Executive Summary:

How Vulnerable Are American Communities to Automation, Trade, & Urbanization?

Background

Labor market changes in the United States have led to significant social, economic and political turbulence over the past two decades. Wage and occupational polarization, static or declining real wages, a 30 percent decline in manufacturing employment and stark differences in regional economic outcomes provide the sense that some people and places are flourishing, while others struggle.

These changes do not suggest trade, urbanization or workplace automation fail to yield benefits, but rather suggest that these economic and technological phenomena have very stark distributional effects. Thus, some places and people observe robust benefits, while others observe primarily costs. This has important economic, social, and political implications. We believe neither the research nor policy discussion has been adequate to these challenges awaiting us, and so construct this report to draw the attention of state and local policymakers across the United States to these concerns.
The Study

In this study, we combine and extend several recent studies and conclude that the factors contributing to this period of economic, social and political unease are likely to continue in the coming decades. We summarize some of our own research suggesting that decades of state and local policies have failed to mitigate these trends, leaving many communities unready for the myriad effects of urbanization, workplace automation and offshoring of jobs.

We begin by mapping two factors: risk of automation and offshoring job losses at the county level in the United States. See Figures 1 and 2. These figures illustrate the very strong regional concentration of potential automation and trade job losses facing American communities. We include regional maps in a separate Appendix document.

These studies reveal that roughly one in four American jobs, across the income and educational spectrum, are at risk of foreign competition in the coming years. Much more critically, approximately half of the jobs are at risk for automation. Thus, considerable additional labor market turbulence is likely in the coming generation.

More worrisome, perhaps, is that there is a considerable concentration of job loss risks across labor markets, educational attainment and earnings. This accrues across industries and is more pronounced across urban regions, where agglomeration economies have concentrated all net new employment in the US for a generation. Indeed, much of the political rhetoric surrounding these job loss risks misses the major policy worries. Job loss risk to offshoring is spread across income and education, while automation risk is concentrated among low-wage, low-skilled workers. Both types of job loss risk are concentrated within labor markets (which we define as a county and all adjacent counties), and urban places tend to offer more resilience due to existing forces of agglomeration. See Figures 3-4.

Indeed, we find almost no income-related differences in offshoring job loss risk, but much income-related automation risk. The

![Figure 1](https://example.com/fig1.png)

**Figure 1. US Relative Automation Risk to Employment**
*Source: Frey and Osborne, 2017 and authors’ calculations*

![Figure 2](https://example.com/fig2.png)

**Figure 2. US Relative Offshorability Risk to Employment**
*Source: Blinder, 2009 and authors’ calculations*
...quintile of workers with the lowest automation risk make on average $84,000 per year, while workers with the highest 10 percent of automation related job loss risk make less than $38,000 per year. See Figure 5.

The distributional effects of job loss risk to automation, offshoring and changes to the intra-national distribution of employment is highly correlated with existing employment patterns. There are also concerns across social measures such as income distribution and inter-generational mobility. See Figure 6.

Implications

The impacts of job losses on household formation and family dynamics are important. There is reasonable worry that economic instability makes it more difficult for already disadvantaged families to provide necessities, like education fees, transportation, food and safe housing. This, in turn, will manifest itself in increased negative educational outcomes and risk to children and families, with damages accruing to populations already at greater risk.

We acknowledge a large federal policy apparatus in place to deal with these job losses, but point out significant gaps in effectiveness. For example, recent studies on the effect of foreign trade exposure suggest that traditional Trade Adjustment Assistance comprises less than five percent of federal expenditures allocated to workers displaced by trade.

At the state and local level, the broad focus of policy, especially in the most at-risk counties, has been on attracting footloose employers, which have comprised a vanishingly small share of job creation over the past half century. We argue here, as we have elsewhere, that state and local economic development policies largely misapprehend the challenges, and misapply resources to address employment and population declines.

We also challenge fellow researchers to offer more and better analysis of these challenges. We need to better understand the impacts of economic shocks to households and regions in order to better inform economic, fiscal, and social policy towards mitigating the ill effects of trade, automation, and agglomeration, while preserving the many benefits these trends will have on future generations.

In the end, we argue that more rapid or geographically concentrated labor market shocks may not accompany equally robust labor markets. If the social and political discomfort of the past decade and a half occurred during one of the largest labor market expansions in history, less robust economic conditions offer a much more disquieting forecast. ∞