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“Mapping Career Adaptability” by Alireza Javadian Sabet

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Abstract:

The skills students and workers acquire shape their careers in the labor market, and skilled workers are central to the productivity and innovative capacity of the U.S. economy. Therefore, it is essential to understand which skills colleges and universities actually teach, how those skills shape career opportunities, and how employers find talent when domestic education does not keep up with labor demand. This question has become more urgent as generative artificial intelligence increasingly performs white-collar skills and as changes in U.S. visa policy reshape access to high-skill talent. This dissertation constructs a national, longitudinal map of curricular content from more than three million U.S. syllabi. I use these data to study how AI-exposed skills vary across degree programs and universities. But describing what programs teach is only a first step. It does not show how those skill profiles matter once graduates enter the labor market. To examine how skill profiles matter after graduation in the period surrounding the launch of ChatGPT, I connect degree-program skill profiles with large-scale resume data. I show that unemployment risk in LLM-exposed occupations rose in early 2022, before ChatGPT, and that graduates from the 2021-2023 cohorts entered exposed jobs at lower rates than earlier cohorts. Yet educational exposure to AI-related skills did not become less valuable. Graduates from programs with greater exposure earned higher first-job pay and reached their first jobs more quickly in the post-ChatGPT period. These patterns suggest that adaptation depends not only on what workers study, but also on how broadly their trajectories connect to future opportunities. I address that question by developing *Career Space*, a text-based model that represents educational and career trajectories from millions of observed transitions. Career Space outperforms existing embedding baselines in predicting held-out transitions, placing 75.7% of true transitions in the top decile of candidates. Its trajectory-based measure of compatibility also shows that skill bundles such as complex problem solving and social skills are associated with wider sets of occupational opportunities. Career opportunities depend not only on the skills workers build, but also on how employers find talent and where that talent contributes to knowledge



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production. Domestic education is one source of skilled labor, but skilled immigrants already make up a substantial share of the U.S. innovation workforce. I therefore extend the analysis from skill formation and career adjustment to the international movement of talent. Using individual career histories, I show that return migration depends in part on the institutional conditions workers face in their countries of origin, including women's empowerment. Migrants are less likely to return when those institutions offer weaker support for opportunity and advancement, and women are especially responsive to those conditions. These migration patterns matter because skilled migrants also shape where scientific output is produced. Immigrants and returnees publish more than comparable non-migrants from the same origin countries, showing that migration decisions redistribute human capital, knowledge, and innovative capacity across borders.

Taken together, this dissertation follows skills from the classroom into careers and across borders, showing how they create opportunity, how they can be measured, and why they differ across fields, demographic groups, and institutional settings. The findings provide educators with benchmarks for curriculum redesign, policymakers with evidence to better align education, reskilling, and immigration policy, and new ways to identify and cultivate adaptable talent in a labor market increasingly shaped by generative artificial intelligence and global competition for skilled workers.

Keywords: Generative Artificial Intelligence; Skill Formation; Future of Work; Workforce Adaptability; Curricular Content; Global Talent Mobility