

UC Office of the President

Student Policy Research Papers

Title

From Vineyard to Lettuce Field: How Foreign Farmworkers' Population Affect Agricultural Productivity in California

Permalink

<https://escholarship.org/uc/item/01n16299>

Author

Chen, Yuyang

Publication Date

2023-08-09

From Vineyard to Lettuce Field: How Foreign Farmworkers' Population Affect Agricultural Productivity in California?

Yuyang Chen

Department of History and Political Science

University of California, Davis

Introduction

Agriculture is a cornerstone of California's economy, with the state serving as one of the most important crop production sites in the United States. Indeed, over a third of the country's vegetables and three-quarters of the country's fruits and nuts are grown in California¹. However, the labor behind this booming sector is primarily provided by foreign farmworkers. Over 90 percent of them who contribute so much to California's agricultural development are not U.S. citizens, and 58.3 percent of them are undocumented². This then leads to a strange phenomenon where people who contribute to development are not eligible to benefit from economic development: They have little access to healthcare insurance, no basic living allowance and very few means to defend their rights as laborers.

The relationship between the size of the foreign farmworker population and agricultural productivity in California is therefore crucial not just from an economic perspective, but also from a social justice standpoint. It raises the compelling question: Does an increase in the

¹ "California Agricultural Production Statistics". California Department of Food and Agriculture. <https://www.cdfa.ca.gov/Statistics/>.

² Paulette Cha, "Health Care Access among California's Farmworkers". Public Policy Institution of California. April 2022.

population of foreign farmworkers contribute to enhanced agricultural productivity? And if so, what are the implications for labor costs in this sector?

This research aims to scrutinize the impact of foreign farmworkers on agricultural productivity in California by examining how changes in this population affect the yield of labor-intensive agriculture and associated labor costs. Through analyzing data on the population of foreign farmworkers, the median income of farmworkers, and the yield of labor-intensive crops, we will deepen our understanding of the dynamics between immigration and agricultural productivity. Ultimately, this research seeks to not only illuminate the impact of agricultural immigrants but also to help policymakers better understand the situation and make decisions that are more in the public interest.

Significance of Issue

Evaluating the relationship between the population of foreign farmworkers and agricultural productivity holds immense significance, both statewide and nationwide. The first crucial aspect to consider is the sheer size of the agricultural immigrant population. About 8 in 10 California hired farmworkers interviewed from 2015 to 2019 were born in Mexico, and 46 percent of them are international shuttle migrants³. This indicates that the development of agriculture in California is largely built on the working of foreign immigrants. As such, understanding how immigration is important to agricultural production in California.

³ Ornelas, Izaac, et al. “California Findings from the National Agricultural Workers Survey (NAWS) 2015–2019: A Demographic and Employment Profile of California Farmworkers”, Research Report No. 15. JBS International, January 2022, p16.
<https://www.dol.gov/sites/dolgov/files/ETA/naws/pdfs/NAWS%20Research%20Report%202015.pdf>

The impending labor shortage in agriculture presents a second pressing issue, not just for California, but the entire nation. After decades of expanding agricultural production and increasing immigration from rural Mexico to U.S. farms, the supply of farmworkers from Mexico is declining, and the pace of unauthorized immigration from Mexico has slowed substantially⁴. Although the pandemic temporarily covered this problem, California still needs to prepare for the long-term decline in the international agricultural workforce as a result of the economic and educational development of Mexico and other Latin American countries⁵. And based on the current situation, no country can immediately provide enough labor to fill the labor gap after the departure of Mexicans. It's crucial for policymakers to preemptively address potential problems caused by these workforce gaps.

Finally, in addition to agricultural safety reasons, agricultural labor wages are also a concern. Farmworkers earned just under 60% of what comparable workers outside of agriculture made in 2020, a wage gap that was virtually unchanged since the previous year. They also earned less than workers with the lowest levels of education⁶. And it is worth noting that California's Gini coefficient in 2021 has reached 0.49⁷, which means that the gap between the rich and the poor in California is very large. The low pay of agricultural laborers is a microcosm of this

⁴ Zahniser, Steven, et al. "Farm Labor Markets in the United States and Mexico Pose Challenges for U.S. Agriculture", *Economic Information Bulletin*, no. 201. United States Department of Agriculture, Nov. 2018, p 1.

⁵ Steven, "Farm Labor Markets in the United States and Mexico Pose Challenges for U.S. Agriculture", p11.

⁶ Costa, Daniel. "The farmworker wage gap continued in 2020", *Working Economics Blog*. Economic Policy Institute, July 20, 2021. <https://www.epi.org/blog/the-farmworker-wage-gap-continued-in-2020-farmworkers-and-h-2a-workers-earned-very-low-wages-during-the-pandemic-even-compared-with-other-low-wage-workers/>

⁷ "Gini coefficient as a measure for household income distribution inequality in the United States 2021, by state". Statista, Apr 18, 2023. <https://www.statista.com/statistics/227249/greatest-gap-between-rich-and-poor-by-us-state/>

continuing widening wealth gap. If this issue is not adequately addressed, it could pose significant threats to future social development and stability.

Background

Since the 20th century, agriculture in the United States and California has become increasingly dependent on foreign labor, but its population has tended to decline. As Agricultural Economist Steven Zahniser mentioned in his article: “Many U.S. agricultural employers have said that they are finding it hard to attract new workers and to retain their current ones. Agricultural employers have said that they are finding it hard to attract new workers and to retain their current ones”⁸. He examines in detail the changes in the U.S. agricultural labor market from 1989 to 2017. The article demonstrates the dependence of U.S. agriculture on Mexican labor and the complex relationship between the labor markets of the two countries. It indicates that given the apparent long-term decline in the U.S. farm labor supply and the various structural changes occurring in the Mexican economy—investments in less labor-intensive technologies, more efficient labor management practices, and a move away from the most labor-intensive crops may be more viable long run strategies for U.S. agricultural employers⁹.

Many scholars have expressed similar concerns. However, some want to promote changes in the labor market environment through changing immigration policies.

Recently, Senator Caballero introduced SB 831 aims to establish a Lawful Permanent Resident Pilot Program to provide a path for agricultural employees to gain lawful permanent

⁸ Zahniser, Steven, et al. “Farm Labor Markets in the United States and Mexico Pose Challenges for U.S. Agriculture”, Economic Information Bulletin, no. 201. United States Department of Agriculture, Nov. 2018, p 31.

⁹ Steven. “Farm Labor Markets in the United States and Mexico Pose Challenges for U.S. Agriculture”, p35.

resident status in the United States, if they meet certain criteria¹⁰, to prevent possible labor shortages in the state. This bill directly concerns the relationship between foreign workers and California agriculture. If the bill passes, it will better ensure that California has sufficient labor to meet the needs of agricultural production.

Moreover, California is promoting farmworkers' access to medical care. Governor Newsom's January 2022 budget includes a proposal to expand Medi-Cal eligibility to low-income adults ages from 26 to 49, regardless of immigration status. If enacted, this would cover the last remaining age group of undocumented immigrants¹¹. This would go a long way to achieving coverage for all foreign farm workers and help them with the problem of not having health care coverage.

Theory and Argument

I assume that an increase in the foreign farmworkers' population can increase agricultural productivity in California. In other words, a greater population of foreign farmworkers would increase the yield of crops requiring mass labor and decrease labor costs, or the income level, of farmworkers. The independent variable would be the change in the foreign farmworkers' population. I would use the data of H-2A visas from the Department of Homeland Security and Employment Development Department of California for recent from 2015 to 2020.

¹⁰ Caballero , Anna. "California Senate Bill 831". March 22, 2023. <https://legiscan.com/CA/text/SB831/2023>

¹¹ Cha, Paullette, and Joy Collins. "Health Care Access among California's Farmworkers". Public Policy Institute of California, April 2022. <https://www.ppic.org/publication/health-care-access-among-californias-farmworkers/>

My independent variables are changes in the yield of labor-intensive crops and the income level of farmworkers. The data will come from the USDA, the U.S. Department of Agriculture, and EDD, Employment Development Department of California.

My theory is that first, tens of thousands of foreign agricultural workers enter California each year and large areas of the state rely on manual labor to grow and harvest crops. However, California does not have enough cheap labor to meet the needs of agricultural production¹². Without the inclusion of foreign workers, California's crops that cannot be produced mechanically on a large scale will face reduced production, and labor costs will be raised due to the lack of manpower supply. Therefore, once the number of foreign farm workers becomes high in some areas, the manpower gap needed for agricultural production will be filled. As a result, Counties with greater foreign labor are more likely to have higher yields of crops requiring mass labor. In addition, labor costs should also decrease as a result of the recovery in labor supply. In other words, the overall wage level of farm workers will decrease due to the increase in foreign labor.

There are three limitations to my study. First, H-2A is not the perfect factor to measure the size of immigrant farmworkers. Many foreign workers do not obtain legal entry documents to enter the U.S. to participate in the labor force. They likely contributed to the change in my dependent variable as well, but my data do not reflect the trend in their population. Second, my theory does not consider external factors that could influence agricultural productivity and farmworker income. These could include weather conditions, changes in agricultural technology, market prices for crops, or distance from the border. Any of these factors could significantly

¹² Kitroeff, Natalie, and Geoffrey Mohan. "Wages Rise on California Farms. Americans Still Don't Want the Job," *Los Angeles Times*. March 2017. <https://www.latimes.com/projects/la-fi-farms-immigration/>

affect crop yields and farmworker income and thus may confound the relationships your theory proposes. For example, differences in the distance of workplaces from the border may also have impacts on the labor cost. As mentioned in the previous context, most of the agricultural laborers are from Mexico¹³, and many of them will travel seasonally between the U.S. and Mexico. And a workplace closer to the border means shorter travel time and cheaper transportation costs. This may result in lower labor costs or lower labor income levels in border areas, not due to changes in the labor market but due to geographic factors. Third, I assumed that foreign farmworkers can perfectly substitute for local farm laborers in California. However, there might be differences in terms of skills, work ethics, or even language proficiency that might affect their productivity. If foreign workers are not perfect substitutes for local workers, the impact on yield and wages might be different from what my theory predicts. For instance, local farmworkers in California have been working on a particular type of crop for many years and have gained specialized skills in handling this crop. If a group of foreign farmworkers arrives without prior experience with this specific crop, their productivity may be lower, despite their willingness to work. This could result in less-than-expected changes in my dependent variables.

Research Design

To test my hypothesis, I analyzed the relationship between the independent variable and two dependent variables separately through regression to determine their relationship. I analyzed data from 7 counties in California over the period of 6 years from 2015 to 2020. To measure the variation of county size and better present the level of changes year to year, I use percentage measurements for my variables, and the year 2015 was used as the starting point for the change.

¹³ Jezdimirovic, Jelena. "California Farmers Face Labor Drought". Public Policy Institute of California, May 23, 2017. <https://www.ppic.org/blog/california-farmers-face-labor-drought/>

My hypothesis is that increases in a county's population of foreign agricultural workers will increase the production efficiency of labor-intensive crops with higher yields and lower wages. As a result, my analysis is at the county level, and the number of observations is around 40 (county-years)¹⁴.

My Independent variable is the population of foreign farmworkers. It is measured by the number of H-2A visas approved. U.S. Citizenship and Immigration Services notes that the "H-2A program allows U.S. employers or U.S. agents who meet specific regulatory requirements to bring foreign nationals to the United States to fill temporary agricultural jobs"¹⁵. In other words, it is the most important and most common path for foreign farmworkers working in the U.S. legally. Data come from the Department of Homeland Security. The raw data only includes the information of petitioners who submitted petitions to employ H-2A nonimmigrant workers. So, I first found out which companies are in California. I then identified the counties in which the companies were located based on the cities in which they were located and obtained the total number of H-2A visas approved for counties in California using R. At last, I was able to get valid data for a total of 40 counties in California. However, some of these counties only had data on the number of H-2A visas for one or two years and ten-digit, like twenty or fifty, visa counts. Therefore, to ensure the significance of my study, I compared the number of visas to the total number of farmworkers per county each year (Employment Development Department of California) and calculated the percentage of foreign agricultural workers by county. Based on the calculated percentages, I selected seven counties with the highest percentage of foreign farmworkers for my research. These counties include Imperial County, Monterey County, Santa

¹⁴ From year 2015 to 2020

¹⁵ "H-2A Temporary Agricultural Workers", U.S. Citizenship and Immigration Services, June 10, 2023.<https://www.uscis.gov/working-in-the-united-states/temporary-workers/h-2a-temporary-agricultural-workers>

Barbara County, San Luis Obispo County, Sonoma, County San Diego County, and San Cruz County.

However, the H-2A visa data does not accurately reflect the number of foreign agricultural workers. This is because more than half of all foreign agricultural workers in California do not have legal entry documents¹⁶. This means that they are not included in my statistics. However, there is no way for me to eliminate this error. Even if the USDA had an estimate of the number of illegal foreign agricultural workers in California, it would not solve this problem. Because, first, my study is at the county level and the USDA data is only accurate to the state level, and second, these data are often only counted once every five years or more, which conflicts with the time frame of my planned study.

“Productivity” of agriculture is my dependent variable. It is a general term for the efficiency of social production. In my research, agronomic productivity is a combination of economic efficiency and crop production efficiency. Among them, economic efficiency often covers several indicators including return on investment, total product value, and product value per unit. However, many of these indicators are often linked to non-labor factors such as international trade, regional transportation, and domestic economic patterns. Therefore, I will only examine the change in labor costs.

I use median income to measure the change in labor costs. I obtained median farm worker income for seven counties from 2015 to 2020 based on the USDA's annual report. I then used this to calculate the change in these counties for each year. To better present the scale of change, The unit of measurement will be the percentage.

¹⁶ Jezdimirovic, Jelena. “California Farmers Face Labor Drought”.

For limitations, there are a number of other ways to be able to measure labor costs as well. Both the total spending of farm companies on hiring farm workers and the profitability of specific agricultural products in each county also provide a better picture of changes in labor costs. But these data are only compiled every five years¹⁷, which is not sufficient for my research needs.

Production efficiency is measured by the yield of labor-intensive crops. I use the concept of “labor-intensive crops” because research shows that foreign agricultural employment is concentrated on “farms that produce labor-intensive commodities”¹⁸ and that mechanized production does not require significant additional labor. I selected the crops with the most extensive acreage in each county based on USDA annual reports and selected the crops with the highest labor requirements for the study. Leaf lettuce, strawberries, and wine grapes were considered as labor-intensive crops¹⁹ in California and set as the basis for my yield data. I also used percentages as the unit of data. This has three advantages. First, my dependent variable is also counted using percentages; second, using percentages as units gives a better indication of the degree of variation in the data; third, and most importantly, it minimizes the inconsistency in the underlying productivity due to crop differences: yields often vary widely across crops on the same acreage. For example, wine grape yields are generally only 5 to 15 tons per hectare, while strawberry yields are as high as 30 to 40 tons per hectare²⁰. Therefore, direct use of yield data is

¹⁷ “Census of Agriculture”. National Agricultural Statistics Service.
<https://www.nass.usda.gov/AgCensus/index.php>

¹⁸ Costa, Daniel, Philip Martin, and Zachariah Rutledge. “Federal labor standards enforcement in agriculture”. Economic Policy Institute, Dec 15, 2020, p22.

¹⁹ Martin, Philip. “Immigration and Farm Labor: Challenges and Opportunities” *The Giannini Foundation of Agricultural Economics*. June 2017, p5.

²⁰ “County Agricultural Commissioners’ Reports”. California Department of Food and Agriculture.

https://www.nass.usda.gov/Statistics_by_State/California/Publications/AgComm/index.php

likely to lead to incorrect conclusions. However, since they are largely planted and harvested by human labor, the degree of variation in yields is relatively less influenced by their base yields and more governed by external factors such as changes in the number of laborers.

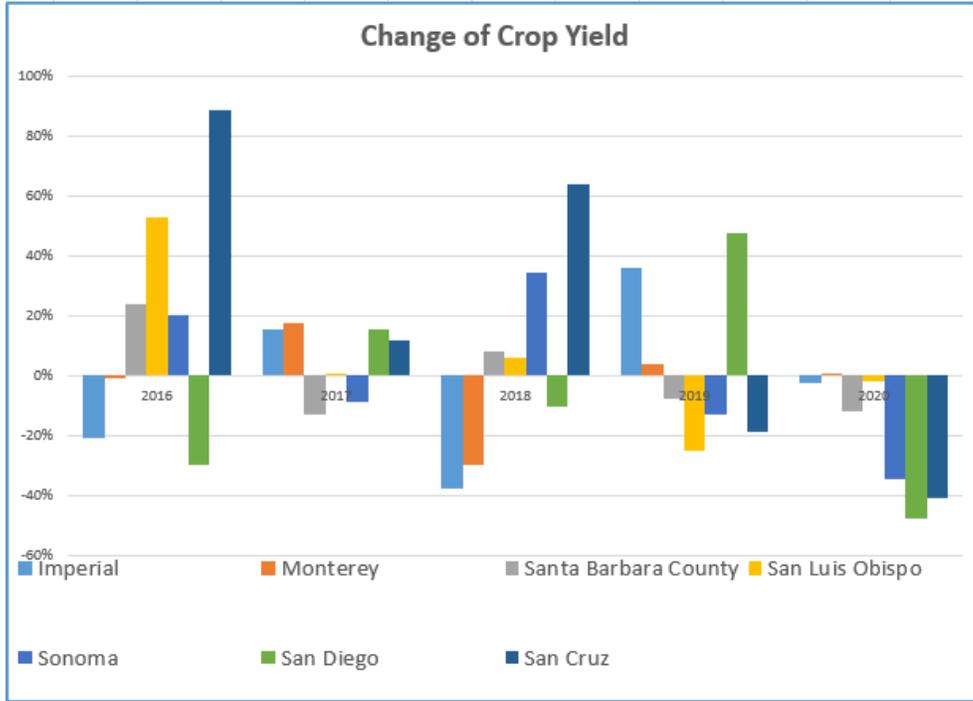
To evaluate the presence of the relationship between the independent variable, the change in the population of foreign farmworkers, and dependent variables, the change in production yield and the income level, I applied regression analysis with R Studio. The two sets of data for the five years are analyzed separately. After removing the outlier of the data of San Luis Obispo County in 2016, the number of observations is 34 for the population compared to yield and the population compared to the income level. Both my samples are large enough to draw a conclusion since they are greater than the standard minimum of 30 observations. I used a 0.05 threshold to determine the statistical significance of the results. If the p-value is greater than that, then there is not statistically significant. In a linear fit, the closer the R-square is to 1 the better the fitted model is able to explain the variation in the data²¹.

I used bar charts to show the trend of data changes (Figure 1 and Figure 2) and scatter plots to show the distribution of the data (Figure 3 and Figure 4). In addition, I placed fitted lines on the scatterplot to show possible associations between the dependent and effect variables.

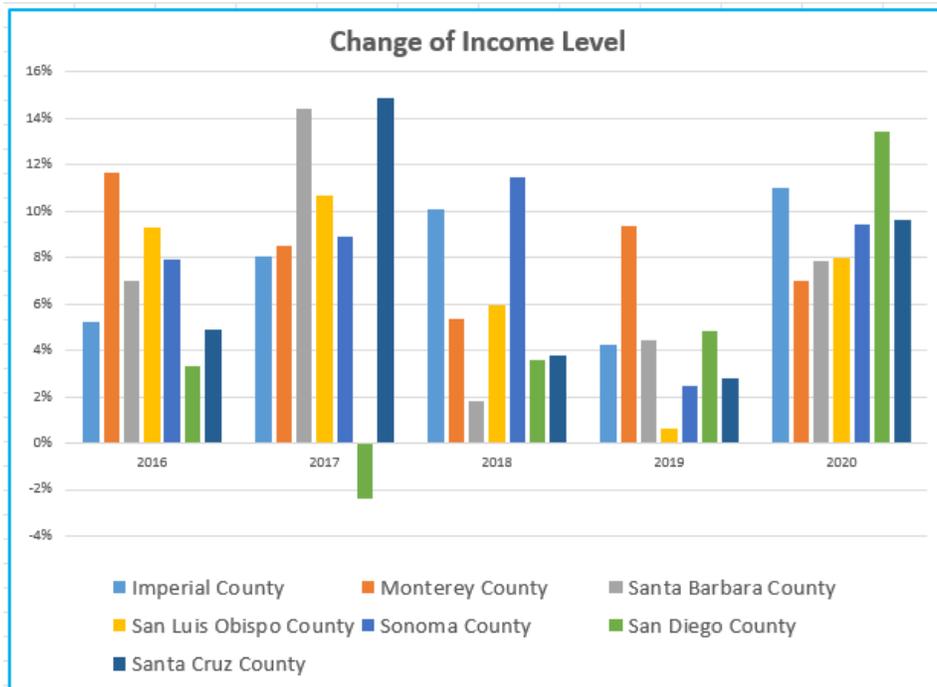
²¹ For concerns on the reliability of the measurement of the independent variable, the population change of foreign farmworkers, to be the strongest way of measuring both my independent and dependent variables for this research. Both of my data sources government agencies that follow stringent data collection and reporting protocols. This should ensure a high degree of reliability, as the data provided by these agencies is expected to be accurate and consistent over time. And they are all administrative records, so there is less concern about issues like recall bias or response bias that can affect reliability. And for the concern regarding the validity of the measurement of the independent variable and dependent variables. The data from U.S. Citizenship and Immigration Services directly measures the population of foreign farmworkers via H-2A visas, which is exactly what your independent variable aims to represent. Similarly, the USDA's annual report provides data on agricultural yield and income levels of farmworkers, which aligns well with your dependent variables. There is a possibility of error in the USDA statistics, as there may be some groups that are not counted.

Analysis

The purpose of this study was to evaluate the relationship between the population of foreign farmworkers, the independent variable, and the yield of labor-intensive crops and the median income of farmworkers, two dependent variables. Two separate regression analyses were conducted. Figure 1 and Figure 2 present the change of the two variables. I expect to find a positive correlation between the population of migrant rural workers and agricultural productivity. In more detail, an increase in the number of foreign workers leads to an increase in the yield of labor-intensive crops and a decrease in agricultural payrolls. If the evidence supports this, then policy implications would include legislation on the legal status of foreign agricultural workers and stricter oversight of agricultural labor markets.

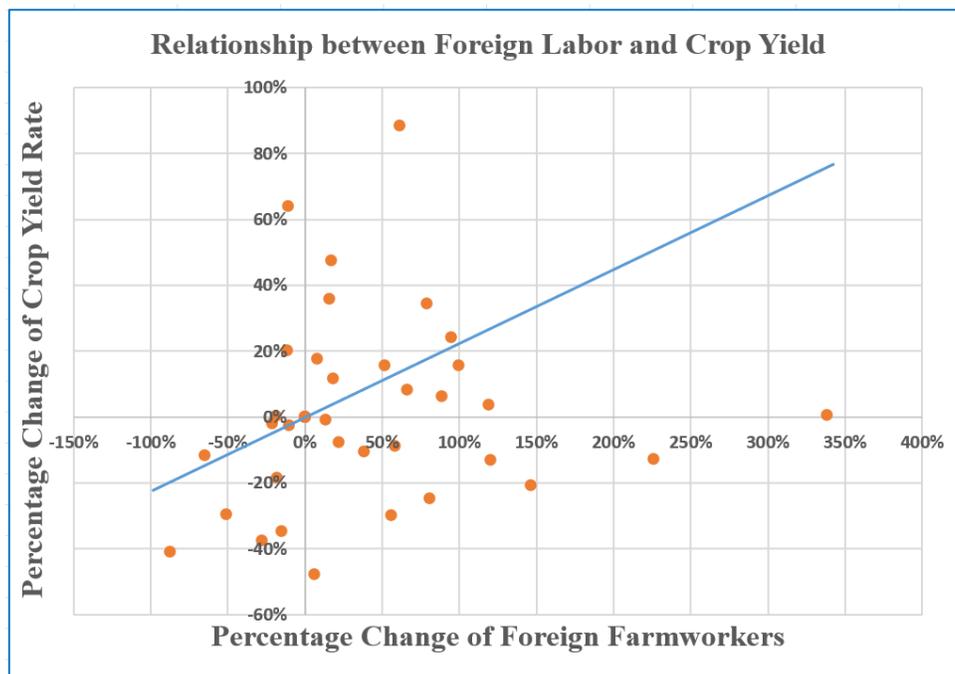


(Figure 1)



(Figure 2)

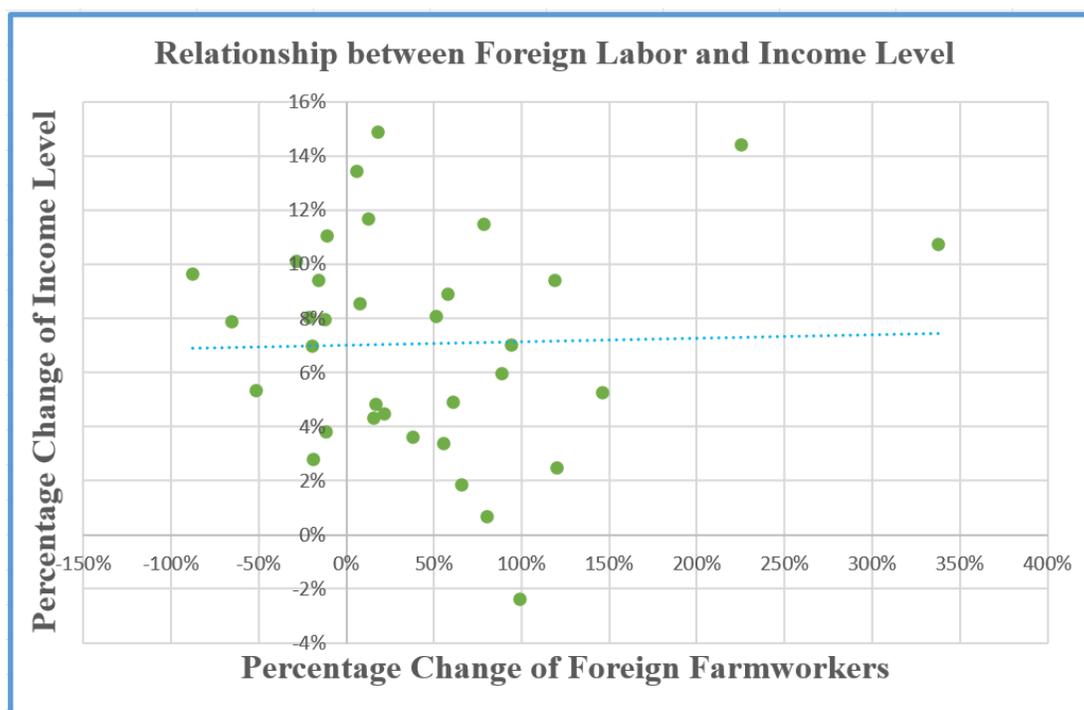
In evaluating the presence of a relationship between the change in the size of the foreign farmworker population and the yield of labor-intensive crops, the regression result supports my hypothesis. The data distribution is presented in Figure 3. The coefficient for Labor is significant at the 5% level with a p-value of 0.0430, which indicates that the change in the population of foreign farmworkers has a significant positive impact on the yield of labor-intensive crops. Specifically, a one-unit increase in the population of foreign farmworkers is associated with an increase of 0.0248 units in the yield of labor-intensive crops. Also, the median of the residuals is very close to zero, which indicates that the model is not systematically over-predicting or under-predicting the yield of crops. These findings support our initial hypothesis and add empirical weight to the narrative that foreign agricultural workers significantly contribute to agricultural productivity.



(Figure 3)

However, it is worth noting that the intercept term is not statistically significant with a p-value of 0.995, indicating that when the change in the population of foreign farmworkers is zero, the expected change in yield of labor-intensive crops is not significantly different from zero. And the R-squared value of the model, at 0.0929, and the adjusted R-squared value, at 0.0702. These numbers suggest that your model explains about 9.29% of the variability in the yield of labor-intensive crops. The model's goodness of fit could be improved by considering other potential explanatory variables or interactions among the variables.

In testing for the presence of a relationship between the change in the population of foreign farmworkers and the change in the income level of farmworkers, I did not find evidence to support my hypothesis. The data distribution is presented in Figure 4. The intercept is 0.0702 is significant at the 0.1% level, while the Labor variable is not statistically significant with the p-value of 0.570, meaning the change in the population of foreign farmworkers is not significantly



(Figure 4)

associated with the change in the median income of farmworkers. The R-squared value of 0.00970 and the Adjusted R-squared value of -0.0203 suggest that my model explains only a small portion of the variability in the dependent variable. In addition, the idiosyncratic variance is 0.00182 with a standard deviation of 0.0427. The share of the idiosyncratic variance in the total variance is 1, indicating that all the variability in the dependent variable, the change of income level, is due to the idiosyncratic error, not the individual effect.

The results of these regressions suggest that the change in the population of foreign farmworkers has a statistically significant positive impact on the yield of labor-intensive crops, but the change in the population of foreign farmworkers does not have a statistically significant impact on the change in the median income of all farmworkers. These findings underscore the complexity of California's agricultural industry and confirm that the increase of foreign farmworker does increase the yield of labor-intensive crops. However, they also suggest that there are other influences on crops. Therefore, future research should consider longer timeframes and additional control variables like agricultural technology and weather variability for a more comprehensive understanding of foreign agricultural labor's impact on California agriculture. Specifically, agricultural technology can change the way some crops are grown, which can lead to non-artificial changes in productivity. Natural factors, such as weather, can also significantly affect agricultural productivity. For example, floods or droughts can lead to reduced agricultural production.

For the issue of time lags how time lags, I didn't simply use the same year's data for comparison. Instead, I referenced the cropping cycles of the crops. In California, both grapes and lettuce are planted in the spring or summer and harvested in the winter, and strawberries are

planted in the fall and harvested the following spring or summer²². Therefore, for grape and lettuce yields I used the current year's data, and for the yield rate of strawberries, I used the data of the following year. However, to avoid confusion and misunderstanding, I did not show them in the graphs.

Research Implications

The significance of this study of foreign farmworkers in California's agricultural industry extends well beyond the data analyzed here. It reflects broader social and economic dynamics. My research demonstrates the inextricable link between the agricultural industry, the cornerstone of our society and economy, and the migrant farmworker population. California, as one of the leading crop producers in the nation, is at the forefront of this dynamic, necessitating the implementation of thoughtful public policies.

My research illustrates that changes in the population of migrant farm workers have a significant impact on the yield of labor-intensive agricultural products. Consequently, policymakers should maintain a keen awareness of shifts in immigration laws and visa policies. This is because the reduction in foreign workers will most likely have a cost on California's agricultural production. If they want to reduce the number of immigrants in the future, then they should take steps to accelerate the transformation of California's agriculture to reduce dependence on foreign labor: reduce the cultivation of labor-intensive crops and subsidize the development and application of agricultural machinery. Otherwise, they should consider further measures to attract agricultural labor to avoid possible labor shortages and ensure California's food security.

²² "Seasonal Produce Guide", U.S. Department of Agriculture. <https://snaped.fns.usda.gov/resources/nutrition-education-materials/seasonal-produce-guide>

Nevertheless, despite the findings that foreign agricultural labor does not significantly impact the income levels of all of California's agricultural workers according to my research, it is imperative that policymakers do not overlook the income situation of imported workers. Because a large proportion of these workers are seasonal immigrants or lack official visas, their wages may not be accurately represented in the data. Thus, it is necessary for policymakers and governmental agencies to reinforce visa administration to bolster the economic rights of migrant agricultural workers.

Furthermore, the findings from this research underscore the pressing need for supplemental investigations to better comprehend other factors influencing farmworker incomes and crop yields. This could include aspects such as educational attainment, skills training, farm size, and farming practices. Thus, the research not only provides key insights into the current state of affairs but also paves the way for further exploration into this critical area of study.

Conclusion

Agriculture, despite scientific and technological advancements, remains the cornerstone of social development. My research explored the pivotal role of foreign farmworkers within this context, specifically their impact on California's agricultural productivity. As the economies of Latin American countries grow and more foreign workers return home, understanding this impact becomes ever more critical.

Through regression analysis, my study uncovered a statistically significant positive correlation between the population of foreign farmworkers and the productivity of labor-intensive crops in California. However, no significant relationship was found between the population of foreign farmworkers and farmworker income, indicating the necessity for

additional variables or further exploration in future research. These findings have important policy implications. To maintain the robustness of California's agricultural industry, comprehensive reforms of visa systems and social policies for foreign farmworkers are imperative. Legislation like SB 831, which proposes to establish a workgroup to develop a pilot program granting lawful permanent resident status to qualifying agricultural workers, should be prioritized. This not only ensures the rights of foreign agricultural employees but also safeguards the industry from potential labor shortages that threaten agricultural development.

Moreover, my research underscores the need for further examination of other factors influencing crop yields and farmworker incomes. These may include but are not limited to variables such as differences in agricultural technology, weather variability, skills training, and education. As our world continues to evolve, so too much is our migration and agricultural policies.

Work Cited

1. California Department of Food and Agriculture, *Agricultural Statistics Review 2021-2022*, March 6, 2023. https://www.cdfa.ca.gov/Statistics/PDFs/2022_Ag_Stats_Review.pdf.
2. Paulette Cha, “Health Care Access among California’s Farmworkers”. Public Policy Institution of California. April 2022. <https://www.ppic.org/publication/health-care-access-among-californias-farmworkers/>
3. Ornelas, Izaac, et al. *California Findings from the National Agricultural Workers Survey (NAWS) 2015–2019: A Demographic and Employment Profile of California Farmworkers*, JBS International. Jan 2022, p16.
<https://www.dol.gov/sites/dolgov/files/ETA/naws/pdfs/NAWS%20Research%20Report%202015.pdf>
4. Zahniser, Steven, and et al. “Farm Labor Markets in the United States and Mexico Pose Challenges for U.S. Agriculture”. *Economic Information Bulletin*, no. 201. United States Department of Agriculture. Nov 2018, p1, 11, 31, 35.
5. Costa, Daniel. “The farmworker wage gap continued in 2020”, Working Economics Blog. Economic Policy Institute, July 20, 2021. <https://www.epi.org/blog/the-farmworker-wage-gap-continued-in-2020-farmworkers-and-h-2a-workers-earned-very-low-wages-during-the-pandemic-even-compared-with-other-low-wage-workers/>
7. “Gini coefficient as a measure for household income distribution inequality in the United States 2021, by state”. Statista, Apr 18, 2023.
<https://www.statista.com/statistics/227249/greatest-gap-between-rich-and-poor-by-us-state/>

8. Anna Caballero. "California Senate Bill 831". May 22, 2023.
<https://legiscan.com/CA/text/SB831/2023>
9. Cha, Paullette, and Joy Collins. "Health Care Access among California's Farmworkers".
Public Policy Institute of California, April 2022. <https://www.ppic.org/publication/health-care-access-among-californias-farmworkers/>
10. Kitroeff, Natalie, and Geoffrey Mohan. "Wages Rise on California Farms. Americans Still Don't Want the Job," Los Angeles Times. March 2017.
<https://www.latimes.com/projects/la-fi-farms-immigration/>
11. Jezdimirovic, Jelena. "California Farmers Face Labor Drought". Public Policy Institute of California, May 23, 2017. <https://www.ppic.org/blog/california-farmers-face-labor-drought/>
12. "H-2A Temporary Agricultural Workers", U.S. Citizenship and Immigration Services, June 10, 2023. <https://www.uscis.gov/working-in-the-united-states/temporary-workers/h-2a-temporary-agricultural-workers>
13. Costa, Daniel, Philip Martin, and Zachariah Rutledge. "Federal labor standards enforcement in agriculture". Economic Policy Institute, Dec 15, 2020, p22.
14. Martin, Philip. "Immigration and Farm Labor: Challenges and Opportunities" The Giannini Foundation of Agricultural Economics. June 2017, p5.
15. "County Agricultural Commissioners' Reports". California Department of Food and Agriculture.

https://www.nass.usda.gov/Statistics_by_State/California/Publications/AgComm/index.php

16. “Seasonal Produce Guide”, U.S. Department of Agriculture.

<https://snaped.fns.usda.gov/resources/nutrition-education-materials/seasonal-produce-guide>

17. “Census of Agriculture”. National Agricultural Statistics Service.

<https://www.nass.usda.gov/AgCensus/index.php>