

Modeling Post-Study Work Pathways: H-1B, OPT, and CPT under Policy Shock

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Abstract

Proposals to raise H-1B visa filing fees to USD 100,000 represent a potential structural shock to the post-study employment ecosystem in the United States. This study integrates official USCIS H-1B DataHub records from 2015 to 2023 with employer datasets for Optional Practical Training (OPT) and Curricular Practical Training (CPT) to simulate cost elasticity and employer adaptation. The results indicate that a substantial fee increase could lead to an approximately 20 percent decline in H-1B applications, partially offset by an 8 to 12 percent increase in OPT and CPT participation. Employers in the technology, finance, and consulting sectors display notable adaptability, maintaining workforce continuity despite the higher cost environment.

Data and Methodology

The analysis draws on three complementary data sources. The first is the USCIS H-1B DataHub (2015–2023), which provides petition approvals and denials. The second is an OPT employer dataset compiled by UnitedOPT (2024), representing Fortune 500 companies that employ international graduates under temporary authorization. The third is a CPT-friendly employer dataset from Day-1 CPT Universities. These data sources were harmonized through a Python-based workflow implemented in *prepare.py*, which standardizes employer names, ensures numeric consistency, and constructs a Flexibility Index measuring employer adaptability across visa categories. The simulation model in *simulation.py* applies elasticity coefficients to estimate proportional changes in application volume resulting from fee increases. Interactive visualization and sensitivity analysis are available through the Streamlit dashboard implemented in *app.py*.

Results

Descriptive analysis indicates persistent demand for high-skilled foreign labor between 2015 and 2023, despite fluctuations in approval rates. Under the modeled scenario of a USD 100,000 filing fee and assuming elasticity equals to 0.3, H-1B applications are projected to decrease by approximately 90 percent. Employers exhibiting greater flexibility—specifically those also participating in OPT and CPT programs—compensate for this decline by reallocating employment through temporary authorization channels. The most adaptive sectors remain technology and finance where consulting remains the largest sponsor but faces greater adjustment risks. The simulation suggests that the overall employment ecosystem does not contract but instead undergoes structural adjustment to maintain talent inflows.

Policy Implications

The findings support a differentiated policy approach that balances fiscal objectives with innovation sustainability. First, a tiered H-1B fee structure calibrated to employer size or wage levels could maintain equity and competitiveness across sectors. Second, extending the STEM-OPT duration from 36 to 48 months would provide greater continuity between visa cycles. Third, expanding cap-exempt categories to include universities, nonprofit organizations, and research institutions would protect critical knowledge sectors from potential labor shortages.

Conclusion

The integrated simulation demonstrates that increasing H-1B filing fees would not eliminate the demand for international talent but would redistribute employment across H-1B, OPT, and CPT programs. The results highlight the need for a balanced, data-driven policy framework that combines moderate fee adjustments with extended training and expanded cap-exempt provisions. Such an approach is essential to sustaining the United States' leadership in innovation, research, and higher education.