



Occupation-Education Mismatch Among the Immigrant Community

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Content

- Motivation
 - Research Questions
 - Data
 - Methods
 - Results
 - Conclusion & Future Work
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Motivation

- Immigrants often experience a negative gap in terms of wages and labor force participation during the year of migration. This gap narrows over time (Borjas, 2015, etc.).
 - In 2022, immigrants accounted for 17.2% of the U.S. labor force, with 34.70% holding at least a college degree. But a significant wage disparity persists despite their qualifications.
 - Literature defines occupation-education mismatch as college graduates working in a job that is not related to their highest degree.
 - Goldin et. al., 2017 argue that the gender wage gap widens with age, marriage, and parenthood, especially among college graduates and in less flexible sectors.
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Motivation - continued

- Some majors have higher probabilities of mismatch than others depending on the occupation skills taught.
- Majors with the highest probabilities of mismatch are English and foreign languages, social sciences, and liberal arts (Robst, 2007a).
- The probability of mismatch in those majors has continued.

Employment Distribution by occupational group, 2021

Occupational group	English	Foreign Language	Liberal Arts	Occupational group	Computer & Information Technology
Educational instruction & library occupations	21%	21%	19%	Computer & mathematical occupations	46%
Management occupations	16%	17%	15%	Management occupations	15%
Office & admin support occupations	9%	9%	10%	Office & admin support occupations	4%
Business & financial operations occupations	9%	9%	9%	Business & financial operations occupations	8%
Sales & related occupations	9%	7%	8%	Sales & related occupations	4%
Legal occupations	-	-	-		-
Other	36%	37%	38%	Other	22%

Note: The sum of percent by major may not total 100 due to rounding.
Source: U.S. Census Bureau, American Community Survey



Research Questions

1. Is the occupation-education mismatch more pronounced among immigrants?
 2. Does holding a domestic degree decrease the probability of mismatch?
 3. When we control for occupation mismatch, is the estimated immigrant-native wage gap smaller?
 4. Is the wage penalty different for immigrant men versus immigrant women?
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Data

- We use pooled cross-sectional Data.
 - From the National Survey of College Graduates (NSCG) from 2003, 2013, 2015, 2017, 2019, and 2021.
 - Our estimation sample includes individuals aged 22 to 64 who were actively employed as full-time workers at the time of the survey and reported an hourly wage above the federal minimum wage.
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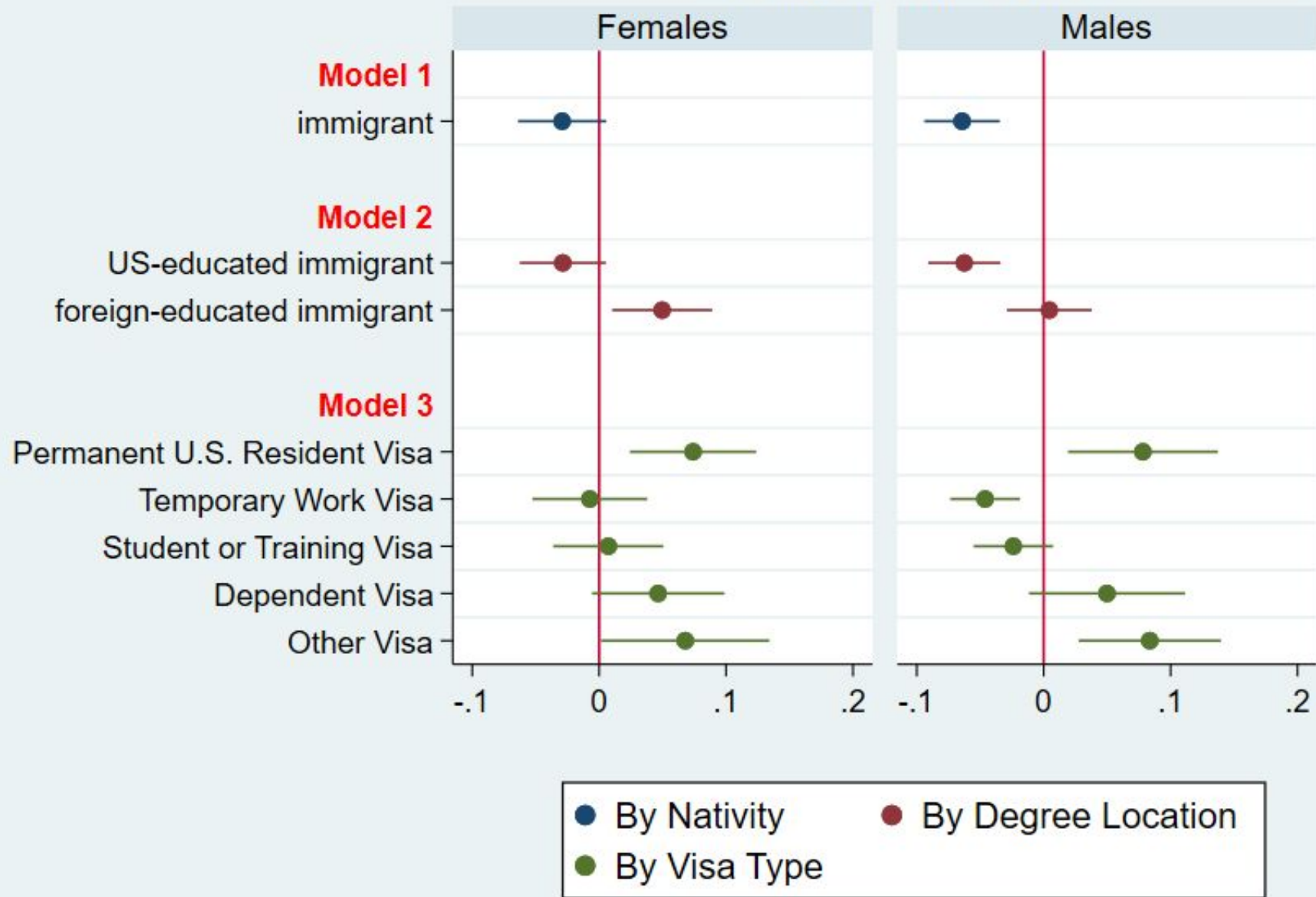
Multinomial Logit Regression Analysis

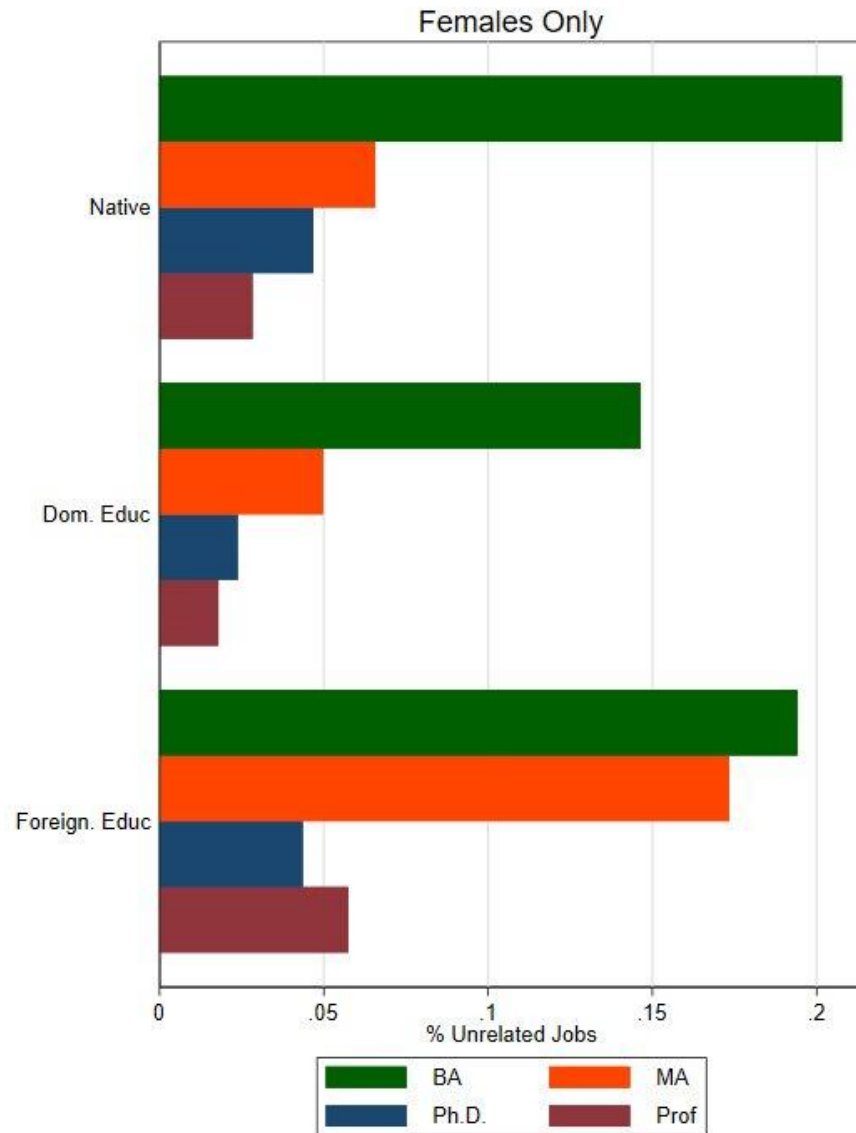
- We estimate a multinomial logit model to estimate the probability of working in an unrelated job

$$\Pr(\text{Mismatch})_{it} = \alpha_0 + \alpha_{immus}immusdegree_i + \alpha_{immfor}immforeigndegree_i + \alpha_x X_{it} + \alpha_{dad}dad_i + \alpha_{mom}edmom_i + \lambda_f + \eta_t + \epsilon_{it}$$

- $\Pr(\text{Mismatch})$ is the probability of mismatch for individual i .
 - The main independent variables are $immusdegree_i$ and $immforeigndegree_i$ set equal to one if individual i is an immigrant with a domestic degree and an immigrant with a foreign degree, respectively.
 - Other control variables X_{it} include demographic (race, Hispanic, age as a third-order polynomial, education, year since migration squared), family (married, number of children, child under 6), parental education.
 - Fixed effects for birthplace, region, degree fields, and year.
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Probability of Working in an Unrelated Job (Horizontal) Average Marginal Effects





- Native females with bachelor degrees have the highest percentage of working in an unrelated job.
- Foreign-educated female immigrants with a bachelor's and master's degree have a much higher probability of working in an unrelated job.
- Foreign-educated female immigrants with a professional degree demonstrate a much higher percentage of working in an unrelated job than both native females and domestically educated immigrant females.

Reasons for Accepting an Unrelated Job

Females	Native	U.S.-Educated	Foreign-Educated
Pay, promotion opportunities	0.281	0.237	0.112
Working Conditions	0.104	0.119	0.071
Job Location	0.071	0.058	0.113
Change in Career	0.194	0.145	0.176
Family-related	0.104	0.108	0.230
Job in highest degree field unavailable	0.187	0.223	0.189
Other Reason	0.059	0.109	0.109
Observations	11,709	1,043	1,082

Ordinary Least Square Regression Analysis

- We use an Ordinary Least Square regression to estimate the wage effects of a mismatch.

$$\begin{aligned} lsalary_{it} = & \alpha_0 + \alpha_{immus}immusdegree_i + \alpha_{immfor}immforeigndegree_i + \alpha_RRelated_{it} \\ & + \alpha_{Rimmus}Related_{it} \cdot immusdegree_i + \alpha_{Rimmfor}Related_{it} \cdot immforeigndegree_i \\ & + \alpha_x \cdot X_{it} + \gamma_b + \delta_r + \lambda_f + \eta_t + \epsilon_{it} \end{aligned}$$

- $lsalary_{it}$ is the probability of mismatch for individual i .
 - Other control variables X_{it} include demographic (race, Hispanic, age as a third-order polynomial, education, year since migration squared), family (married, number of children, child under 6), parental education.
 - Fixed effects for birthplace, region, degree fields, and year.
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Table 2: OLS Regression, Log Annual Salary

	Women		Men	
	(1)	(2)	(3)	(4)
US-educated immigrant	-0.1386*** (0.0145)	-0.1777*** (0.0131)	-0.1006*** (0.0111)	-0.1394*** (0.0100)
Foreign-educated immigrant	-0.2420*** (0.0133)	-0.2677*** (0.0120)	-0.1311*** (0.0093)	-0.1610*** (0.0084)
Not Related	-0.1770*** (0.0043)	-0.1649*** (0.0043)	-0.2334*** (0.0039)	-0.2001*** (0.0038)
US-educated imm.×Not Related	-0.1380*** (0.0192)	-0.1040*** (0.0174)	-0.0753*** (0.0161)	-0.0579*** (0.0145)
Foreign-educated imm.×Not Related	-0.2529*** (0.0166)	-0.1599*** (0.0150)	-0.2254*** (0.0136)	-0.1071*** (0.0124)
Occupation Control	No	Yes	No	Yes
Observations	117,870	117,870	160,129	160,129
R-squared	0.3159	0.4455	0.3627	0.4840



Conclusion

- Immigrant women, primarily those who earned their degree abroad, are more likely to report working in an unrelated job compared to native women.
 - Potential reasons for the higher mismatch probability among immigrant women are that they largely accept unrelated jobs for family reasons. The reasons for accepting an unrelated job may also be influenced by their reasons for migrating to the U.S. and their visa types.
 - We find an overall wage penalty for complete mismatches, with complete mismatches enduring a larger wage penalty. Immigrant men and women experience a larger mismatch in wage penalty, which results in the widening of the immigrant-native wage gap.
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Limitations & Future Work

- **Limitations**

- We only examine skilled legal immigrants, so our results may not represent the experiences of all immigrants.
 - Wage effects of a mismatch may differ for unskilled or less-educated immigrants.

Future Work

- Identify driving factors causing occupation-education mismatch
 - Heterogeneous effects: Does the probability of being mismatched vary when we look at STEM or certified workers?
 - Are there regional differences where mismatch is more prevalent?
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**Thank You
Questions?**

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