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Is the Grass Always Greener on the Other Side? An Analysis of Migration and Retention of Ohio's Working Age Population

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Abstract

Analyzing the relationship between average salary of individuals and retention rates of individuals in Ohio, this paper seeks to understand the talent migration trends among those with varying levels of education. A stark contrast is observed between the mobility of people with higher wages than those with lower wages, with a significantly higher percentage of the former leaving the state. The hypothesis suggests that earning higher wages outside of Ohio may reduce the likelihood of Ohio residents staying within the state. The research utilizes a probit regression model to estimate retention probabilities, controlling for age, whether the individual is employed, whether or not the individual was originally from the state, and whether the individual obtained a bachelor's degree. Preliminary data from the CPS, serves as the foundation for analysis. Anticipated findings suggest that higher salaries of individuals correlate with lower retention rates. The study holds substantial implications for policymakers, educators, and employers, allowing for benchmarking against states with higher rates of retention and providing insight for learning about the policies and practices of these other states, which can help Ohio policymakers implement an effective plan for increasing their own retention rate.

Introduction

The ability to attract and retain a skilled workforce is a critical factor in driving economic growth and competitiveness for any state or region. In recent years, there has been growing concern about the potential exodus of talent from the state of Ohio, particularly among individuals born within its borders. This phenomenon, often referred to as "brain drain," can have significant consequences for the state's economic development and long-term prosperity. One of the main factors believed to contribute to this talent outflow is the lure of higher incomes offered in other states. As individuals seek to maximize their earning potential and advance their careers, they may be enticed to leave Ohio in pursuit of more lucrative employment opportunities elsewhere. This raises important questions about the trade-off between competitive compensation and the retention of skilled professionals within the state.

This study aims to uncover the extent to which income levels influence the decision of Ohio-born individuals to start their careers in other states. By analyzing migration patterns and career trajectories, we seek to understand the flow of talent and the potential impact of income differentials on retention rates. If talent is indeed flowing to states that offer more competitive compensation, it becomes imperative to assess the trade-off between the costs associated with providing higher salaries and the potential loss of valuable human capital. Our central hypothesis is that greater income opportunities in other states reduce the likelihood that individuals born in Ohio will choose to remain and pursue their careers within the state's boundaries. By testing this hypothesis and examining the underlying factors that shape individuals' decisions, we can provide insights to policymakers and stakeholders on strategies to optimize the retention of talent while managing the financial resources allocated for this purpose.

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Through a comprehensive analysis of migration data, income levels, and career trajectories, this study aims to shed light on the complex interplay between compensation and talent retention in Ohio. The findings have the potential to inform policy decisions and initiatives aimed at fostering a robust and sustainable workforce, ultimately contributing to the state's long-term economic prosperity.

Literature Review

The article "Does Uncertainty Affect Graduates' Decision to Relocate for Work? Evidence at China's City Level" by Xiaoli Ding, Sang Cheng, Wenjing Qin, and Xin Gu examines the effect of economic policy uncertainty (EPU) on the choices of employment city by individuals aged 15-24 years old in China. It strives to answer whether economic uncertainty affects graduates' decision to relocate for work. The findings reveal that individuals with more economic uncertainty are more likely to stay in their hometown after obtaining a degree. The model in this study examines the factors influencing graduates' relocation decisions, particularly focusing on the impact of economic policy uncertainty on the likelihood of graduates returning to their province of origin after graduation using a logistic regression analysis. Their data consists of 46,804 graduates. The dependent variable is a dummy variable "Nonlocal_province", which is indicative of a graduate returning to the province they originated from after graduation; they assigned a value of 1 to the variable when the employment location of the graduate did not match their place of study. The explanatory variables are Economic Policy Uncertainty (EPU) and Trade Policy Uncertainty (TPU). Control variables used in this study control for individual-level characteristics (Ij), like gender, field of study, and education level, as well as for Economic Development (Ej), measured by GDP per capita, average wage, value added of tertiary industry as a proportion of GDP (%), and house price. They also control for Living Environment (Lj), through the number of international internet users and population density, Public Services (Pj), through the number of schools, and the number of hospitals, and Natural Environment (Nj), through SO_2 emissions, and garbage disposal rate.

While this literature provides valuable insights on the general effects of economic policy uncertainty, our research question more closely examines the effect of income as a primary factor on retention rates of individuals in Ohio. By narrowing the scope of the question, we can offer insights directly relevant to policymakers who are concerned with workforce development and talent retention in Ohio. Further, our research contributes to existing literature by providing information that sheds light on the factors that drive retention rates in a specific regional context. The existing study provides insights on the broader dynamics of labor market behavior, but our analysis can inform more specific policies and strategies aimed at retaining talent and fostering economic growth in Ohio. By emphasizing wage in our regression, we plan to deepen our understanding of the relationship between economic factors and retention decisions among individuals.

Data and Methodology

The data for this study was obtained from the Current Population Survey (CPS), a monthly survey conducted by the U.S. Census Bureau and the Bureau of Labor Statistics. The CPS is a valuable source of information on various demographic, economic, and labor force characteristics of the U.S. population. Specifically, the CPS dataset provided crucial information on retention rates for individuals within the state of Ohio. This data allowed us to identify individuals who were born in Ohio and whether they remained in the state or relocated to another state for employment purposes after graduating. The CPS dataset is particularly valuable for our analysis as it provides a comprehensive and nationally representative sample of the U.S. population. The survey employs a rotating panel design, with households being interviewed for four consecutive months, followed by an eight-month break, and then interviewed again for another four consecutive months. This design ensures a robust and up-to-date dataset, making it well-suited for our investigation into retention rates and the impact of income levels. By leveraging the extensive information available in the CPS dataset, we were able to construct our regression models and analyze the relationship between wage income and the likelihood of Ohio-born individuals staying in the state after graduating, while controlling for various individual characteristics.

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Table 1. Percent of individuals born in state that moved out of states.

State	Percent moving out of state (%)	State	Percent moving out of state (%)
Alabama	68.13%	Montana	49.30%
Alaska	38.39%	Nebraska	65.41%
Arizona	40.77%	Nevada	22.49%
Arkansas	61.25%	New Hampshire	39.31%
California	77.11%	New Jersey	66.00%
Colorado	37.67%	New Mexico	58.25%
Connecticut	63.41%	New York	78.66%
Delaware	46.44%	North Carolina	51.53%
Florida	45.19%	North Dakota	57.18%
Georgia	52.18%	**Ohio**	**78.27%**
Hawaii	61.77%	Oklahoma	59.81%
Idaho	41.92%	Oregon	45.00%
Illinois	75.68%	Pennsylvania	74.90%
Indiana	68.34%	Rhode Island	60.51%
Iowa	70.23%	South Carolina	53.25%
Kansas	58.23%	South Dakota	57.74%
Kentucky	66.63%	Tennessee	55.32%
Louisiana	79.40%	Texas	66.37%
Maine	61.07%	Utah	61.60%
Maryland	49.81%	Vermont	48.57%
Massachusetts	68.60%	Virginia	48.87%
Michigan	82.30%	Washington	48.35%
Minnesota	68.61%	West Virginia	64.23%
Mississippi	70.08%	Wisconsin	72.17%
Missouri	65.82%	Wyoming	0.00%

According to Table 1, an alarming 78.22% of individuals are moving out of Ohio. This out-migration rate ranks among the highest in the nation and is particularly high when compared to other states in the Midwestern region. For instance, neighboring states such as Indiana (61.77%), Illinois (75.68%), Wisconsin (72.19%), Missouri (65.82%), and Kansas (58.23%) all exhibit lower percentages of their populations leaving, painting a stark contrast with Ohio's situation. While a few states, like New York (78.66%), North Carolina (78.47%), and Delaware (83.41%), have slightly higher out-migration rates than Ohio, the state's numbers are still cause for significant concern, especially within the context of the Midwest. Michigan (82.39%), the only Midwestern state with a higher out-migration rate than Ohio, is only marginally higher at 82.39%.

The high rate of individuals leaving Ohio raises important questions about the factors driving this exodus and the potential consequences for the state's economic development and competitiveness. One potential factor contributing to this trend could be the pursuit of better employment opportunities and higher incomes elsewhere, as hypothesized in our research. If talented individuals are leaving Ohio in search of more lucrative career prospects in other states or regions, it could lead to a depletion of human capital and a shortage of skilled workers in critical industries. This brain drain phenomenon could hamper Ohio's ability to attract and retain businesses, stifling economic growth and innovation.

Furthermore, the loss of a significant portion of the state's population could have ripple effects on various sectors, including housing, consumer spending, tax revenue, and public services. As individuals leave, it could lead to a decline in demand for housing, reduced consumer spending, and decreased tax revenue for the state, potentially impacting the quality of public services and infrastructure. While the reasons behind Ohio's high out-migration rate are likely multifaceted and complex, the data presented in this study serves as a call to action for policymakers and stakeholders in the state. Addressing this issue and implementing strategies to retain talent and foster a vibrant workforce should be a top priority to ensure Ohio's long-term economic resilience and competitiveness.

To further investigate the causality between wage and out-migration, we use a probit model that predicts the likelihood that an individual will stay in Ohio after graduating. We ran separate probit models for all 50 US states. Our β_1 value is wage for each individual. We plan to compare the wage value of individuals born in Ohio that stayed in Ohio with the wage value of individuals born in Ohio that left Ohio.

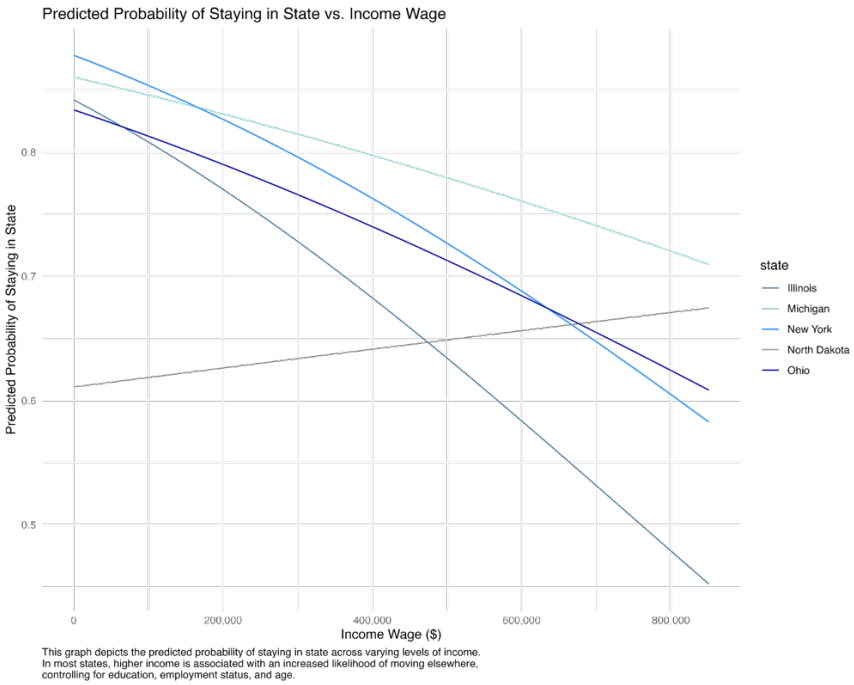
The control variables include: (1) Age, (2) Employed or unemployed (dummy), (3) Born in state or not born in state (dummy), and (4) Obtained a bachelor's degree or not (dummy). We ran one probit model regression for each of the 50 states, emphasizing how Ohio compares to other states. The regression is as follows:

$$stay\_in\_state = \beta 0 + \beta 1 * wage + \beta 2 * age + \beta 3 * employed + \beta 4 * born\_in_{state} + \beta 5 * bachelors$$

Results

The regression results revealed that the effect of wage on the likelihood of staying in a state varied across different states. To quantify and compare these effects, we calculated the average marginal effects (AMEs) of wage for each state. The AMEs represent the average change in the predicted probability of staying in a state associated with a one-unit increase in wage, averaged across all observations.

Figure 1. Predicted Probability of Staying in State vs. Income Wage



The regression results suggest that for most states, particularly those with large population centers and metropolitan areas, such as Ohio, New York, Michigan, and Illinois, higher incomes tend to be more predictive of individuals moving out of the state. This pattern aligns with the hypothesis that the availability of more lucrative employment opportunities elsewhere serves as a pull factor, enticing talented individuals to leave their home states in pursuit of higher-paying jobs and career advancement. However, an interesting contrast emerges when examining states like North Dakota, where higher wages seem to be associated with a higher likelihood of individuals staying within the state. This divergence from the broader trend observed in densely populated states may be attributable to the distinct economic landscape and industry composition of states like North Dakota.

Figure 1, which compares states with industry compositions comparable to Ohio, provides further context. States with major urban agglomerations and diverse economic bases, such as Ohio, New York, Michigan, and Illinois, exhibit a higher tendency for individuals to move out of state when they gain higher incomes. This phenomenon could be driven by the intense competition for talent and the widespread availability of job opportunities across various sectors in these states. In contrast, the positive relationship between higher wages and retention rates observed in sparsely populated states like North Dakota may be linked to the dominance of specific industries, such as energy or natural resources extraction. These industries often offer competitive salaries and may have a more concentrated geographic footprint within the state boundaries. As a result, individuals in these industries may find it advantageous to remain in

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the state, as higher wages are likely to be accompanied by fewer alternative employment options outside the state that offer comparable compensation.

Additionally, the cost of living and quality of life factors could play a role. In densely populated states with major urban centers, higher incomes may be offset by higher living costs, prompting individuals to seek better opportunities elsewhere. Conversely, in less populated states like North Dakota, higher wages may translate to a more substantial improvement in living standards, incentivizing individuals to stay.

Table 2. Regression Results for Midwestern States

Dependent Variable: Stay in Ohio			
Variables	**Coefficients**		
	Estimates	Z-value	
Wage	-8.17E-07	-13.78	***
BachelorDeg	-0.29	-37.32	***
Employed	0.12	7.71	***
Age	-0.0016	-3.74	***
Dependent Variable: Stay in Indiana			
Variables	**Coefficients**		
	Estimates	Z-value	
Wage	-6.93E-07	-8.5	***
BachelorDeg	-0.25	25.6	***
Employed	0.13	6.9	***
Age	-0.0023	-4.38	***
Dependent Variable: Stay in Michigan			
Variables	**Coefficients**		
	Estimates	Z-value	
Wage	-6.22E-07	-8.88	***
BachelorDeg	-0.26	-28.97	***
Employed	0.12	7.04	***
Age	-0.0014	2.82	**
Dependent Variable: Stay in Illinois			
Variables	**Coefficients**		
	Estimates	Z-value	
Wage	-1.32E-06	-29.84	***
BachelorDeg	-0.4	-53.97	***
Employed	0.14	8.83	***
Age	0.00067	1.6	
Dependent Variable: Stay in North Dakota			
Variables	**Coefficients**		
	Estimates	Z-value	
Wage	2.01E-07	0.886	
BachelorDeg	0.0041	0.151	
Employed	0.11	1.881	
Age	0.0075	5.028	***

The regression results provide insights into the factors influencing the retention rates of individuals in several Midwestern states, including Ohio, Indiana, Michigan, Illinois, and North Dakota. In Ohio, the coefficient for wage is -8.17E-07 and highly significant (z-value = -43.78), indicating that higher wages are associated with a lower probability of individuals staying in the state. This negative relationship between wage and retention supports our hypothesis that higher income opportunities elsewhere may entice individuals to leave Ohio in pursuit of better-paying jobs. The coefficients for having a bachelor's degree (-0.029) and being employed (-0.12) are also negative, suggesting that more educated and employed individuals are less likely to stay in Ohio.

A similar pattern is observed in Indiana, Michigan, and Illinois, where the wage coefficients are negative and statistically significant at the 1% level. In Indiana, a higher wage decreases the likelihood of staying (-6.93E-07), while in Michigan (-6.22E-07) and Illinois (-1.32E-06), the negative effect of wage on retention is even more pronounced. Interestingly, in North Dakota, the wage coefficient is positive (2.01E-07) but statistically insignificant,

implying that higher wages do not have a significant impact on the retention rates in this state. This could be due to unique economic factors or industry dynamics in North Dakota that may influence individuals' decisions to stay or leave. The coefficients for having a bachelor's degree are positive and significant for Ohio, Indiana, and Michigan, suggesting that individuals with higher educational attainment are more likely to stay in these states. However, in Illinois, the coefficient for bachelor's degree is negative (-0.4), indicating that more educated individuals are less likely to remain in the state.

Employment status also plays a role, with being employed generally associated with a higher likelihood of staying in Ohio, Michigan, and North Dakota, as indicated by the positive coefficients. However, in Indiana and Illinois, the coefficients for employment status are negative, albeit statistically insignificant. Age appears to have a mixed impact across the states, with older individuals being more likely to stay in Ohio and Michigan (positive coefficients), but less likely to stay in Indiana and Illinois (negative coefficients). In North Dakota, age has a positive and significant effect on retention rates.

Conclusion

The findings indicate a significant relationship between income levels and the likelihood of individuals staying in Ohio. Across most states, the likelihood of individuals moving elsewhere is associated with higher incomes, which suggests that individuals with higher wages are more inclined to leave Ohio. Our regression analysis, a probit model conducted using the data from the Current Population Survey (CPS) reveals that earning higher wages negatively impacts the probability of individuals staying in state. This trend remains after controlling for other factors of the individual such as age, employment status, state of origin, and education attainment.

The analysis of the predicted probability of staying in-state across varying levels of income reveals insights into talent retention across different states. While the general trend in Ohio, Illinois, Michigan, Indiana, and New York indicates that higher incomes are associated with an increase in likelihood of moving elsewhere, an exception is observed in North Dakota. Contrary to the trend in the other states, North Dakota reveals an association between higher incomes of individuals and their decreased likelihood of moving elsewhere. Higher-earning individuals in North Dakota are more likely to stay in state, possibly due to job opportunities, favorable economic conditions, or quality of life factors that haven't been controlled for in our regression.

While our regression provides insight into the relationship between income levels and retention rates among individuals in Ohio and other states, it is important to acknowledge the limitations of our study. The presence of omitted variable bias, additional factors not controlled in our regression that could influence migration patterns, could lead to biased estimates and potentially misleading conclusions about the true association between income and retention. Despite these limitations, the implications of these findings are important for policymakers and employers in Ohio. Understanding the factors that influence talent retention is crucial for workforce planning efforts and the state's economic development. With further analysis of the influence of income on migration patterns, strategies can be targeted to retain and attract talent which fosters the economic growth and competitiveness of Ohio.

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