old operators' ownership of expensive land and the existing subsidy programs give the elder an edge to stay in farming, which forms a hindrance of the conversion to organic farming. An urgent need is to have some stimulus mechanisms to expedite the influx of the young into farming business. The change of land tenures and government subsidy programs is needed to support the business of the young beginning farmers

The third noticeable factor is the size of farm. The last century witnessed the significant land consolidation in the US agriculture. "Be large, or be out" is almost a common knowledge to all farmers. The high percentage of capital and land was under control of large farms makes the conversion to organic farming a predicament process. Increasing the organic production may hinge on the slowdown of the farmland consolidation, which may need government to steer some subside programs partially away from just a few large staple crops.

In the end, another factor, which should not be ignored, is the demand paradox along the organic food supply chain. While substantial evidence pointed to a great aggregate organic market, organic farmers did that way. Having reliable buyers is still a great concern for many small farmers. It demonstrated that access to farmers markets is vital, but not enough. Going through alternative marketing channels, such as the big box chain and food hubs is an inevitable step to ensure a stable gain in the conversion to organic farming. More studies on the way of channeling organic products to the big markets are merited in order to help producers go organic and make a living.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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