EVALUATING THE EFFECTS OF THE H2-A TEMPORARY AGRICULTURAL VISA PROGRAM IN MITIGATING FARM LABOR SHORTAGES AND MAINTAINING BUSINESS VIABILITY IN THE SOUTHEASTERN UNITED STATES

by

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(Under the Direction of Cesar L. Escalante)

ABSTRACT

A critical concern of farmers in the United States over time has been the inability to consistently employ reliable domestic laborers to fulfill the needs of their operations. The H-2A Temporary Agricultural Visa Program is the only legal option to allow foreign workers, who have been a staple in supplying farm labor, to work in the U.S. agricultural industry. The purpose of this study is to analyze the effectiveness of the H2-A program on the operations of farmers who have previously used the program and attempt to shed light on the economic conditions within a county that would make using the H2-A program an option. This research summarizes a survey conducted with farmers in the Southeastern U.S. who applied to the H2-A program to obtain workers. A backward stepwise regression is used to analyze the effects of H2-A workers in North Carolina and Georgia.

INDEX WORDS: H-2A Temporary Agricultural Visa Program; H-2A Program; Immigration Reform; Farm Labor-Supply Shortage

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CHAPTER 1

INTRODUCTION

One of the most critical concerns of farmers in the United States over time has been the inability to consistently employ reliable domestic laborers to satisfactorily fulfil the needs of their business operations. Despite employing costly advertising and aggressive hiring strategies, including offering higher wages than other industries, the often arduous and labor intensive conditions of farm work, appear to deter US native born employees from applying to and keeping available agricultural jobs (Escalante and Wu, 2013; Fonsah 2012; Stegelin et al., 2011).

To avoid disruptions in operations, historically, US farm operators have relied heavily upon undocumented workers from other countries to fill the labor shortages caused by the domestic workforce. In the last 15 years, nearly half of agricultural crop farm workers have been undocumented workers (Carroll, Georges and Saltz, 2011; Stegelin et al., 2011). As immigration policies have become stricter, millions of unauthorized immigrants have been forced to leave the country, leaving a tremendous labor gap for farmers (Passel, Cohn, and Gonzalez-Barrera A. 2012).

According to the U.S. Census of Agriculture (2007), expenditures for farm workers totaled $26 billion. Although farm workers account for less than one percent of all US wages, within the agricultural sector- total variable farm costs, which include

wages, salaries, and contract labor expenses range between 17 to 40 percent depending on the level of labor required for crops (Hertz, 2012).

The U.S. government has attempted to mitigate against the damages caused by the domestic farm-labor supply gap with labor agreements; however, the resulting policies and actions have been controversial. Currently, the most viable and legal option for farmers seeking non domestic labor is the H-2A Temporary Agricultural Visa Program (H-2A program) which was designed to accommodate temporary foreign agricultural workers at the expense of the farm owner.

Researchers have examined the farm labor supply shortage in the United States and agree that the issue is one of the most pressing in agricultural policy today (Fonsah 2006; Escalante and Stegelin, 2012). The economic repercussions of the farm labor crisis could have detrimental ripple effects on county and national indicators for growth if not rectified.

1.1 Purpose of Study

As immigration policies tighten on both the national and local levels, farmers are quickly running out of labor options outside of the H2-A program. The purpose of this study is to:

a. Analyze the effectiveness of the H2-A program on the operations of farmers who have previously adopted it, and
b. Shed light on the economic conditions within a county that would utilize the H2-A program.

It is hopeful that this information will be useful to farmers considering sourcing their workers through the program as well as policy makers and researchers seeking solutions to the farm labor-supply problem.

CHAPTER TWO

LITERATURE REVIEW

2.1 Background on Immigration and Agricultural Labor in the United States

Foreign workers and agricultural labor in the U.S. have a long history. In the earliest colonial days, indentured servants were brought in from Europe to act primarily as agricultural workers. Slavery followed, where Africans were imported to replace the indentured servants in the fields. After slavery ended, the U.S. imported workers from Asian countries until the 1882 Chinese Exclusion Act (Gyory, 1998). As European migration to the U.S. declined as a result of World War I, Mexican immigrants filled the labor void which led to the first Bracero guest worker program which allowed Mexican workers into the U.S. until 1921 (Galarza, 1964).

When industrialization and World War II placed a major strain on the agricultural labor sector in the late 1930's and 1940's the U.S. and Mexican governments partnered together again to create the Mexican Agricultural Labor Program. The agreement- also known as the "Bracero Program," brought more than 4.5 million Mexican citizens to the U.S. to legally work in agriculture. Although intended to be a temporary labor program, the Bracero Program actually ran from 1942 to 1964. The program ended as a result of numerous complaints of severe mistreatment of the workers by employers and mismanagement of wages. To date, most of the Bracero workers, nor their remaining families have still not received their contracted payment for services (Martin, 2003).

To further address agricultural labor with relation to foreign workers, the Immigration and Nationality Act of 1952 was passed. The act introduced the temporary foreign agricultural worker program (Bennett, 1966). Following the Bracero Program, U.S. farm businesses relied heavily upon undocumented immigrant workers to fulfill their labor needs; however, as immigration policies became stricter, millions of illegal farm workers were forced to leave the country bringing about the need for new immigration policies related to farm work.

2.2 The H-2A Temporary Agricultural Visa Program

The Immigration Reform and Control Act of 1986 divided immigrant workers into two categories: the H-2A Temporary Agricultural Visa Program (H-2A program) which was designed to accommodate temporary agricultural workers and H-2B Temporary Non-Agricultural Workers program which would allow for the immigration of temporary workers in other industries. While the H-2B program places a limit on the number of workers that may come to the U.S. for work, the H-2A program creates a legal remedy for agricultural employers to hire an unlimited number of foreign farm workers to work in their businesses. According to the U.S. Department of Labor (DOL) (2016), among other criteria- to qualify for H2-A laborers, potential employers who anticipate domestic labor shortages must adhere to the following:

> "-offer a job that is of a temporary or seasonal nature;
>
> -demonstrate that there are not enough U.S. workers who are able, willing, qualified, and available to do the temporary work; and

-show that employing H-2A workers will not adversely affect the wages and working of similarly employed U.S. workers" (DOL, 2016).

Farm operations that utilize the H-2A program must also be registered and in good standing with the E-Verify employment eligibility verification program (USCIS, 2008).

2.2.a Concerns with the H2-A Program

Initially, the H-2A program had low utilization rates and was heavily criticized by leading farming organizations as well as guest workers. A report by advocacy group, Farmworker Justice found violations of the H2-A program to be "rampant" and "systematic" and cite numerous allegations of mistreatment of the guest workers related to receiving timely and fair wages, and with respect to the living conditions of some of the workers (Newman, 2011). In addition to depriving foreign workers of economic bargaining power because their contracts would prohibit them from changing jobs or from gaining full citizenship, U.S. farm groups have claimed that the program drives down domestic wages and has tax incentives that have created an environment where employers would prefer to hire guest workers over U.S. workers.

The U.S. DOL was also accused of approving illegal job terms in the H-2A worker contracts and of knowing of questionable recruitment tactics that left many guest workers in indebted positions after paying recruiters for their H-2A jobs before entering the United States. In 2015, the United States Government Accountability Office found incidences of human trafficking and forced labor along with other violations of the programs parameters (GAO, 2016).

2.2.b. Changes in the H2-A Program Over Time

In response to the complaints levied against the H-2A program, several legislative amendments have occurred since 1986. In 2007, the Bush Administration repealed the 50 percent rule which stated that if a domestic worker applied for a position held by a hired H2-A worker before the H2-A contract reached half of its duration- the H2-A worker would be terminated and the domestic applicant hired. This rule was reinstated in 2010.

The most recent amendment went into effect on November 15, 2015. It includes new enforcement obligations for employers, updated communication and outreach information, as well as special considerations for farm businesses specializing in herding or the production of livestock on ranges.

2.2.c. Current H-2A Guidelines

Current rules and policies of the H2-A program include changes that seek to benefit both U.S. workers as well foreign workers. To protect U.S. workers, there is a termination clause which states that "employers are prohibited from hiring H-2A workers if the employer laid off U.S. workers within 60 days of the date of need, unless the laid-off U.S. workers were offered and rejected the agricultural job opportunities for which the H-2A workers were sought." To ensure proper notification to foreign workers, there is a written disclosure statement that mandates employers to properly document and provide employees with a copy of their "work contract – in a language understood by the worker – which describes the terms and conditions of employment," or with a copy of the

job order that was submitted to and approved by DOL at the time when the H-2A worker applies for a visa.

To ensure fair payment to farm workers a rates of pay clause which states that employers must pay workers the highest of either: the adverse effect wage rate (AEWR)- which is the minimum wage rate of the DOL for H-2A workers, the applicable prevailing wage, the agreed-upon collective bargaining rate, or the Federal or State statutory minimum wage.

Research has shown that many farmers do not agree with the use of the AEWR as it is often higher than minimum wages in states, in some cases by as much as two dollars. Figure 2.1 shows the current AEWRs by state.

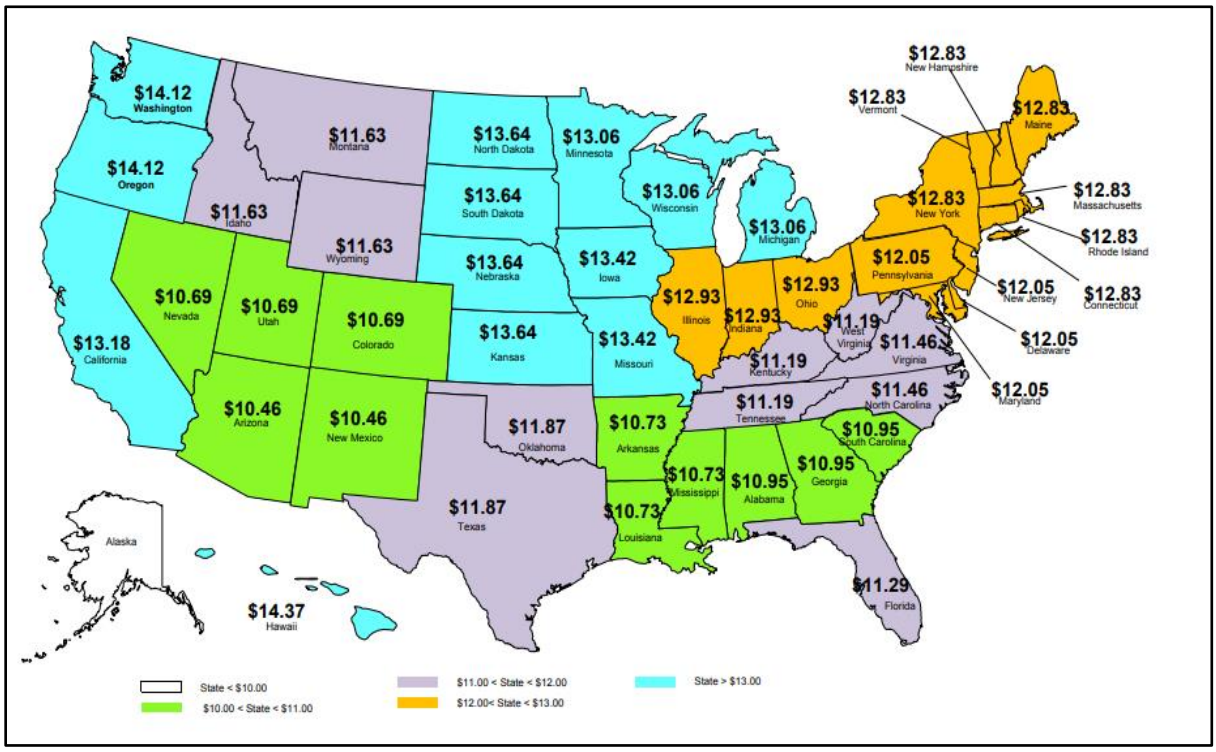

Figure 2.1. 2018 Adverse Effect Wage Rate (AEWR) by State
Source: U.S. Department of Labor, AEWR 2018 map

In addition to paying higher wages for workers, there are a myriad of other costs that employers must bear when deciding to use the H-2A program including: housing for H-2A workers who are not "reasonably able to return to their residence within the same day;" three meals per day or furnish cooking and kitchen facilities where workers can prepare their own meals; daily transportation between the workers' living quarters and the worksite; and other inbound and outbound expenses. In addition, H-2A employers must also agree to the "three-fourths guarantee," which states that employees must be offered employment for a total number of hours equal to at least 75% of the workdays in the contract period.

The increased operational and opportunity costs associated with applying for workers through the H2-A program appear to be considered good investments for the thousands of applicants who submit applications to the DOL annually. The time sensitive nature of their business dictates careful planning for every phase of the business cycle- so ensuring that workers are positioned at critical times in the year is a mandatory requirement for farm operators. There appears to be a causal relationship between immigration policies becoming stricter and H2-A applications increasing.

2.2.d. Participation Rates and New H2-A Issues

In recent years there has been a spike in participation on all levels of the H2-A program including: applications filed, positions requested, position certified, and labor condition applications. Figure 2.2 shows the rates of growth for the H2-A program in

recent years.

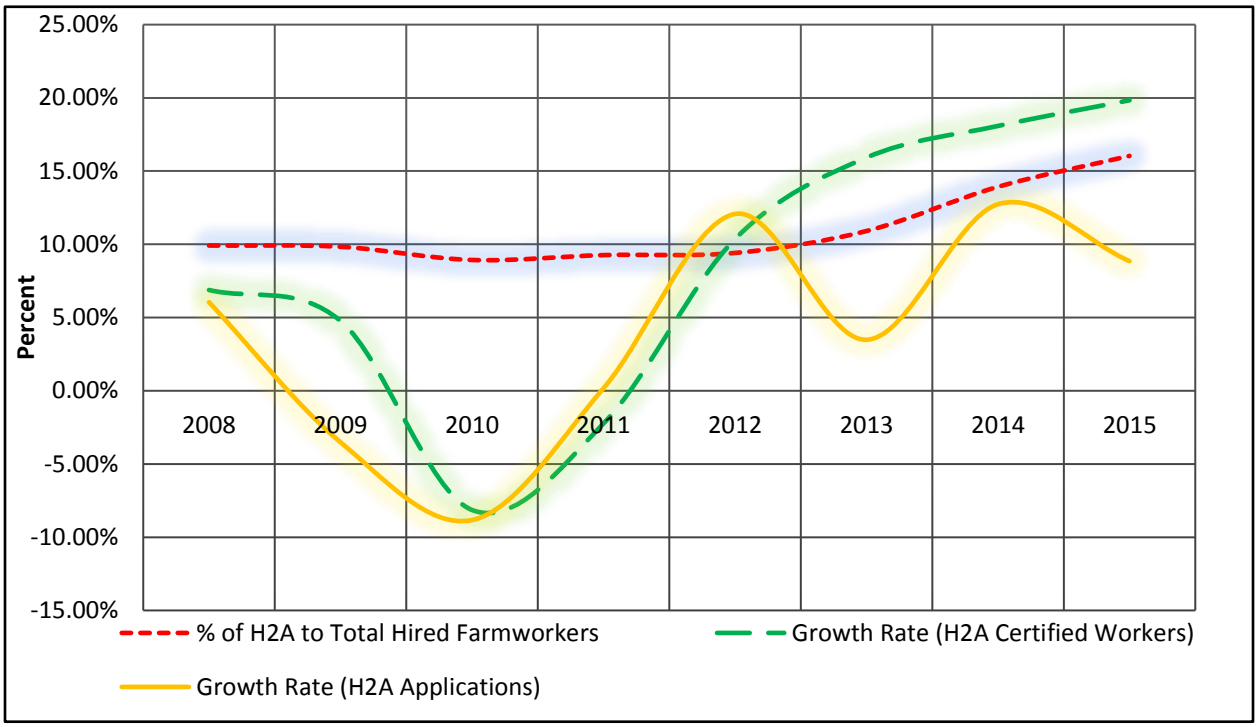

Figure 2.2 Growth Rates and Proportions of H2-A Workers to National Total Hired Labor
Sources: U.S. DOL, H2A Program Application Data USDA-National Agricultural Statistics Service, Farm Labor Survey

In 2012, the number of applications certified was 7,845 compared to 8,297 in 2016 representing 85,248 positions certified in 2012 and 165,741 positions certified in 2016. In the first two quarters of 2017, 6,486 were received, so it can be assumed that when the remaining portion of the year is reported that the 2016 count will be surpassed.

While the increase in participation of the program sheds a positive light on the marketing and recruitment efforts of H2-A, this new wave of interest in the program does not come untarnished. A new shadow is now being cast on the H2-A program which may be counterproductive to the program's intention. The increase in applications is

causing what American Farm Bureau (AFB) President Zippy Duvall calls a "30-day processing backlog." The processing delay is causing major concern with farmer participants who are being forced to leave their crops in the field, or not be able to plant according to schedule to the late arrival of contracted workers (AFB, 2017).

Growers in more than 20 states estimate losing between 20 and 27% of their crops due late contracted workers. Some farmers have reported waiting as long as five weeks for their workers to arrive, many choosing to alter their operations and not grow certain crops (Rosenthal, 2016; Sheinin, 2016). Further backlog may also be caused by the processing steps involved in issuing the visa. Currently, DOL approval of the foreign labor certification is the preliminary step in a seemingly complex procedure involving multiple federal agencies such as the Department of Homeland Security (DHS) that approves the petition, the Department of State at a U.S. Embassy/ Consulate in the foreign workers' home country that approves the H2A visa, and the U.S. Customs and Border Protection (CBP) that grants admission at a U.S. port of entry (Department of Homeland Security, 2017). This process has caused further delay of approved foreign workers' arrival in the country.

Despite the growth in program use, H2-A workers still only comprise between ten to sixteen percent of total hired farm labor in the United States. Since there is no cap on the number of workers that may be requested, there is much opportunity for growth in the program in terms of numbers of workers to be processed; however, it appears that work may be needed to address the program's reliability and significance as being a solution to the farm sector labor gap. Critics of the program have called the application process

“confusing,” “painful,” “bureaucratic,” and “insensitive” to the industry’s needs and have expressed interest in simplification of current procedures (Ong, 2015).

CHAPTER THREE

METHODOLOGY

3.1 Study Motivation- A Survey of H2-A Applicants

The motivation for this research came from a Sustainable Agriculture Research and Education program (SARE)-supported study that was completed in 2015 by researchers from the University of Georgia and Fort Valley State University. A survey instrument was developed to determine attitudes and opinions of the H2-A program from past participants. The survey was designed to assess the effectiveness of the H-2A program in mitigating the shortages in the seasonal farm labor market.

The survey was mailed to 956 organic and conventional farmers in North Carolina and Georgia. These two states were chosen because they have both consistently had high rates of participation in the H2-A program. The participants were identified as applicants of the H-2A program in 2012 through the Department of Labor's Foreign Labor Certification Data Center website.

Survey questions were developed to gain insight on all aspects of their experiences with the program including: ease of the application process; the type of work needed by guest workers; the effectiveness of the workers; opinions on recent H2A program amendments; and information on business profitability as a result of using the

H2-A program. Forty-six responses were received. The results of the survey are described below.

3.2 Survey Results

3.2.a. Respondent Profile

The demographic characteristics of the respondents are shown in Table 3.1 and are as follows: the majority of the respondents- 59.8% had been in the farming sector for more than 20 years. 91% of the farmers were between the ages of 41-70 years. 51% of the farmers in the survey had production acreage of up to 500 acres, 37.8% had acreage between 501-2000 acres. 23.9% of the responders had income of $500,000 or below; 32.6% had income between $500,000 and- $999,999; and 28.3% had income between $1,000,000 and to $1,999,999. Crop production ranged from grains and other field crops to livestock and tobacco.

The 46 respondent farms accounted for a total of 389 applications filed in 2012. The applications from the survey respondents had an approval rating of 96.85 percent. In terms of business cycle need- 35% of respondents stated that workers were needed most during harvesting and production stages and 29% during the planting stages. Processing and value-added production stages required the longest time frame for workers to be in the business at 7.6 months in the U.S.

Table 3.1 Demographic Characteristics of Respondents

Age of Farmer	
41-50	28.3%
51-60	26.1%
61-70	32.6%
Farm Production Acreage	
1 to 500	51.1%
501 to 1000	20%
1001-1500	11.1%
2501-3500	6.8%
Income Range	
$500,000 or less	23.9%
$500,000-$999,999	32.6%
$1,000,000-$1,999,999	28.3%
$2,000,000-$4,999,999	8.7%
Over $5,000,000	6.5%

3.2.b. Costs Associated with H2-A Program

The survey participants' responses were varied with respect to the costs associated with using the H2-A program. About sixty-nine percent of the surveyed farmers declared that their hiring costs increased their business expenses by at least twenty-five percent. More than half of the farmers reported increases in labor efficiency and productivity, including forty-seven percent who acknowledged labor productivity improvements of at least twenty-five percent; however, thirty-four percent claimed that no labor productivity changes were realized from using H2-A workers. One-third of the respondents reported overall losses in their farm businesses after using the H2A program. Figure 3.1 shows the perceptions on cost, productivity and profits from survey participants.

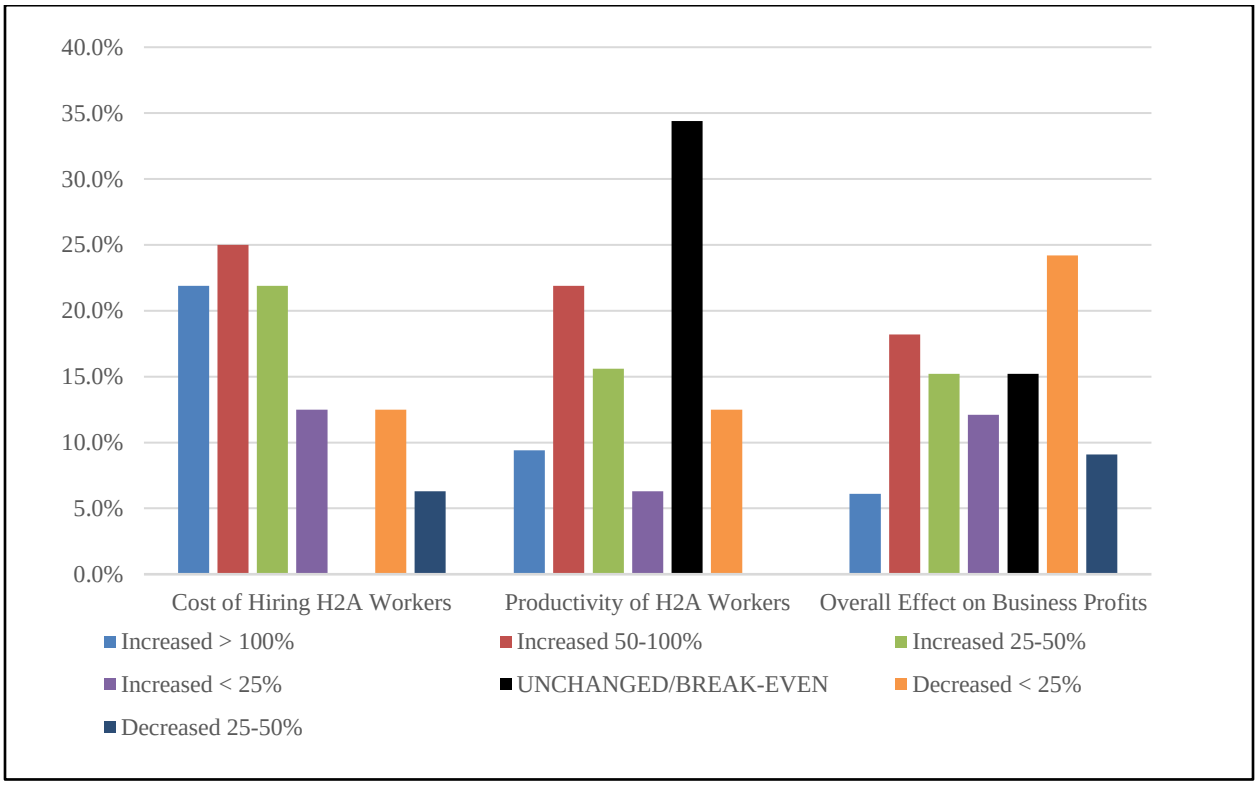

Figure 3.1. Effects of H2-A Program on Operations
Source: Rusiana and Escalante, H2A Outreach Bulletin No. 2, University of Georgia

An important consideration of the H2-A program relates to the impacts of costs to the operations. Over half, 58.3%, of the respondents indicated that using the H2-A program increased their operational costs. 53.2% of the sample stated productivity increased between 25% to 50%. This is countered by 34.4% of respondents maintaining that hiring H2-A workers did not affect their overall productivity, and 12.5% of the farmers reported a decline in productivity.

When asked about profitability resulting from H2-A use, 51.6% of the respondents stated that their overall business profits increased 25% to 50%, 15.2% of the sample stated that hiring H2-A workers has left their business profits unchanged, and

33.3% reported that that hiring the workers decreased their net business profits by almost 50%.

3.2.c. Application Time Considerations

Survey questions were developed in order to understand the amount of time required for the H2-A application process. As shown in Figure 3.2, the preparation of the application documents took most farmers in the sample between one to five days. Nearly half of the respondents needed five or less days to complete requirements while about 20% required one to two months. The majority, 77%, of the respondents hired external agencies to assist them with the documentation process. The survey found that farmers are more active in applying for H2A workers during harvest season. In terms of arrival time after application submission, 43.5% estimated that the foreign workers arrived between 31 to 60 days after their application had been approved. The majority, 58.3% of the respondents considered the documentary requirements of the DOL as "reasonable" while 30.6% contended that the requirements were "unreasonable."

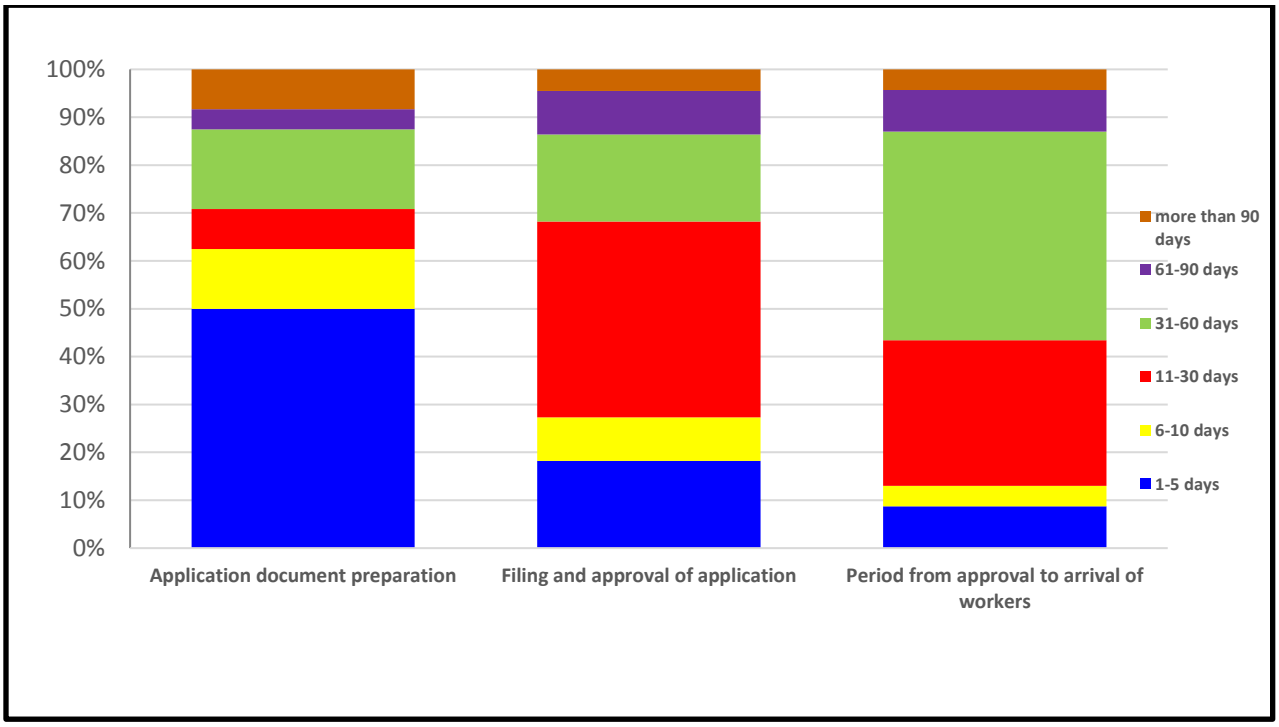

Figure 3.2. Length of Processing Time of H2-A Visa Applications
Source: Rusiana and Escalante, H2A Outreach Bulletin No. 1, University of Georgia

3.2.d. Wage Considerations

With regard to wage perceptions, the vast majority of the respondents- 90.3% indicated that the prevailing AEWR in their state was not affordable. The AEWR for Georgia is $10.95 and North Carolina's is $11.46.

3.3 Econometric Analysis

Analysis of the survey data led to the formulation of two empirical questions related to how the H2A program helped in addressing employment and business viability conditions in local farming communities. The questions developed from the descriptive analysis of the survey data are:

1. *Do H2A workers supply farm labor inputs in areas where there is really a real scarcity of workers or in areas where there are available but unwilling workers?; and*
2. *Are the H2A workers' wage rates competitive relative to what the county pays to other workers on average?*

3.3.a. Data

Given the limited sample size of this study's survey dataset, a secondary dataset was compiled from various sources. This dataset was collected at the county level for farmers in North Carolina and Georgia as the survey was comprised of farmers from these states. A primary source of this secondary data was the Department of Labor website where information on the H2-A applicants is stored. The applicants from both states were combined which created 1,969 observations. Applicants were grouped by county within each state using addresses and zip codes to identify counties. The combination of applicants into counties decreased the observations to 120. The DOL provided a breadth of information on the applicants to the H2-A program- salient points such as number of workers requested and approval ratings were selected for analysis.

Economic information for each county represented such as rates of pay for workers, crop rents, operations expenses, and locational data (proximity to metropolitan and rural areas), population growth, and number of harvested acres for each county was gathered to further analyze the questions. County level economic data was obtained from websites of the Bureau of Labor Statistics, the Office of Management and Budget website, and the USDA National Agricultural Statistics Service (NASS). The purpose of

this data is to establish the labor market conditions in each county. A total of 103 observations remained after merging the data. Table 3.2 presents a description of the variables used in the research.

Table 3.2. Description of Variables

Variable	Description
State	1 if Georgia 0 if North Carolina
Growth in Crop Sales	The growth in crop sales from 2011 to 2012 in each county.
Average processing time for H2A applications	The average number of days to process H2-A applications received by county.
Total working days	The total number of working days in the calendar year minus 14 days for vacation.
Average wage rate	Total wages in each county divided by the number of certified H2-A workers.
Certified H2-A applications	Percentage of applications approved to total number of applications received in county.
Crop rent by county	The change in crop rents from 2011 to 2012 per county.
Unemployment rate	The unemployment rate for 2012 by county.
Change in unemployment rate	The change in the unemployment rate per county from 2011 to 2012.
Net migration change	Population growth from 2011 to 2012. Indicator of growth in local economy.
Number of Harvested Acres	Number of harvested acres per county.

Rural-Urban Continuum Codes	Rural-Urban Continuum Codes are developed by the Office of Management and Budget (OMB) and classify counties by the population size, degree of urbanization, and adjacency to a metro area. The codes are useful to research related to population density and metro influence.
2013 Urban Influence Codes	The 2013 Urban Influence Codes are from the OMB and are useful to research related to population density and metro influence.
Crop Rent by County	The change in crop rents from 2011 to 2012
Economic typology code	Economic typology codes are from the ERS and provide insights on a range of economic and social characteristics, including farming, mining, manufacturing, federal/state government, recreation, and non-specialized counties.
Population Growth	Population growth by county from 2011 to 2012.
H2-A workers proportion to farmworkers	Ratio of certified H2-A workers to hired farm workers in each county.
Operating Expense	Operating expense of farmers in the counties
Hired farmworkers	The number of hired farm workers in the counties
Cash rent rate	Cash rents reported by farm operators
Labor expense proportion	Total labor divided by operating expenses for farm operations
Interest Expense proportion	Interest expense of farm operators in counties

Operating Expense Ratio	Operating expense divided by gross revenues for farm operations
Rent growth	Growth in rent from 2011 to 2012
Labor Change	Change in labor rates from 2011 to 2012
Days worked as a proportion to the year	The number of working days for the workers in the counties
Approval rate	The rate of approval for H2-A workers to those requested in the counties.

The two empirical questions presented were modeled as follows:

The first equation is developed is to determine what factors exist in a county that would make the H2-A program a viable option and evaluate the extent of counties' reliance on the H2-A program to supply farm labor. This equation considers the H2-A workers in proportion to total farmworkers, as the independent variable that acts as a function of inputs of production in the county.

$$h2awkrsprop = \beta'_1(aveprocdays) + \beta'_2(totwkgdays) + \beta'_3(avewagerate) + \beta'_4(certh2a) + \beta'_5(croprent12) + \beta'_6(cshrntrat) + \beta'_7(rentgrwth) + \beta'_8(intrstexpp\sim p) + \beta'_9(operexprat) + \beta'_{10}(laborexpprop) + \beta'_{11}(operatingexp) + \beta'_{12}(laborchange) + \beta'_{11}(hiredfarmw\sim s) + \beta'_{12}(unempl2012) + \beta'_{13}(unemplchange) + \beta'_{14}(netmigchng) + \beta'_{15}(harvacres) + \beta'_{16}(rururbcont13) + \beta'_{17}(urbinfl13) + \beta'_{18}(econtypology) + \beta'_{19}(popngrwth) + \beta'_{20}(state) + \varepsilon$$

The second equation is designed to determine how growth in farm revenues is affected by local economic factors and the use of H2-A workers. The equation uses crop sales growth as the dependent variable.

$$crpsalesgrwth = \beta'_1(aveprocdays) + \beta'_2(approvalrate) + \beta'_3(dayspropyr) + \beta'_4(avewagerate) + \beta'_5(certh2a) + \beta'_6(croprent12) + \beta'_7(cshrntrat) + \beta'_8(rentgrwth) + \beta'_9(crpsalesgr{\sim}h) + \beta'_{10}(intrstexpp{\sim}p) + \beta'_{11}(operexprat) + \beta'_{12}(laborexpprop) + \beta'_{13}(laborchange) + \beta'_{14}(unempl2012) + \beta'_{15}(unemplchange) + \beta'_{16}(netmigchng) + \beta'_{17}(harvacres) + \beta'_{18}(rururbcont13) + \beta'_{19}(urbinfl13) + \beta'_{20}(econtypology) + \beta'_{21}(popngrwth) + \beta'_{22}(state) + \varepsilon$$

3.3b. Explanation of Model Selection

Models were estimated using Stata and employed backward stepwise regression modeling techniques. Stepwise regression is a variable selection process that evaluates the order of importance of predictive variables by using an algorithm that involves two approaches- backward elimination and forward selection. The backward selection model starts with all candidate variables in the model. The user sets the significance level (p-value) at which variables are removed from the model. Deletion of variables is done one at a time. At each step, the variable that is the least significant is removed. In this research, the predictor p-value was set to 0.20.

When using the stepwise approach, one may refer to the Variation Inflation Factor (VIF) to test for multicollinearity, which occurs when there are high correlations among predictor variables, which leads to regression estimates that are unreliable. The VIF is

calculated for each independent variable with a linear regression of each predictor on the other predictors, and obtaining the R^2 from the regression. The VIF is represented by the calculation: $1/(1-R^2)$ which represents the proportion of variance in the ith predictor that is not related to the other independent variables in the model. The Variance Inflation Factor (VIF) is the reciprocal of tolerance: $1/(1-R2\ i)$. Serious signs of multicollinearity are present when VIF levels approach 10.

CHAPTER FOUR

RESULTS

4.1 Results Model One- Proportion of H2-A Workers in County

Interesting results were obtained for the model that addressed the proportion of H2-A workers in a county. The R-squared and Adjusted R-squared of the full model were relatively low at 0.2965 and 0.1141. The VIF, shown in Table 4.1, gives a mean VIF of 2.46, suggesting that there is no serious multicollinearity issue in the model. The variables urban influence codes and rural urban continuum codes have VIFs slightly over five but, not close to 10.

The resulting stepwise regression removed the following variables: *operatingexp, totwkgdays, intrstexpprop, rentgrwth, rururbcont13, operexprat, laborchange, popngrwth, croprent12, aveprocdays, unempl2012, unemplchange, econtypology, urbinfl13.* The results of the model fit the assumptions of the research. Interestingly, both certified H-2A and labor expenses proportions had negative coefficients. The net migration change, hired farm workers, and cash rent rates also had negative relationships with the number of H2-A workers in the counties. Net migration change could be negatively associated because as the number of H2-A workers increased, other workers may find work out of the agricultural sector. The number of harvested acres is significant and positively associated with the number of H2-A workers, as expected. As more H2-A

workers are involved in production, the farmer is able to farm more acres of land. The results from the final model are shown in Table 4.2.

Table 4.1. VIF Full Model of Proportion of H2-A Workers in the Counties

Variable	VIF	1/VIF
urbinfl13	5.66	0.176796
rururbcont13	5.36	0.186657
operatingexp	4.62	0.216515
harvacres	4.12	0.242643
hiredfarmw~s	3.54	0.282171
cshrntrat	3.24	0.308989
croprent12	2.77	0.361408
laborexpprop	2.38	0.420759
unempl2012	2.03	0.492045
popngrwth	2.02	0.494350
intrstexpp~p	1.99	0.501467
totwkgdays	1.96	0.509215
operexprat	1.66	0.601639
certh2a	1.60	0.624339
unemplchange	1.56	0.641123
econtypology	1.41	0.711478
avewagerate	1.29	0.777216
rentgrwth	1.22	0.821327
aveprocdays	1.16	0.862345
netmigchng	1.07	0.936206
laborchange	1.06	0.941331
Mean VIF	2.46	

Table 4.2. Backward Stepwise Regression Results Proportion of H2-A Workers in Counties

Variable	Estimate	Standard Error	t	P| t |
Labor expense proportion	-2.078805	.8026769	-2.59	0.011
Net migration change	-.0058493	.0042098	-1.39	0.168
Average wage rate	.4038658	.259722	1.55	0.123
Certified H2A workers	-.000087	.0000448	-1.94	0.055
Hired farm workers	-.000173	.000114	-1.52	0.132
Cash rent rate	-3.637761	2.237156	-1.63	0.107
Harvested acres	5.01e-06	1.98e-06	2.53	0.013
_cons	-3.336732	2.738012	-1.22	0.226

Number of Observations 103
R-squared .2505
Adjusted R-squared .1953

4.2 Results Model Two- Crop Rent Growth

The second model that estimated the determinants of crop sales growth also yielded interesting results. The VIF of the model revealed a mean of 2.13, which does not indicate multicollinearity. As in the first equation both urban influence estimators and rural urban continuum indicators have VIFs over five (5.81 and 5.32), however, this research considers a VIF limit of ten.

The R-squared for the full model was .87 and the Adjusted R-Squared was .83. Performing the backward stepwise regression, the variables- *netmigchng, unempl2012, econtypology, laborchange, popngrwth, intrstexpprop, urbinfl13, operexprat, approvalrate, aveprocdays, rururbcont13, croprent12, dayspropyr*- were removed. The results from the final model are shown in Table 4.3. The R-squared of the new model is .8585 and the Adjusted R-squared is .8465, so there was not too much variation between the two models. Interesting results from this model show that unemployment had a negative coefficient. This may imply that when unemployment is low, that workers may have found jobs in other sectors and left agriculture.

The results show that Georgia has a greater tendency to hire H2-A workers because of the positive coefficient. In terms of harvested acres, there is a negative coefficient which may imply more help (from H2-A workers) is needed.to maintain production. Cash rents are a proxy for returns so, as cash rent goes up more H2-A workers are hired. The results of the second equation are shown in Table 4.4.

Table 4.3. VIF of Full Model Crop Sales Growth

Variable	VIF	1/VIF
urbinfl13	5.81	0.172108
rururbcont13	5.32	0.187932
state	3.28	0.304968
croprent12	2.59	0.385805
dayspropyr	2.52	0.396068
laborexpprop	2.17	0.459976
intrstexpp~p	2.14	0.468081
unempl2012	2.10	0.476949
cshrntrat	2.08	0.479881
popngrwth	2.02	0.494832
harvacres	2.00	0.501149
operexprat	1.88	0.532317
unemplchange	1.61	0.620823
econtypology	1.47	0.682480
avewagerate	1.45	0.687766
crpsalesgr~h	1.38	0.726691
approvalrate	1.25	0.802763
rentgrwth	1.24	0.806761
aveprocdays	1.19	0.840690
certh2a	1.17	0.856297
laborchange	1.10	0.906592
netmigchng	1.10	0.910465
Mean VIF	2.13	

Table 4.4 Backward Stepwise Regression Results Crop Sales Growth in Counties

Variable	**Estimate**	**Standard Error**	**t**	**P> | t |**
Labor expense proportion	-1.266218	.8373815	-1.51	0.134
Unemployment change	-2.140429	1.171168	-1.83	0.071
State	.2462212	.1380784	1.78	0.078
Average wage rate	-.4600169	.2884801	-1.59	0.114
CertifiedH2A workers	.0010531	.0000451	23.35	0.000
Harvest acres	-2.54e-06	1.54e-06	-1.65	0.103
Cash rent rate	5.697126	2.055	2.77	0.007
Rent growth	.3851657	.1880111	2.05	0.043
_cons	*.673421*	*3.044963*	*1.53*	*0.128*

Number of Observations 103
R-squared 0.8585
Adj R-squared 0.8465

CHAPTER FIVE

CONCLUSIONS

Although the H-2A Temporary Agricultural Visa Program remains the only legal solution for farm operators to hire non-domestic workers to assist in their businesses, the program has serious challenges that threaten its viability. Backlogs in application processing coupled with systematic slowdowns appear to interfere with the seamless integration of the program as a resource to farmers who are desperate to received their contracted for farm workers in a timely manner.

The ripple effects of this negative trend in the farm industry can have potentially devastating impacts within the overall US economy. Farm advocacy groups and operators are seeking a reprieve on strict policies that impact immigration, but it may be of little use as tighter changes loom in the near future.

The purpose of this study was to analyze the effectiveness of the H2-A program on previous program participants and to determine factors that would influence a farmer in a particular county to use the H2-A program to supply labor. It was found that the H2-A program could be a useful tool for assisting in the farm labor supply problem and can positively impact revenues (as demonstrated by crop rent growth). The results from this study were consistent with previous expectations about the viability of the program. The impacts of the H2-A program on operating expenses related to profitability are a key indicator of the effectiveness of the program for the farmers.

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