

**Limitations of the Occupational Employment and Wage Statistics Survey for Establishing
Adverse Effect Wage Rates for H-2A Visas**

by Stephen G. Bronars

I. QUALIFICATIONS

1. I am a Partner with Edgeworth Economics LLC., a consulting firm specializing in economic and statistical analysis. I worked previously at Welch Consulting (now part of Charles River Associates) for more than eight years and prior to that I was the Leroy Denman Jr. Regents Professor of Economics at the University of Texas at Austin. I have submitted expert reports and testified on damages and liability in discrimination cases, analyses of class certification and collective action topics in wage and hour matters, and on statistical analyses and sampling in other labor and employment matters. I have provided consulting services to the Agriculture Workforce Coalition related to bi-partisan efforts for visa and immigration reform. I have provided consulting services to the H-2B Workforce Coalition and conducted an empirical study of the impact of the H-2B visa program on the employment and wages of U.S. workers. I have also work extensively on a consulting basis to analyze data relating to wage and hour and discrimination litigation, visa and immigration issues, prevailing wage determinations, and other labor and employment issues.

2. I earned a PhD in Economics from the University of Chicago. I have published numerous peer-reviewed papers on labor economics, econometrics, and applied statistics in academic journals including studies of the economic impact of migration and immigration. I have also written articles for trade publications on topics related to the statistical analysis of human resource data. A copy of my curriculum vitae, which includes a list of my publications and cases in which I have provided testimony over the past four years is included in Appendix A.

II. BACKGROUND

3. On September 3, 2025, the federal government announced that the U.S. Department of Agriculture (USDA) will discontinue the Agricultural Labor Survey or Farm Labor Survey (FLS), which for decades measured farm wages nationally and in each of 18 regions. The FLS had been used to set 18 regional Adverse Effect Wage Rates (AEWRs) for the H-2A visa program each year. The AEWR in each region has been set equal to the mean wage of hired farm workers across six different standard occupation codes (SOCs), as reported by the FLS.¹ The September 3 announcement stated that the USDA has discontinued the FLS “with approval from the OMB, as recent improvements to the Department of Labor (DOL) Bureau of Labor Statistics Occupational Employment and Wage Statistics (OEWS) program make the OEWS the superior barometer for measuring farm wages.”²

III. ASSIGNMENT

4. I was asked by the National Council of Agricultural Employers (NCAE) to provide a statistical and economic evaluation of the possible use of the Occupational Employment and Wage Statistics Survey (OEWS) for establishing AEWRs for the H-2A visa program. I was asked to evaluate the claim that the OEWS is a “superior” survey and data source for measuring farm wages and determining AEWRs.

IV. SUMMARY OF OPINIONS

5. The OEWS is a flawed survey instrument if the goal is to accurately measure wages paid by agricultural employers either nationally or by geographic reason. The OEWS is inappropriate for determining AEWRs for the H-2A program and will not provide accurate or reliable information about the average wages earned by farm workers in each year because:

- As a product of the Bureau of Labor Statistics, the OEWS does not survey farms or agricultural businesses.

¹ These six occupations include: Graders and Sorters, Agricultural Products (SOC 45-2041); Agricultural Equipment Operators (SOC 45-2091); Farmworkers and Laborers, Crop, Nursery, and Greenhouse (SOC 45-2092); Farmworkers, Farm, Ranch, and Aquacultural Animals (SOC 45-2092); Agricultural Workers, All Other (SOC 45-2092); and Packers and Packagers, Hand (SOC 53-7064).

² Federal Register, Vol. 90, No. 168, September 3, 2025, <https://www.govinfo.gov/content/pkg/FR-2025-09-03/pdf/2025-16831.pdf>, p.42561

- Wages reported in the OEWS do not reflect the wages paid to workers hired by farms or other agricultural businesses.
- No wage survey conducted by the Bureau of Labor Statistics (BLS) collects information from agricultural employers.
- Only about one-quarter of one percent of the employees covered by the OEWS are employed by establishments in either the “Support Activities for Crop Production” or “Support Activities for Animal Production” industries.
 - These industries include non-farm businesses that support the agricultural sector.
- The OEWS attempts to measure wages across 831 detailed occupations, and a substantial majority of these occupations are unrelated to the occupations held by farm workers.
 - The six occupations that have been used for AEWL calculations represent only about two-thirds of one percent of non-farm employment in the OEWS.
- AEWLs have been calculated as a weighted average of wages across six occupations but the share of employees in each of these occupations differs substantially between the farm and non-farm sectors.
 - For example, according to the OEWS 63% of employees in these six occupations in the non-farm sector are Packers and Packagers (SOC 53-7064) compared to less than 3% for this occupation in the farm sector (according to the FLS).
- Average wages from the OEWS overstate average wages paid in small towns and rural areas, where most farm workers are employed.
 - Average wages are systematically higher in metropolitan areas than in small towns and rural areas.
 - Only about 15% of employees covered by the OEWS work outside of metropolitan areas.
- Most H-2A visas are issued for work outside of California, but the OEWS under-represents workers in the “Farmworkers and Laborers, Crop, Nursery, and Greenhouse” occupation (SOC 45-2092) outside of California.
 - SOC 45-2092 is the largest of the six occupations included in AEWL calculations and accounts for 49% of workers in these occupations in the farm sector according to the FLS.

- 67% of workers in SOC 45-2092 are employed in California (OEWS), but only about 21% of hired farm workers (FLS) and 10% of H-2A workers are employed in California.³
- To generate wage estimates for over 170,000 combinations of detailed occupation and geographic areas, the mean wages reported by the OEWS are multi-year averages that rely on assumptions about wage inflation made by BLS statisticians.
 - For example, the OEWS reports mean wages for May 2024 that are based on survey responses from six waves of the OEWS between November 2021 and May 2024.
- The so-called “improvements” to the OEWS referenced in the September 3 announcement have resulted in systematically higher wage estimates due to a new methodology.⁴
 - The new methodology requires BLS statisticians to use the responses of “neighboring” businesses to fill in the unreported wage rates paid by millions of non-farm businesses that were either not surveyed by the OEWS or did not respond to the OEWS.
- The OEWS results in changes in state-average wages that vary substantially across occupations and states due to relatively small sample sizes and a questionable methodology.
 - If the OEWS is used to set AEWs, year-to-year changes in AEWs will be unpredictable and subject to substantial statistical noise.
 - For example, from 2023 to 2024 the average wage for Packers and Packagers (SOC 53-7064) fell by more than 2% in Pennsylvania but increased by over 12% in neighboring West Virginia according to the OEWS.
 - From 2023 to 2024 the average wages of crop workers (SOC 45-2092) grew 17% more than the average wages of Packers and Packagers (SOC 53-7064) in Pennsylvania. In contrast, crop worker wages grew by 16% less than the average wages for Packers and Packagers in Utah.

³ The share of H-2A workers by state is based on OFLC disclosure data: <https://www.dol.gov/agencies/eta/foreign-labor/performance>.

⁴ See <https://www.bls.gov/opub/mlr/2019/article/model-based-estimates-for-the-occupational-employment-statistics-program.htm>

V. DETAILED OPINIONS

A. OEWS does not survey agricultural businesses

6. The OEWS is a flawed survey for measuring wages paid by agricultural employers either nationally or by geographic regions. The primary limitation of the OEWS is that this survey, like other BLS surveys of businesses and employers, explicitly excludes the agricultural sector. In my professional opinion, because of the differences between the nature of the work performed in non-farm and farm businesses, and because of other differences between non-farm and farm businesses, non-farm wages are an imperfect proxy for farm wages even for workers within the same standard occupation code.

7. While the OEWS does not survey agricultural businesses, it does survey employers in the “Support Activities for Crop Production” and the “Support Activities for Animal Production” industries. According to the BLS “Industries in the Support Activities for Agriculture and Forestry subsector provide support services that are an essential part of agricultural and forestry production. These support activities may be performed by the agriculture or forestry producing establishment or conducted independently as an alternative source of inputs required for the production process for a given crop, animal, or forestry industry. Establishments that primarily perform these activities independent of the agriculture or forestry producing establishment are in this subsector.”⁵

8. Even if workers in these two support service industries for agricultural provided a reasonable proxy for farm workers, the OEWS does not contain a sufficient sample of workers in these industries to provide a reliable estimate of average farm wages. The OEWS reports average wages for over 240 different 4-digit industries but employees in the support services industries only account for about one-quarter of one percent of all employees in the OEWS survey.⁶ Because the goal of the OEWS is to obtain wage estimates for over 170,000 combinations of detailed occupation-geographic area combinations, each wave of the survey is unlikely to include a reliable sample of workers specific to these two narrow industries.

⁵ <https://www.bls.gov/iag/tgs/iag115.htm>

⁶ This calculation is for the 2021-2024 OEWS reported results.

B. OEWS occupations differ from farm worker occupations

9. AEWRS have been calculated as the average wage across six specific standard occupation codes. Workers in each of these occupation codes are employed in a wide range of industries. According to the OEWS, in four of the six occupations most workers are not employed in support service industries for agriculture.⁷ For example, two of the industries that are the largest employers of Packers and Packagers are businesses in the Food and Beverage Retailers and Warehouse and Storage industries. This likely makes the sampled wages unrepresentative of a corresponding wage in the agricultural sector. Similarly, over one quarter of workers in the Grader and Sorters, Agricultural Products occupation are employed in the Animal Slaughtering and Processing industry, and about 23% of Agricultural Equipment Operator occupation are employed in the Merchant Wholesaler Nondurable Goods industry.

10. The OEWS attempts to generate wage estimates for 831 detailed occupations. The most common detailed occupations in the OEWS are: Home Health Care and Personal Aides, Retail Salespersons, and Fast Food and Counter Workers. The OEWS may rely on adequate samples for each of these non-farm occupations that each account for more than 3.7 million employees nationwide, but the six key occupations that contribute to AEWRS calculations account for only about two-thirds of one percent of the non-farm labor force. Moreover, the most populated of the six occupations in the non-farm sector is Packers and Packagers, even though these jobs represent a small share of farm labor. According to the OEWS for 2021-2024 Packers and Packagers account for about 63% of non-farm employment in the six key “farm” occupations, but FLS data for 2021-2024 indicates that fewer than 3% of hired farm workers are classified in the Packer and Packager standard occupation code.

11. Because of the substantial difference in the distribution of employment across occupations between the farm and non-farm sectors, it would make no statistical or economic sense to rely on the employment weights from the OEWS (and the non-farm sector) to generate a single AEWRS that applies to farm workers as a group. A methodology that simply switches from FLS wages to OEWS wages is

⁷ The two occupations in which most workers are employed in agricultural service industries are Agricultural Equipment Operators and Farmworkers SOC 45-2091 and Laborers, Crop, Nursery, and Greenhouse SOC 45-2092).

misguided because there is no information in the OEWS indicating how important each of the six key occupations are in the farm sector and how the employment shares across occupations may differ across regions. Without this information it is not possible to generate a reliable weighted average wage for farm workers overall.

C. There are substantial differences in the geographic location of OEWS and farm sector jobs

12. Because the OEWS samples non-farm businesses, and most establishments that respond to the OEWS are in metropolitan areas, the average wages by state reported in the OEWS are largely determined by the wages paid in metropolitan areas. Between 2021 and 2024 over 85% of employees represented in the OEWS were employed in a metropolitan area. Average wages tend to be higher in metropolitan areas than in rural areas and in smaller towns. Because of systematically higher wages in the larger cities within a state, state-specific or region-specific average wage rates calculated from the OEWS will systematically overstate the average wage rates paid to farm workers even if the jobs and tasks performed by the workers on farms and in non-farm businesses were comparable (which they are not).

13. Another limitation of the OEWS is that within the non-farm sector, workers in the Farmworkers and Laborers, Crop, Nursery, and Greenhouse occupation (SOC 45-2092), the most common of the six occupations used to calculate AEWs, are disproportionately employed in California. According to OEWS about two of three workers in SOC 45-2092 in the non-farm sector are employed in California. This means that across the entire U.S., outside of California, there are only about 90,000 employees in this key occupation in non-farm establishments. The DOL's Office of Foreign Labor Certification indicates that about 90% of prevailing wage determinations were for H-2A workers outside of California in Fiscal Year 2024, so accurate and reliable prevailing wages for farm workers outside of California are necessary for the H-2A program. The OEWS attempts to generate accurate average wage estimates for more than 150 million employees working in over 800 detailed occupations and over 500 areas, so it is very unlikely that this broad survey will generate reliable measures of average wages outside of California for an occupation like SOC 45-2092 that is not commonly observed in most states.

D. The OEWS relies on survey results across three years and assumptions by BLS statisticians that are not fully explained

14. The OEWS attempts to estimate average wages for over 170,000 combinations of detailed occupations and statistical areas. The OEWS notes that there are over 8 million establishments that it could survey, but a single wave of the survey attempts to collect data from only about 180,000 to 190,000 establishments. In recent years the OEWS has been successful in obtaining data from about 120,000 establishments in each wave of the survey.

15. The OEWS combines responses across six waves of the survey to generate average wage and employment estimates, because the OEWS could not generate enough plausible estimates by detailed occupation and statistical area if it relied on responses from only 120,000 establishments. A limitation of this approach is that the OEWS must then calculate average wages for a detailed occupation within an area using data at different points in time. For example, the results in the May 2024 OEWS depend on responses between November 2021 and May 2024. Because there can be substantial wage inflation over any period of 2.5 years BLS statisticians must adjust survey responses from earlier waves before calculating average wages. For example, BLS statisticians must project how establishments that reported wages in November 2021 might have responded had they been surveyed in May 2024. While the BLS generally describes how this wage inflation adjustment is applied, the process is fundamental to understanding how mean wages are calculated and is not fully transparent to private employers.

16. One purpose of updating AEWRs from one year to the next is to account for wage inflation. It would be far better for the DOL to: (1) carefully determine appropriate AEWRs by region for a base period, and (2) use a commonly accepted measure of wage inflation, such as the Employment Cost Index to provide annual updates of the AEWRs. The DOL instead seems to be proposing that it will rely on relatively small samples of employers who are not representative of agricultural employers, and that include observations from previous waves of the survey that have been adjusted for wage inflation by BLS statisticians.

E. The new OEWS methodology artificially inflates estimates of average wages

17. In the regulatory rule published on September 3rd, the Department of Agriculture cites the adoption of an improved methodology used by the OEWS. This methodology, known as MB3, was adopted as the OEWS main approach in 2021, having been trialed over the period 2015-2020. The approach works by imputing the data for businesses within the relevant population of interest, that weren't covered by the sample, using a statistical method called "nearest neighbors". This means that imputed wages for these businesses are a weighted average of wages paid by similar firms that were covered in the sample. The results of this exercise, intended to improve the coverage and accuracy of the OEWS survey, were reported in a 2019 article for the BLS's Monthly Labor Review. Of the many statistics reported in this article, Figure 8 is striking and shows that, relative to the previous methodology, state average wage estimates are systematically higher than estimates that relied only on sampled data with no imputations. This upward bias appears to be exacerbated for more granular groups of workers, as shown in Figure 9 of the article. The updated methodology is therefore inappropriate for determining AEWRs based on relatively small samples of surveyed workers in the six occupations typically held by farm workers.

F. Average annual wage changes in the OEWS vary widely and are subject to statistical noise.

18. The OEWS wage methodology briefly described above results in annual average wage changes that can vary substantially across occupations and areas. Of primary importance for the determination of AEWRs are average wages by state and detailed occupation. An examination of OEWS data shows that year-to-year average wage changes can vary widely. I focus on two specific occupations, that are included in current AEWR calculations, and on averages reported for three states. Between 2023 and 2024:

- The average wage for Packers and Packagers:
 - decreased by 2%, from \$18.17 to \$17.80 in Pennsylvania
 - increased by 12%, from \$14.25 to \$16.00 in West Virginia
 - increased by 2%, from \$16.50 to \$16.87 in Utah

- The average wages for Farmworkers and Laborers, Crop, Nursery, and Greenhouse:
 - increased by 15%, from \$16.09 to \$18.50 in Pennsylvania
 - increased by 12%, from \$13.28 to \$14.23 in West Virginia
 - decreased by 14%, from \$17.97 to \$15.44 in Utah

19. The wage changes described above show no consistent measure of wage inflation between two related occupations in the same state, or between two states for the same occupation. The data for West Virginia is consistent with substantial wage inflation for both occupations. However, there are substantial differences in wage inflation in Utah and Pennsylvania depending on the occupation. If we were to rely on the OEWS for average wage measures for these jobs, wages dropped sharply for crop workers but not packers in Utah, while wages increased sharply for crop workers but declined for packers in Pennsylvania. It is unlikely that the wide variety of wage changes presented in the OEWS provide an accurate assessment of actual fluctuations in labor market conditions. It is much more likely that relatively small sample sizes and the adjustments and imputations of BLS statisticians are the reasons for the apparent statistical noise in year-to-year wage changes.



Stephen G. Bronars

September 22, 2025

APPENDIX A. CURRICULUM VITAE

Stephen G. Bronars, Ph.D.
Partner

Dr. Bronars is an economics and statistical expert with extensive experience in economics consulting. His work as both a testifying expert and a consultant includes the rigorous statistical analysis of hiring, pay, promotion, and reduction in force decisions while assisting clients facing allegations of discrimination in these employment decisions. Dr. Bronars has worked extensively and as both a testifying expert and consultant on a variety of wage and hour issues. He has testified on issues related to sampling and statistical methodology. In both consulting work and expert testimony, he assists clients by evaluating the accuracy and reliability of prevailing wage rate determinations. He has offered opinions on the impact of labor market competition on market wage rates including the effects of visa programs and increased employment of foreign-born workers on the wages and employment of domestic workers.

As an expert witness, Dr. Bronars analyzes data and testifies on both economic damages and class action topics involving commonality, typicality, and whether sampling methods can be used to extrapolate estimated economic damages to an entire class. He has consulted on cases involving allegations of wage suppression, alleged price fixing, the valuation of capital equipment, and alleged violations of the Fair Credit Reporting Act and the False Claims Act. In both consulting work and expert testimony, he has analyzed issues relating to class certification, sampling, statistical testing, and the estimation of economic damages and has provided guidance to clients on statistical issues in a variety of contexts.

Dr. Bronars consults with Fortune 500 clients and universities on a variety of issues including diversity initiatives, pay equity studies, as well as equity in hiring decisions, promotion decisions and retention rates. He has consulted with industry groups and businesses on the economic impact of lending regulations and acted as a consultant to businesses and industry groups on immigration policy and temporary work visas. In 2016 he testified before a Senate Subcommittee on the economic impact of the H-2B Visa Program.

His academic research focuses on the statistical analysis of a variety of labor topics including bargaining, labor market competition, discrimination, the impact of immigration, and statistical models of pay determination. He has published in many peer-reviewed journals including: *the American Economic Review*, *the Journal of Political Economy*, *the Quarterly Journal of Economics*, *Econometrica*, *the Journal of Econometrics*, *the Review of Economics and Statistics*, and *the Journal of Labor Economics*. He frequently writes and speaks on topics relating to competition in the labor market, the rigorous statistical analysis of economic data, and class certification issues.

Dr. Bronars received his PhD and MA degrees in Economics from the University of Chicago and his BA in Economics from the University of Illinois, Urbana-Champaign. Prior to his employment at Edgeworth, Dr. Bronars was the Leroy G. Denman Jr. Professor of Economics at the University of Texas at Austin and has held academic positions at the University of California-Santa Barbara, Yale University, and the Wharton School of the University of Pennsylvania. He has served on the Economics Advisory Board of the National Science Foundation and was an American Statistical Association-National Science Foundation Visiting Research Fellow at the Bureau of Labor Statistics.

EDUCATION

University of Chicago
Ph.D., Economics, 1983
M.A., Economics, 1980
University of Illinois, Urbana-Champaign
B.A., Economics, 1978

CURRENT EMPLOYMENT

Edgeworth Economics, Washington, DC
May 2015-present, Partner

EMPLOYMENT HISTORY

Welch Consulting, Washington, DC
2010 - 2015 Senior Economist, Washington D.C.
2006 - 2010 Senior Economist, Bryan TX

Georgetown University, Washington, D.C.
2010-2013 Adjunct Professor

University of Texas at Austin
2003-2009 Leroy G. Denman Jr. Regents Professor of Economics
2000-2003 Chairman, Department of Economics
1996-2000 Professor, Department of Economics
1992-1996 Associate Professor, Department of Economics

The Wharton School, University of Pennsylvania
1992 Visiting Associate Professor of Economics and Public Policy

University of California – Santa Barbara
1990-1992 Associate Professor
1986-1990 Assistant Professor

Yale University
1985-1986 Visiting Assistant Professor

Texas A&M University, College Station TX
1982-1985 Assistant Professor

HONORS AND PROFESSIONAL ACTIVITIES

American Statistical Association/National Science Foundation/Bureau of Labor Statistics
1990 Senior Research Fellow

National Science Foundation Economics Advisory Panel
1999-2001 Member

American Bar Association, Member
Labor & Employment Section
Litigation Section: Employment & Labor Relations Committee

Annual Employment Practices Liability Insurance ExecuSummit, Speaker

American Conference Institute, Continuing Legal Education, Speaker

Bridgeport, Continuing Legal Education, Speaker

Research Grant from the U.S. Department of Health and Human Services, "Job Selection and the Incidence of Unemployment Risk in the U.S. Labor Market", 1983.

Research Grant from the U.S. Department of Health and Human Services, "Demand Variability, Structural Changes in the Labor Market, and the Growth of Part-Time Employment", 1984, with D.R. Deere.

Research Grant from the U.S. Department of Commerce, "Self-Employment in the Labor Market: An Analysis of Racial and Ethnic Differences", 1986, with G.J. Borjas.

Research Grant from the Sloan Foundation, "Immigration and the Family", 1987, with G.J. Borjas.

Research Grant from the U.S. Department of Labor, "Self-Selection and Internal Migration", 1987, with G.J. Borjas and S.J. Trejo.

Principal Investigator, American Statistical Association/National Science Foundation/Bureau of Labor Statistics Fellowship Program, "Employment, Hours, and Weekly Wage Variation at the Establishment Level", 1990.

Research Grant from the National Institutes of Health, "Early Childbearing, Poverty, and Welfare Incentives", 1992, with J. Grogger.

Research Grant from the U.S. Department of Labor, "Incentive Pay, Earnings, and Information: Evidence from the National Longitudinal Survey of Youth", 1993, with C. Moore.

SELECTED RECENT PRESENTATIONS

Testimony before the Committee on the Judiciary: Subcommittee on Immigration and the National Interest, Hearing to Examine the H-2B Temporary Foreign Worker Program, June 8, 2016.

“Economic Damages and Statistical Issues in Employment Discrimination Cases,” ACI Conference, Panelist, July 28, 2016.

“Statistical Analysis of Hiring Claims,” Southern Economic Association Conference, Panelist, November 19, 2016.

“Trends in Migration and Labor Force Dynamics,” National Council of Farm Cooperatives Annual Conference, Speaker, February 7, 2018.

“A Labor Economist’s View of the Problems with AEWR,” Speaker, National Council of Agricultural Employers Annual Conference, Speaker, February 5, 2019.

“The 2019 Farm Labor Survey: More Detailed Information but AEWRs Continue to Grow,” National Council of Agricultural Employers Annual Conference, Speaker, February 5, 2020.

“Economics of No Poaching Agreements: Fundamentals of Antitrust Economics Series,” American Bar Association, Antitrust Law Section, Webinar, November 13, 2020.

“The Farm Labor Survey and AEWR: What are the Economics?” National Council of Agricultural Employers Annual Conference, Speaker, February 3, 2021.

“Evolving Legal Challenges for HR Managers in an Unprecedented Labor Market” Human Capital Institute, November 10, 2022.

“Wages Prevailing and Otherwise in the H-2A Program,” National Council of Agricultural Employers Annual Conference, Speaker, January 31, 2023.

“Ag Labor Economics 2024,” National Council of Agricultural Employers Annual Conference, Speaker, February 13, 2024.

“Issues Related to Adverse Effect Wage Rates and H-2A Visas,” National Council of Agricultural Employers Annual Conference, Speaker, February 11, 2025.

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- "Gender Pay Gap: A Problem for Contractors and Feds," *Law360*, April 23, 2014 (with A. King).
- "Legal Industry Trends: Lawyers Salaries and Job Growth," *Law360*, October 22, 2012
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