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Assessing the H2A Labor Program: Implication for Southern farmers

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1. Introduction and importance of the topic

Crop production is a major industry in the United States. Agriculture and agricultural-related activities contributed about $1 trillion to US gross GDP [5.7% GDP-share] in 2014. According the 2007 census, this was the main source of income of 2.2 million farms. This sector of the economy provides about 11% of US employment, equivalent to 21 million [full- and part time] jobs. 2.6 million of these jobs are direct on-farm employment (USDA 2017).

Agricultural production cycle has fluctuations in its needs of labor, depending on the crop, type of labor required, harvesting period, technology, among others. Seasonal unskilled farm labor has usually been supplied primarily by foreign workers. However, the stricter enforcement of immigration policies has adversely influenced conditions in the farm labor market. There is evidence that these policies affected an estimated 12 million unauthorized immigrants, 40% of whom are hired as farm workers (Seid, 2006; Levine, 2004). The exodus of illegal immigrants was seemed as a partial remedy to the grave unemployment situation faced during recession. However, to the everybody surprise, it did not really help ease the unemployment situation. In 2012, the USDA released the results of a study that evaluated *how changes in the supply of foreign workers would affect the long-run financial performance of the US economy*, including the farm sector (Zahnizer, et al., 2012). The results indicate that a large reduction in the supply of foreign-born workers would cause sizeable decreases in national GDP and export levels. In addition, there is evidence of low domestic unskilled farm labor supply. Many of the potential farm workers shunned away from the demanding, more strenuous farm work or performed poorly even when paid attractive wage rates.

Given such frustrations and disappointments experienced by farm businesses in hiring domestic workers for seasonal farm work, farmers look to the federal government's *H2A Agricultural Guest Worker Program* as a legal hiring alternative. The program allows U.S. farmers to temporarily hire non-immigrant foreign workers to perform full-time temporary or seasonal farm work when domestic workers are unavailable (GAO, 1997). However, the H2A program has not been a popular hiring alternative among many farmers. Even though the program has not an upper limit on the number of petitions, the number of certified/approved H2A positions remains only as a small fraction. For instance, in 2011 only there were 55,000 approved H2A positions [only 7% of the hired farm workers] that year (Bruno, 2012). The low farmers' participation rate in the H2A program could be attributed to (1) bureaucratic processing, and/or (2) timeliness issues and the cumbersome requirements that farmers must comply with. In addition, the H2A program establishes rules to protect the foreign workers from abusive employers. Among them: (i) it sets wage requirements, (ii) it establishes minimum standards for the provision of housing, transportation, and meals, (iii) and workers' compensation rules, to cite a few (Mayer, CRS Report to Congress, 2008).

For Georgia, agriculture is a key economic industry: 9.6 million acres are devoted to food and fiber. In 2012, the 42,000 Georgia's farm sold $9.2 billion in agricultural products (i.e. among them: broilers, blueberries, cotton, peaches, tobacco and tomatoes). These crops are ranked nationally due to their production level. Thus, farm labor shortage can represent a threat for Georgia's economy, which supports more than 75.000 jobs (Flatt 2017). This situation is similar for the Southern states. For this reason, we developed our research project with the intention to provide a detailed analysis of the H2A program's impact on the financial situation of Southeaster farmers. We also propose a software platform (entitled *H2A-FARM*) that could facilitate the H2A application process and reduce the paperwork and delays. Then, we designed our extension program to communicate our results and software to *two target audiences*: (i) the *farmers* and their associations, and (ii) the *governmental institutions*. Thus, two are the contributions of our study: (i) it provides conclusions on the economic impact of the H2A program on Southeaster farmers which can benefit them in their decision making, and (ii) it proposes a software for farmers that could allow them to ease the H2A application process and that also provides recommendation on the optimal quantity of H2A labor should be requested depending on their enterprise profile.

2. Southern farmer current experience of the H2A program

In our study, we conducted an initial survey to first understand the farmers' perception of the H2A program. This survey was funded by the *Southern Sustainable Agriculture and Research Education* (SARE) grant. Information from farms located in Georgia and North Carolina were collected in 2015 through mailing[1]. 956 organic and conventional farmers were surveyed with respect to (i) their experience with the H2A hiring process, (ii) the evaluation of the H2A labor force' quality of work, (iii) type of work exercised, and (iv) their financial structure, among other aspects. In terms of their experience and perception of the H2A program, farmers seem to need H2A workers mostly during harvesting periods. On average, the application takes less than 30 days, but the foreign workers arrive 30-60 days after it is approved. Most of the farmers (~70%) found reasonable the documentary requirements, whereas most of them (~92%) received significant/full assistance from external agents. Using the gathered information, we evaluate the possible relationships between their H2A perception and the owners' financial status using their cash flows before and after the H2A program implementation. Our initial results showed that there is an overall economic benefit from using H2A labor despite potential application process delays.

3. H2A-FARM program: team and interest of the community and institutions

Considering our initial results, southern farmers asked for a deeper evaluation of the H2A program. Likewise, their agricultural associations (such as the *Georgia Cotton* Association and *North Carolina Growers*' Association) showed interest in the software proposal that could ease the application process and standardize the procedure for all farmers which could also benefit for future data analysis. For these reasons, our project has attracted interest from the farmers, agents of the *Department of Labor* (DOL) and the ag. associations. Likewise, because this can be stored as a database, it can help also the DOL in the analysis of the H2A program impacts on farmers.

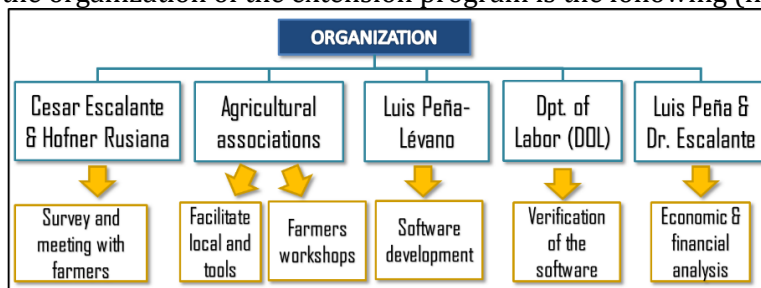Thus, in summary the organization of the extension program is the following (figure 1)

Figure 1. Organization of the team

The main organizations that we are counting on for this project are:

- Agricultural associations, who will collaborate in (i) explaining the H2A labor program to farmers, (ii) assists in their application process, and (iii) providing location, paper and other physical tools to give the presentations.
- Fort Valley State University, who contributed (together with Dr. Escalante) in the collection of the surveys and helped to contact the farmers.
- Agents of the DOL, who can help to verify that the software fulfill the H2A process requirements.
- Hofner Rusiana and Dr. Escalante (University of Georgia [UGA]), who gathered the farmer information, developed the research plan and supervised the extension program elaboration.
- Luis Peña-Lévano (Purdue University), who collaborates in the financial analysis including simulations under different H2A labor conditions, the extension documentation program, and the development of the H2A-FARM software.

We present the H2A-FARM research as a project for the Southern farmers that aims to improve the understanding of the impact of the H2A labor program on the farmers' financial status under different labor conditions. Thus, our project's evaluation includes (i) summary statistics of the surveys, (ii) the impact of the H2A program on farms' profitability, (iii) the determination of an appropriate farm

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[1] This survey was conducted by University of Georgia with the help of Fort Valley State University

cost structure that will ease the use for small farmers and more compatible to the farm business' operating profit goals, and (iv) the development of a free software that can be used to ease the application process and data analysis, as well as provide guidance on the optimal quantity of labor requested for each process depending on the enterprise profile and activity. Thus, our H2A-FARM project is a proposal of our team with the Southern agricultural associations and farmers, who participated in the surveys and expressed interest in the H2A program. This project has ***scientific base on Rusiana et al. (2017)*** research. It includes the results of the impacts of the H2A labor program, the alternative scenarios under H2A labor conditions, sensitivity analysis, and the H2A-FARM software. It also suggests guidelines for the use the software and the timing of the process to avoid delays of the H2A foreign workers arrival. Thus, due to its financial and economic important for the Southern farmers, this project has attracted the interest from different institutions. Thus, this project has been funded *Southern Sustainable Agriculture and Research Education* (SARE) grant. This project is also looking to join efforts with other agricultural cooperatives as well as other universities to enhance the analysis of this study.

4. Development of the H2A-FARM project

In order to successfully implement this project, prerequisite conditions were (i) to gather enough information about the farmers' perception and experience with the H2A program, (ii) collect financial status from different types of farms (i.e. dedicated to grow cotton, soybean, cotton, livestock, among others) before and after the H2A implementation in their farm activities, (iii) create the software based on the H2A official requirements, and (iv) to develop an optimization model that can optimize labor given two supplies: domestic labor vs. foreign (H2A) workers. Thus, the development of the H2A-FARM project has five main steps: (1) Data collection, (2) Research analysis and development of the software (including calibration), (3) Elaboration of extension proposal and explanation of the use of the software to our partners (the agricultural associations), (4) To program activities to work with the Southern farmers who are interested in learning the results of our research and the use of the H2A-FARM software, and (5) Follow-ups and evaluation/improvement of the plan. The schedule of the activities for the extension and the research programs are listed on table 1.

Table 1. Set of activities per quarter (2015-2018) for the extension and research program

Activity	2015 (1)	2015 (2)	2016 (3)	2016 (4)	2016 (5)	2016 (6)	2017 (7)	2017 (8)	2017 (9)	2017 (10)	2018 (11)	2018 (12)	2018 (13)	2018 (14)
i. Data collection and calibration	■	■	■	■										
Survey and data tabulation	■	■												
Collection of cash flows for each farm group type (corn, cotton, livestock, peanut, soy, wheat)		■	■	■										
ii. Research analysis and software development				■	■	■	■	■	■	■				
Summary statistics of the survey				■	■									
Farms' cash flow and analysis					■	■	■	■						
Research analysis and elaboration of the optimization programming model							■	■	■					
Software platform design									■					
Software documentation and verification of use										■				
iii. Design of extension documentation (and Calibration of the software)								■	■	■	■			
Extension documentation								■	■	■				
Meeting with partners (agricultural associations and DOL agents)											■	■		
Revision of the documents and calibration of the software											■			
iv. Workshop to farmers											■	■		
Workshops with our initial focus group											■			
Feedback revision of the software												■		
Workshops with potential interested farmers												■		
v. Follow-up												■	■	■
Monitoring the efficiency of our software												■	■	
Verificaton and adjustments of the software													■	■
Conclusions of the implementation of the software and implementation process													■	■
Implementation of the improvements														■

Green color squares mean the step is completed. Yellow is on process of being completed. Each square represents a quarter of a year

4.1 Data collection: As explained in section 2, the survey was conducted by Rusiana and Dr. Escalante with the help of agricultural economist from Fort Valley University. Data was obtained via mailing during the second half of 2015 from Southern farmers who grow five types of crops (cotton, corn, soybean, wheat, peanut), pasture and livestock. Moreover, interviews were made to interested farmers to collect the financial cash flows for each group. Thus, the data records farmers' perception of the H2A application, the satisfaction (labor productivity) in hiring foreign workers, among others.

4.2 Research analysis and software development: Using the information collected, we developed: (1) Summary statistics which concise the results of the respondents' profile and perception of the H2A program, (2) Farm financial cash flow for each major crop grown and livestock. (3) Optimization modeling that simulates the net revenue variation subject to different labor and crop market (price, yield) conditions (including sensitivity analysis). This is described in more detail in *page 5 – Research*. Then we proceed with *the software development.* We use the results of the survey to understand the most critical issues of the H2A applications. We communicated with the DOL to verify their guidelines for the application process. We standardize our software with the aim to be used by any farmer that wants to use the H2A labor. This can help to ease the process for current and future hiring, reducing the time delay. Likewise, the software provides suggestions of the H2A labor required, given the farmers' profile. After the software development, we meet with the agricultural associations and farmers to verify (calibrate) that our software fulfills with the H2A application requirements.

4.3 Extension documentation and workshop. We first elaborate the following materials to present to our partners (the agricultural Southern associations and DOL agents): (a) A two-part word PDF document to explain the results. The first part explains the research results and conclusions. The second-half has the software installation process, method of use and outcomes. (b) A Power Point presentation that will explain the inputs that are required to insert in the software (financial status, land, crop grown, among others) and it also has an illustrated example on how the results would be if we insert a specific set of values, (c) A PDF document with a detailed example explaining the outcomes of the software which are (i) the recommendation of the quantity of labor needed for each labor (which is optional for the farmer to accept or he/she can modify the labor needed manually), and (ii) the H2A application documentation with the option of printing it and/or be sent directly to the DOL. In addition, we show how the software automatically increase the database and group them by crop category, income, among other aspects that can help the DOL in the processing of the application. After meeting with our partners, we receive their feedback to improve the documents and prepare them for the workshops with the Southern farmers. These meetings are intended to be in person and via online.

4.4 Workshop to farmers. After the extension documents and software are verified/reviewed by our partners, we then proceed to meet with farmers. First, we meet with the farmers that were interviewed and filed the survey, which were the farmers that showed interest since the beginning of the project. Thus, they become our initial focus group (45 people). Here, we receive the help of the agricultural associations in order to explain how to use the software while we also present the results of our research for each group type (cotton, soybean, pasture, wheat, corn growers). We also provide the summary statistics of the respondents, the outcomes and benefits of using the software and the potential improving of our recommendations in terms on the optimal quantity of labor needed and the appropriate timing that the labor has to be requested depending on the farm operation/crop grown. The documents also include the sensitivity analysis under crop prices and yields fluctuation. Posteriorly, we open the invitation to the potential farmers interested in joining the program. The documentation would be similar to our initial focus group with an additional statement that would permit us to use collect the information for research purposes and improve our software.

4.5 Follow-ups and evaluation of the implementation of the plan - In order to evaluate the effectiveness of the extension program, we intend to monitor quarterly the duration of the application process, the financial status, crop prices and the labor productivity. This will help us to have feedback on the software performance. Likewise, we will provide quarterly surveys to the farmers that are using our software asking for recommendations or ways to improve. We also plan to organize quarterly meetings to gather data on the farmers' experience with the software and the H2A application. In addition, we plan to give an annual meeting to show the results of the first year of implementation and performance of our project to the agricultural associations and farmers. Posteriorly, we will ask the agricultural organization to help us providing monitoring and suggestions for the next years to evaluate how successful has been the project.

Student and advisor's background

Luis M. Peña-Lévano is a Ph.D. candidate in Agricultural Economics specializing in International Agricultural Trade and Finance at Purdue University. His current dissertation is the evaluation of the *Economic Benefits and Costs of Mitigating Climate Change*. Nevertheless, his interest in agribusiness and applications into extension programs are key motivators for which he decided to engage in collaborative efforts with the University of Georgia to implement this project that benefits Southern farmers. Likewise, he has taken different courses in Agribusiness, finance and benefit-cost analysis which has given him the required background to participate and collaborate in this project.

Dr. Escalante is a professor at the University of Georgia (UGA) specializing in Agricultural Finance and Agribusiness and has an extensive experience in extension programs. He has expressed interest in participating in this project where he will use his experience in introducing financial decision aids to Georgia farmers in providing assistance to this project through guidelines on the delineating parameters and procedures for financial flows and the planning of the activities that would be necessary to implement the project and offer the workshops to farmers.

Hofner Rusiana is a master student at UGA. He is specializing in agribusiness and as part of its master thesis, under the advise of Dr. Escalante and Luis Peña-Lévano, he has worked in the H2A program perception by the Southern farmers.

The research

The H2A-FARM project is based on the scientific study of Rusiana, Escalante and Peña-Lévano (2017) which is intended to be presented at the 2017 AAEA conference. This study has specifically three parts:

(1) *Summary statistics*, which provide concise results in terms of the respondents' profile and their perception of the H2A program. We also used econometric modeling to see if there was difference in the farm's perception of the program depending on their income status and crop grown.

According to the survey database, the respondent's overall profile were farms with incomes below $1 million and possess 500-1000 acres. Their activities were concentrated mostly in cotton, grains, alfalfa, pasture and livestock. The business structure were mostly single proprietorship and family farm corporations. The farm owner had a bachelor degree, with experience in the area and an age between 50-70 years old.

(2) *Farm's cash flow and analysis*, which was obtained through interview from farmers (in step 4.1) for each crop category and livestock. We gathered this information considering their financial status before and after the implementation of the H2A program. We used experimental design to see if there was statistical difference and significant benefit from hiring foreign workers.

(3) *Research analysis – Optimization*. Considering the financial flows of the Southern farmers and the two labor supplies (domestic and foreign workers), we simulated different conditions assuming (i) probabilistic distributions for prices and yields, (ii) different conditions of labor supply (quotas, productivities), and (iii) different wage rates types (different wages, equal wages but different performance). This permitted us to have an optimization problem with the goal of maximizing net revenue under the conditions (i)-(iii). This was important to show robustness of our conclusions.

Thus, the research and its extension program (together with the software development) produces results with important implications and suggestions for farmers' business strategic actions – all of the grand goal of sustaining the viability of Southern farms.